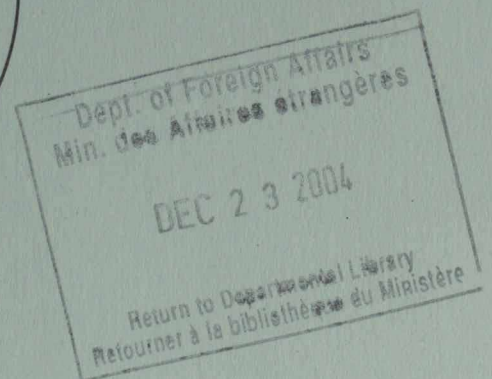


CONFERENCE ON DISARMAMENT

# CHEMICAL WEAPONS

WORKING PAPERS OF THE  
Ad Hoc COMMITTEE ON CHEMICAL WEAPONS 1992

**CD/CW/WP**  
**VOLUME**  
**2**



COMPILED AND EDITED BY:  
ARMS CONTROL AND DISARMAMENT DIVISION OF  
EXTERNAL AFFAIRS AND INTERNATIONAL TRADE CANADA  
OTTAWA, CANADA

NOVEMBER 1993





CONFERENCE ON DISARMAMENT

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## WORKING PAPERS OF THE Ad Hoc COMMITTEE ON CHEMICAL WEAPONS 1992

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This volume covers working papers tabled in the Ad Hoc Committee on Chemical Weapons (AHCCW) during its 1992 sessions from 20 January 1992 to 26 August 1992. The volume is compiled to facilitate discussions and research on the issue of Chemical Weapons.

Not all numbered working papers from the AHCCW have been reproduced here. Some papers were also tabled in plenary and given a CD/number. These can be found in the appropriate annual volumes for plenary official documents (Working Papers and other papers were of such transitory nature that they were not included in procedural matters) that they were tabled in.

Volume 1 includes CD/CW/WP.375 to CD/CW/WP.401; Volume 2 CD/CW/WP.402 to CD/CW/WP.461.

Note that the index is a chronological listing while the documents themselves are arranged in numerical order by CD/CW/WP number.

**CD/CW/WP  
VOLUME  
2**

COMPILED AND EDITED BY:  
ARMS CONTROL AND DISARMAMENT DIVISION OF  
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Chemical Weapons Working Papers  
Submitted to AHCCW of the CD 1992  
Chronological Index

1992

VOLUME 1

Serial	Reference	Country	Description	Date
553.1	CD/CW/ WP.379	AHCCW	Report of the Ad Hoc Committee on Chemical Weapons to the Conference of States Parties on its work during the period 20 Septe- mber 1991 to 20 January 1992	20.1.92
			<b>PREFACE</b>	
			<b>CD/CW/WP</b>	
			<b>VOLUME 2</b>	

This volume covers working papers tabled in the Ad Hoc Committee on Chemical Weapons (AHCCW) during its 1992 sessions from 20 January 1992 to 26 August 1992. The volume is compiled to facilitate discussions and research on the issue of Chemical Weapons.

Not all numbered working papers from the AHCCW have been reproduced here. Some papers were also tabled in plenary and given a CD/number. These can be found in the appropriate annual volumes for plenary official documents (WP). Other papers were of such transitory importance (relating mainly to procedural matters) that they have not been reproduced.

Volume 1 includes CD/CW/WP.379 to CD/CW/WP.401; Volume 2 CD/CW/WP.402 to CD/CW/WP.441.

Note that the index is a chronological listing while the documents themselves are arranged in numerical order by CD/CW/WP number.

554	CD/1132	Algeria	Some information on dis- posed chemical weapons abandoned in China by a foreign state (also issued as CD/CW/WP.384 and Corr.1)	19.2.92
555	CD/1132	Algeria	Trial inspection of a Schedule 2/other relevant facility (also issued as CD/CW/WP.385)	20.2.92





**Chemical Weapons Working Papers  
Submitted to AHCCW of the CD 1992  
Chronological Index**

1992

VOLUME 1

<b>Serial</b>	<b>Reference</b>	<b>Country</b>	<b>Description</b>	<b>Date</b>
553.1	CD/CW/ WP.379	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 September 1991 to 20 January 1992 (Not Reproduced)	20.1.92
554.1	CD/CW/ WP.380	AHCCW Chairman	Working paper presented by the Chairman of the Ad Hoc Committee: Organization of work for the 1992 session (Not Reproduced)	23.1.92
555.1	CD/CW/ WP.381	USA	A report on the United States chemical weapons (CW) destruction experience at Rocky Mountain Arsenal, Colorado	14.2.92
555.2	CD/CW/ WP.382	USA	Johnston Atoll Chemical Agent Disposal System (JACADS)	14.2.92
555.3	CD/CW/ WP.383 and Add.1	USA	United States Chemical Weapons (CW) destruction safety and environmental requirements	14.2.92
557	CD/1127 and Corr.1	China	Some information on discovered chemical weapons abandoned in China by a foreign state (also issued as CD/CW/WP.384 and Corr.1)	18.2.92
558	CD/1128	Austra- lia	Trial inspection of a Schedule 3/other relevant facility (also issued as CD/CW/WP.385)	20.2.92



Serial	Reference	Country	Description	Date
559	CD/1129	Australia	Australian national secretariat: Survey of chemical industry (also issued as CD/CW/WP.386)	20.2.92
560	CD/1130	China	Principled position and proposals on the issue of abandoned chemical weapons (also issued as CD/CW/WP.387)	20.2.92
563	CD/1135	Hungary	Provision of data relevant to the Chemical Weapons Convention (also issued as CD/CW/WP.388)	24.2.92
564	CD/1136	Czech and Slovak Federal Republic	Protection against chemical weapons (data bank of available basic means) (also issued as CD/CW/WP.389)	27.2.92
566	CD/1141	France	Provision of data relevant to the Chemical Weapons Convention (also issued as CD/CW/WP.390)	3.3.92
567.1	CD/CW/ WP.391	AHCCW Chairman	Article IX: Procedure for challenge inspections	12.3.92
568	CD/1146	Poland	Solid-phase extraction as a possible way of chemical warfare agents sampling for their analysis in laboratories under the Chemical Weapons Convention (also issued as CD/CW/WP.392)	17.3.92
568.1	CD/CW/ WP.393	Islamic Republic of Iran	Verification of the chemical industry under Article VI and its Annexes	26.3.92

Serial	Reference	Country	Description	Date
568.2	CD/CW/ WP.394	AHCCW Chairman	Chairman's tentative out- line of work until the end of June 1992 (Not reproduced)	3.4.92
568.3	CD/CW/ WP.395	AHCCW Chairman	Protocol on inspection procedures: Part III - Challenge inspections conducted pursuant to Article IX	30.4.92
568.4	CD/CW/ WP.396	Austria	The selection of gas chromatographic phase systems for verification analysis	30.4.92
568.5	CD/CW/ WP.397	Austria	Old chemical weapons: description of a long-term storage facility under safe conditions	5.5.92
568.6	CD/CW/ WP.398	Austra- lia, Belgium, Canada, France, Germany, Italy, Japan, Nether- lands, UK, USA	Other relevant facilities	13.5.92
568.7	CD/CW/ WP.399	Germany	Cooperation of signatory states with the Prepara- tory Commission	18.5.92
568.8	CD/CW/ WP.400	AHCCW Chairman	Working paper for the final phase of the negoti- ations on the Chemical Weapons Convention	18.5.92
568.9	CD/CW/ WP.400 and Corr.1	AHCCW Chairman	Working paper for the final phase of the negoti- ations on the Chemical Weapons Convention	25.5.92
568.10	CD/CW/ WP.401	Switzer- land and Sweden	Anatomy of a chemical plant site	29.5.92



VOLUME 2

Serial	Reference	Country	Description	Date
568.11	CD/CW/ WP.402	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	The preamble	4.6.92
568.12	CD/CW/ WP.403	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article I: General provi- sions on scope	4.6.92

Serial	Reference	Country	Description	Date
568.13	CD/CW/ WP.404	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article II: Definitions and criteria	4.6.92
568.14	CD/CW/ WP.405	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Abandoned chemical weapons (proposed amendments to CD/CW/WP.400)	4.6.92

569	CD/1152	Spain	Report on a trial chal- lenge inspection (also issued as CD/CW/WP.410)	5.6.92
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Serial	Reference	Country	Description	Date
568.15	CD/CW/ WP.406	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article VI: Activities not prohibited under the Con- vention	4.6.92
568.16	CD/CW/ WP.407	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Guidelines for schedules of chemicals	4.6.92



Serial	Reference	Country	Description	Date
568.17	CD/CW/ WP.408	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article IX: Consultations, cooperation and fact-find- ing	4.6.92
568.18	CD/CW/ WP.409	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article XI: Economic and technological development	4.6.92
569	CD/1152	Spain	Report on a trial chal- lenge inspection (also issued as CD/CW/WP.410)	5.6.92

Serial	Reference	Country	Description	Date
569.1	CD/CW/ WP.411	Cuba	Aspects and principles of a system for funding the budget of the future Organization for the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction	5.6.92
570	CD/1153	Norway	Letter dated 11 June 1992 from the Charge d'affaires a.i. of Norway addressed to the President of the Conference on Disarmament, transmitting a research report, entitled 'Verification of a Chemical Weapons Convention: recommended operating procedures for sampling and sample handling, Part XI' (also issued as CD/CW/WP.412)	11.6.92
570.1	CD/CW/ WP.413	AHCCW Chairman	Tentative outline of work until the end of this year's session of the Conference on Disarmament (3 September 1992) (Not Reproduced)	15.6.92
571.1	CD/CW/ WP.400/ Rev.1	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	22.6.92
572.1	CD/CW/ WP.414	AHCCW Chairman	Explanatory note on the draft Chemical Weapons Convention contained in document CD/CW/WP.400/Rev.1	26.6.92



Serial	Reference	Country	Description	Date
572.2	CD/CW/ WP.415	Algeria, China, Egypt, India, Indone- sia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Preliminary comments on the Chairman's draft (CD/CW/WP.400/Rev.1)	26.6.92
573.8	CD/CW/ WP.423			
573.9	CD/CW/ WP.424			
573.10	CD/CW/ WP.425			
573.11	CD/CW/ WP.416	Cuba	Basic considerations con- cerning the functions, general structure and qualifications of the staff of the Technical Secretariat and the Advis- ory Board of the new in- ternational organization to be established to ensure compliance with the provisions of the Conven- tion on the Prohibition of the Development, Produc- tion, Stockpiling and Use of Chemical Weapons and on their Destruction	22.7.92

Serial	Reference	Country	Description	Date
573.2	CD/CW/ WP.417	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Proposed joint amendments to CD/CW/WP.400/Rev.1	24.7.92
573.3	CD/CW/ WP.418	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Proposed additional amend- ment to Article II	27.7.92
573.4	CD/CW/ WP.419	Russian Feder- ation	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92
573.5	CD/CW/ WP.420	Cuba	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92
573.6	CD/CW/ WP.421	Peru	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92



Serial	Reference	Country	Description	Date
573.7	CD/CW/ WP.422	Austria	Results of a trial identification of 'capable facilities' in Austria	4.8.92
573.8	CD/CW/ WP.423	Austria	Proposal for the identification of 'capable facilities' within the framework of the Chemical Weapons Convention	4.8.92
573.9	CD/CW/ WP.424	Islamic Republic of Iran	Ethanolamines	4.8.92
573.10	CD/CW/ WP.425	Islamic Republic of Iran	Definition of chemical weapons	4.8.92
574	CD/1161	USA	Letter dated 3 August 1992 from the Representative of the United States of America addressed to the President of the Conference on Disarmament transmitting the Agreement between the Department of Defense of the United States of America and the President's Committee on Conventional Problems of Chemical and Biological Weapons of the Russian Federation of the Russian Federation concerning the Safe, Secure and Ecologically Sound Destruction of Chemical Weapons (also issued as CD/CW/WP.426)	5.8.92
574.1	CD/CW/ WP.427	AHCCW Chairman	Amendments to CD/CW/WP.400/Rev.1	7.8.92

Serial	Reference	Country	Description	Date
574.2	CD/CW/ WP.400/ Rev.2	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	10.8.92
578	CD/1168	UK	Letter dated 12 August 1992 from the Representative of the United Kingdom of Great Britain and Northern Ireland addressed to the Secretary-General of the Conference on Disarmament transmitting a paper which addressed the requirements for safety during the on-site inspections provided for under the Chemical Weapons Convention (also issued as CD/CW/WP.428)	13.8.92
578.1	CD/CW/ WP.429	Netherlands	Workshop on chemical weapons for potential inspectors to the Organization for the Prohibition of Chemical Weapons (OPCW), Rijswijk, The Netherlands (16-24 June 1992)	14.8.92
578.2	CD/CW/ WP.430	Netherlands	Verification of non-production of chemical warfare agents	14.8.92
578.3	CD/CW/ WP.431	Mexico	Working paper containing the statement of the delegation of Mexico at the meeting of the Ad Hoc Committee on Chemical Weapons to consider document CD/CW/WP.400/Rev.2	21.8.92



Serial	Reference	Country	Description	Date
578.4	CD/CW/ WP.432	Cuba	Comments on the draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, as contained in document CD/CW/WP.400/Rev.1	21.8.92
578.5	CD/CW/ WP.433	Pakistan	Statement by Ambassador Ahmad Kamal, Permanent Representative of Pakistan, before the Ad Hoc Committee on Chemical Weapons on 21 August 1992	21.8.92
578.6	CD/CW/ WP.434	Egypt	Statement of H.E. Ambassador Dr. Mounir Zahran, Permanent representative of Egypt, before the Ad Hoc Committee on Chemical weapons of the Conference on Disarmament on 21 August 1992	21.8.92
578.7	CD/CW/ WP.435	Islamic Republic of Iran	Statement by H.E. Ambassador Sirous Nasserri on the position of the Islamic Republic of Iran on the Chemical Weapons Draft Convention at the Ad Hoc Committee of Chemical Weapons on 21 August 1992	21.8.92
578.8	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	24.8.92

Serial	Reference	Country	Description	Date
579	CD/1169	Norway	Letter dated 24 August 1992 from the Representative of Norway addressed to the Secretary-General of the Conference on Disarmament, transmitting a report entitled 'Transport of samples containing chemical warfare agents by air' (also issued as CD/CW/WP.437)	24.8.92
579.1	CD/CW/ WP.438	USA	Statement made by Ambassador Stephen J. Ledogar of the United States of America at the Ad Hoc Committee on Chemical Weapons on 24 August 1992	24.8.92
580.1	CD/CW/ WP.439	Ethiopia	Statement made by the representative of Ethiopia at the Ad Hoc Committee on Chemical Weapons on 26 August 1992	26.8.92
580.2	CD/CW/ WP.440	Peru	Statement made by the Representative of Peru at the Ad Hoc Committee on 26 August 1992	26.8.92
580.3	CD/CW/ WP.441	France	Statement made by Ambassador Gerard Errera of France at the Ad Hoc Committee on 26 August 1992	26.8.92

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The following documents of the AHCCW, which do not contain any substantive material or are draft reports, are not reproduced but are listed here for identification:

Serial	Reference	Country	Description	Date
553.1	CD/CW/ WP.379	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 September 1991 to 20 January 1992 (Not Reproduced)	20.1.92
554.1	CD/CW/ WP.380	AHCCW Chairman	Working paper presented by the Chairman of the Ad Hoc Committee: Organization of work for the 1992 session (Not Reproduced)	23.1.92
568.2	CD/CW/ WP.394	AHCCW Chairman	Chairman's tentative outline of work until the end of June 1992 (Not reproduced)	3.4.92
570.1	CD/CW/ WP.413	AHCCW Chairman	Tentative outline of work until the end of this year's session of the Conference on Disarmament (3 September 1992) (Not Reproduced)	15.6.92
571.1	CD/CW/ WP.400/ Rev.1	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	22.6.92
574.2	CD/CW/ WP.400 Rev.2	AHCCW	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not Reproduced)	10.8.92

Serial	Reference	Country	Description	Date
578.8	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	24.8.92
553.1	CD/CW/ WP.436	AHCCW	Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament for the period 1991 to 30 January 1992 (Not reproduced)	24.8.92
554.1	CD/CW/ WP.436	AHCCW	Working paper presented by the Chairman of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament for the 1992 session (Not reproduced)	24.8.92
558.2	CD/CW/ WP.436	AHCCW	Chairman's tentative out- line of work until the end of 1992 (Not reproduced)	24.8.92
570.1	CD/CW/ WP.436	AHCCW	Chairman's tentative out- line of work until the end of 1992 (Not reproduced)	24.8.92
571.1	CD/CW/ WP.436	AHCCW	Chairman's tentative out- line of work until the end of 1992 (Not reproduced)	24.8.92
574.2	CD/CW/ WP.436	AHCCW	Chairman's tentative out- line of work until the end of 1992 (Not reproduced)	24.8.92









# CONFERENCE ON DISARMAMENT

CD/CW/WP.402  
4 June 1992

ENGLISH ONLY

Ad Hoc Committee on Chemical Weapons

## Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

## THE PREAMBLE

GE.92-61679

PREAMBLE

The States Parties to this Convention.

Determined to act with a view to achieving effective progress towards general and complete disarmament under strict and effective international control, including the prohibition and elimination of all types of weapons of mass destruction.

Desiring to contribute to the realization of the purposes and principles of the Charter of the United Nations.

Recalling that the General Assembly of the United Nations Organization has repeatedly condemned all actions contrary to the principles and objectives of the Protocol for Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925,

Recognizing that the Convention reaffirms principles and objectives of and obligations assumed under the Geneva Protocol of 17 June 1925, and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction signed at London, Moscow and Washington on 10 April 1972.

Bearing in mind the objective contained in Article IX of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,

Determined for the sake of all mankind, to completely exclude the possibility of the use of chemical weapons, through the implementation of the provisions of this Convention, thereby complementing the obligations assumed under the Geneva Protocol of 17 June 1925,

Considering that the achievements in the field of chemistry should be used exclusively for the benefit of mankind,

Emphasizing the need to expedite and strengthen the flow of technology and technological know-how and to ensure free-trade in the field of chemistry in order to promote development of all nations,

Convinced that the complete and effective prohibition of the development production, stockpiling and use of chemical weapons, and their destruction, represents a necessary step towards the achievement of these common objective,

Have agreed as follows:









# CONFERENCE ON DISARMAMENT

CD/CW/WP.403  
4 June 1992

ENGLISH ONLY

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Ad Hoc Committee on Chemical Weapons

Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

ARTICLE I

GENERAL PROVISIONS ON SCOPE

ARTICLE I  
GENERAL PROVISIONS ON SCOPE

1. Each State Party to this Convention undertakes never under any circumstances :

(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone ;

(b) To use chemical weapons;

(c) To engage in any military preparations or conduct other activities for the use of chemical weapons ;

(d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.

2. Each State Party undertakes to destroy chemical weapons which are in its possession within its territory and in the territory of another State Party, or under its jurisdiction or control in accordance with the provisions of this Convention.

3. Each State Party undertakes to destroy all chemical weapons it abandoned on the territory of another State Party. In fulfilling this obligation, the State Party which abandoned chemical weapons should consult with the State Party on whose territory they are located.

4. Each State Party undertakes to destroy any chemical weapons production facilities it owns or possesses, or that are located in any place under its jurisdiction or control, in accordance with the provisions of this Convention.

5. Each State Party undertakes not to use herbicides, law enforcement and riot control agents as a method of warfare; such a prohibition should not preclude any other use for purposes not prohibited under this Convention.\*!

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\*! All other references to riot control agents in CD/CW/WP.400 will be deleted consequent to this provision.









# CONFERENCE ON DISARMAMENT

CD/CW/WP.404

4 June 1992

ENGLISH ONLY

Ad Hoc Committee on Chemical Weapons

## Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

## ARTICLE II

### DEFINITIONS AND CRITERIA

GE.92-61681

ARTICLE II

DEFINITIONS AND CRITERIA

For the purpose of this convention:

1. "Chemical Weapons" means the following, together or separately:

(a) Toxic Chemicals, their precursors and key components of binary or multicomponent chemical systems, except where intended for purposes not prohibited under this Convention, as long as the types and quantities involved are consistent with such purposes;

(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals, as referred to above, which would be released as a result of the employment of such munitions and devices; ~~or~~

(c) Any equipment specifically designed for use directly in connection with the employment of such munitions or devices specified in subparagraph (b) of this paragraph.

2. "Toxic Chemical" means:

Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production and, regardless of whether they are produced in facilities, in munitions or elsewhere.

3. "Precursor" means:

A chemical reactant which takes part at any stage in the production by whatever method of a toxic chemical.

For the purpose of implementing this Convention, toxic chemicals and their precursors which have been identified for monitoring are listed in Schedules contained in the Annex on Chemicals.

4. (a) "Old Chemical weapons" means:

Chemical weapons which were produced before 1925, or chemical weapons produced between the period of 1925 and 1946 which have been determined by the Technical Secretariat to have deteriorated to such extent that they can no longer be used as chemical weapons.

(b) "Abandoned chemical weapons" means:

Chemical weapons, including old chemical weapons, which have been abandoned by a State after 1 January 1925 on the territory of another State without the consent of the latter.



5. 4. "Chemical Weapons Production Facility":

(a) Means any equipment, as well as any building housing such equipment, that was designed, constructed or used at any time since 1 January 1946:

(i) As part of the stage in the production of chemicals ("final technological stage") where the material flows would contain, when the equipment is in operation:

(1) Any chemical listed on Schedule 1 in the Annex on Chemicals (hereinafter referred to as "Schedule 1 chemical"); or

(2) Any other chemical that has no use, above one tonne per year in the territory or in any other place under the jurisdiction or control of the State Party, for purposes not prohibited under this Convention, but can be used for chemical weapons purposes; or

(ii) For filling chemical weapons, including, inter alia, the filling of Schedule 1 chemicals into munitions, devices or bulk storage containers; the filling of scheduled chemicals into containers that form part of assembled binary munitions and devices or into chemical submunitions that form part of assembled unitary munitions and devices, and the loading of the containers and chemical submunitions into the respective munitions and devices;

(b) Does not mean:

(i) Any facility having a production capacity for synthesis of chemicals specified in sub-subparagraph (a) (i) of this paragraph that is less than one tonne;

(ii) Any facility in which a chemical specified in sub-subparagraph (a) (i) of this paragraph is or was produced as an unavoidable by-product of activities for purposes not prohibited under this Convention, provided that the chemical does not exceed three per cent of the total product and that the facility is subject to declaration and inspection under the Annex on Implementation and Verification (hereinafter referred to as "Verification Annex"); or

(iii) The single small-scale facility for production of Schedule 1 chemicals for purposes not prohibited under this Convention as referred to in the Verification Annex.



6. 5. "Purposes not prohibited under this Convention" means:

(a) Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes; domestic law enforcement and riot control purposes; and military purposes not connected with the use of chemical weapons;

(b) Protective purposes, namely those directly related to protection against chemical weapons.

7. 6. "Production Capacity" means:

The annual quantitative potential for manufacturing a specific substance based on the technological process actually used or, if the process is not yet operational, planned to be used at the relevant facility. It shall be deemed to be equal to the nameplate capacity or, if the nameplate capacity is not available, to the design capacity. The nameplate capacity is the product output under conditions optimized for maximum quantity for the production facility, as demonstrated by one or more test-runs. The design capacity is the corresponding theoretically calculated product output.

8. 7. "Organization" means the Organization for the Prohibition of Chemical Weapons established pursuant to Article VIII of this Convention.

9. 8. "Production" of a chemical means its formation through chemical reaction.

10. 9. "Processing" of a chemical means a physical process, such as formulation, extraction and purification, in which a chemical is not converted into another chemical.

11. 10. "Consumption" of a chemical means its conversion into another chemical via a chemical reaction.



KEY COMPONENT

FOR INCLUSION IN THE ANNEX ON IMPLEMENTATION AND VERIFICATION

"Key component of binary or multicomponent chemical systems for chemical weapons" means a component which poses a special risk to the objectives of the convention as it can be an integral part in a chemical weapons munition or device and can form toxic chemicals at the moment of their employment and possesses the following characteristics:

- (a) reacts (interacts) rapidly with other component(s) of binary or multicomponent chemical system during the munitions's flight to the target and gives a high yield of final toxic chemical;
- (b) plays an important role in determining the toxic properties of the final product;
- (c) may not be used, or be used only in minimal quantities, for permitted purposes;
- (d) possesses the stability necessary for long-term storage.











# CONFERENCE ON DISARMAMENT

CD/CW/WP.405  
4 June 1992

ENGLISH ONLY

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Ad Hoc Committee on Chemical Weapons

## Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

## ABANDONED CHEMICAL WEAPONS

(proposed amendments to CD/CW/WP.400)

GE.92-61682

Page 8, Article I

\* Add a new para. 3:

3. Each State Party undertakes to destroy all chemical weapons it abandoned on the territory of another State Party. In fulfilling this obligation, the State Party which abandoned chemical weapons should consult with the State Party on whose territory they are located.

Page 10, Article II

\* Add a new para. 4:

4. (a) "Old chemical weapons" means:

.....

(b) "Abandoned Chemical weapons" means:

Chemical weapons, including old chemical weapons, which have been abandoned by a State after 1 January 1925 on the territory of another State without the consent of the latter.

Page 12, Article III

\* Take out para. 1. (e) and 1. (f), and make them into a new para. 2:

2. With respect to old chemical weapons and abandoned chemical weapons:

(a) Declare whether it has on its territory old chemical weapons or abandoned chemical weapons, in accordance with Part IV (B) of the Verification Annex;

(b) Declare whether it has abandoned chemical weapons on the territory of other States, in accordance with Part IV (B) of the Verification Annex.



Pages 14 and 15, Article IV

\* 1. ...., except old chemical weapons and abandoned chemical weapons to which only Part IV (B) of the Verification Annex applies.

\* 9. ....; or in the case of old chemical weapons and abandoned chemical weapons, as provided for in Part IV (B) of the Verification Annex.

Pages 92 - 94, Verification Annex Part IV (B)

\* The title should be changed into:

OLD CHEMICAL WEAPONS AND ABANDONED CHEMICAL WEAPONS

\* Add a new paragraph between para. 6 and para.7:

- For those old chemical weapons produced after 1925 which are abandoned chemical weapons, they shall be dealt with and destroyed in accordance with the regime for abandoned chemical weapons.

\*Sub-paragraphs 12. a) and 12. b) remain unchanged.

\* Add a new sub-paragraph 12. c):

12. c) For the purpose of destroying abandoned chemical weapons, the Abandoning State shall provide all necessary financial, technical, expert, facility as well as other resources. The Territorial State shall provide appropriate cooperation.

\* Delete old sub-paragraph 12. c), sub-paragraph 12. d) and paragraph 13.











# CONFERENCE ON DISARMAMENT

CD/CW/WP.406

4 June 1992

ENGLISH ONLY

## Ad Hoc Committee on Chemical Weapons

### Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

### ARTICLE VI

#### ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION

ARTICLE VI

ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION

1. Each State Party:
  - (a) Has the right, subject to the provisions of this Convention, to develop, produce, otherwise acquire, retain, transfer and use toxic chemicals and their precursors for purposes not prohibited under this Convention;
  - (b) Shall ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred, or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention.
2. Each State Party shall subject toxic chemicals and their precursors listed in Schedules 1, 2A and 2B of the Annex on Chemicals, and facilities that produce, process or consume these toxic chemicals or precursors and chemicals contained in schedule 3 and facilities which produce these chemicals as well as, other facilities as specified in the verification Annex, that are located in its territory or in any other place under its jurisdiction or control, to international monitoring as provided in the Verification Annex.
3. Each State Party shall subject Schedule 1 chemicals and facilities specified in Part VI of the Verification Annex to the measures contained in that Annex.
4. Each State Party shall subject chemicals listed in Schedules 2A and 2B and facilities specified in Parts VII of the Verification Annex to monitoring by data reporting and international on-site verification through routine inspection or random selective inspection in accordance with that Annex.
5. Each State Party shall subject chemicals in schedule 3 and their facilities as well as other facilities specified in part VIII of the verification Annex to monitoring by data reporting and international on-site verification through random selective visits in accordance with that Annex.
6. Not later than 30 days after the entry into force of the Convention for it, each State Party shall declare data on relevant chemicals and facilities in accordance with the Verification Annex.
7. Each State Party shall make annual declarations regarding the relevant chemicals and facilities in accordance with the Verification Annex.
8. For the purpose of on-site verification, each State Party shall grant to the inspectors access to facilities as required in the Verification Annex.



9. In conducting verification activities, the Technical Secretariat shall avoid undue intrusion into the State Party's chemical activities for purposes not prohibited under this Convention and, in particular, abide by the provisions set out in the Annex on the Protection of Confidential Information (hereinafter referred to as "Confidentiality Annex").

10. The provisions of this Article shall not hamper the economic or technological development of States Parties and international co-operation in the field of chemical activities for purposes not prohibited under this Convention, including the international exchange of scientific and technical information and chemicals and equipment for the production, processing, consumption or use of chemicals for purposes not prohibited under this Convention.

## PART VII

### ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION IN ACCORDANCE WITH ARTICLE VI

#### REGIME FOR CHEMICALS ON SCHEDULE 2 PARTS A AND B AND FACILITIES RELATED TO SUCH CHEMICALS

##### A. DECLARATIONS

The initial and annual declarations to be provided by a State Party under paragraphs 6 and 7 of Article VI will be made for the facilities on the basis of plant site, and shall include:

##### Declaration of aggregate national data

1. Aggregate national data on the quantities produced, processed, consumed, imported and exported of each chemical listed in Schedule 2 in the previous calendar year, as well as the quantitative specification of import and export for each country involved.

##### General provisions on the declaration of facilities

2. Declarations are required for

(a) All facilities that produced, processed or consumed during any of the previous three years or are anticipated to produce, process or consume in the next year more than one tonne of a chemical listed in Schedule 2A or more than 100kg of a chemical listed in schedule 2B, or more than 1 kg of a chemical designated "\*" in the Annex on chemicals.

(b) Facilities that produced at any time since 1 January 1946 a chemical in Schedule 2 for chemical weapon purposes.

3. Declarations are not required for formulations of schedule 2 products containing a low concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this convention.

##### Declaration on past activities

4. For each facility declarations shall include the following information on Schedule 2



chemicals as well as on the facility itself:

Chemicals (s)

- (a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;
- (b) The total amount produced, processed, consumed, imported and exported in the previous calendar year or, in the case of the initial declaration as required in Article VI, paragraph 5, in each of the three previous calendar years;
- (c) The purpose (s) for which the chemical (s) were produced, consumed or processed:
  - (i) Processing and consumption on site (specify product type);
  - (ii) Sale or transfer within the country (specify, if to other domestic industry, trader or other destination with an indication, if possible, of final product type);
  - (iii) Direct export (specify which country);
  - (iv) Other - specify.

Facility

- (d) The name of the plant site and the name of the owner, company, or enterprise operating the plantsite, and the precise location of the plantsite (including the address);
- (e) For all plants within the declared plantsite that produced, processed or consumed during any of the previous three years or are anticipated to produce, process or consume in the next year more than one tonne of a chemical listed on Schedule 2A, or more than 100kg of a chemical listed in schedule 2B;
  - (i) The name of the plant and the owner, company, or enterprise operating the plant;
  - (ii) The precise location of the plant (including the location of the plant within the plantsite including specific building or structure number, if any).
- (f) The main orientation (purpose) of each plant specified in sub paragraph 4 (e) above;
- (g) Whether each plant is dedicated to producing, processing or consuming the listed

chemical or is multi-purpose:

- (h) The production capacity of each plant for the declared Schedule 2 chemical (s):
- (i) Which of the following activities are performed with regard to the Schedule 2 chemical (s):
  - (i) Production;
  - (ii) Processing;
  - (iii) Consumption;
  - (iv) Other - specify (e.g. storage).

Notification of anticipated activities

5. The notification relating to anticipated activities as required in paragraph 2 shall follow the same format as provided for in the preceding paragraph. In addition, the anticipated time period (s) of production, processing or consumption are to be specified.

Past production of chemicals on Schedule 2 for chemical weapons purposes

6. Declarations required under subparagraph 2 (b) above shall include the following information:

- (a) The chemical name, common or trade name used by the facility for chemical weapon production purposes, structural formula, and Chemical Abstracts Service registry number, if assigned;
- (b) The dates the chemical was produced and the quantity produced;
- (c) The location to which the chemical was delivered and the final product produced there (if known).

Procedural provisions

7. Each State Party shall submit, when the Convention enters into force for it,:

- (a) Initial declarations not more than 30 days later (Article VI, paragraph 6) on past and anticipated activities;
- (b) Subsequent annual declarations relating to past activities not later than 31 March for the preceding calendar year, starting in the year which follows the year of entering into force;



(c) Subsequent annual notifications relating to anticipated activities not later than 31 October for the following calendar year. Subsequently planned notifiable activities in the same reporting year shall be notified not later than five days before this additionally planned activity begins.

#### Information to States Parties

8. The list of facilities declared under this Section together with the information provided under subparagraphs 4 (a), (d), (e) and 6(a), (b) (c), shall be provided by the Technical Secretariat to the States Parties, which request such information, within 30 days after declarations have become due.

### B. VERIFICATION

#### General

9. International on-site verification provided for in paragraph 4 of Article VI shall, under this Section, be carried out by the Technical Secretariat through on-site inspections of those declared facilities which produced, processed or consumed during any of the previous three years or are anticipated to produce, process or consume in the next year more than 10 tonnes of a chemical listed in Schedule 2A or more than 1 tonne of a chemical listed in schedule 2B, or more than 10 kg of a chemical designated "\*" in the Annex on Chemicals.

10. Declarations are not required for formulations of schedule 2 products containing a low concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this convention.

11. The draft programme and budget of the Organization to be submitted by the Executive Council pursuant to Article VIII, subparagraph 27(a) shall contain, as a separate item, a draft programme and budget for verification under this Section. Sixty percent of the resources available for verification under part VII and VIII of the Verification Annex shall be devoted to verification under this Annex.

(a) Perform initial inspections of declared facilities in accordance with paragraph 10 below;

(b) Following the initial inspection, designate whether routine inspection or random selective inspection shall be applied for subsequent inspections, in accordance with paragraphs 17 and 18 below.

(c) Conduct subsequent inspections in accordance with the procedures set out in this Annex.



### Initial inspections

12. Each facility specified in paragraph 9 above shall receive an initial inspection as soon as possible but preferably not later than three years after entry into force of the Convention. Facilities declared after this period should receive an initial inspection not later than one year after production, processing or consumption is first declared. Selection of facilities shall be made by the Technical Secretariat in such a way as to preclude the prediction of precisely when the facility is to be inspected.

### Selection

#### A. General

13. Pursuant to the completion of the initial inspection, the Technical Secretariat shall designate the facility for routine inspection or random selective inspection, in accordance with the guidelines set out in paragraph 16 of this Annex.

14. Having received the initial inspection, and designation, each facility specified in paragraph 9 shall be subject to on-site inspections, according to the procedures designated for that facility.

15. In selecting particular facilities for inspection, the Technical Secretariat shall:

- (a) Give due consideration to the risk to the objectives of this Convention posed by the relevant chemical, the characteristics of the facility and the nature of the activities carried out there;
- (b) Choose the particular facility to be inspected in such a way as to preclude the prediction of precisely when the facility is to be inspected;
- (c) Not inspect a particular facility more than twice per year.

16. In designating particular facilities for either routine inspection or random selective inspection the Technical Secretariat shall take into account the following guidelines:

- (a) Guidelines related to the listed chemical:
  - (i) Toxicity of the intermediates or end-products;
- (b) Guidelines related to the facility
  - (i) Production capability;



- (ii) Capability and convertability for initiating production, storage and filling of toxic chemicals.
- (iii) Quantity of Schedule 2 chemicals stored on-site;
- (iv) Quantity of feedstock chemicals for Schedule 2 chemicals stored on site;
- (v) Location of the plant site and infrastructure for transportation

#### B. Procedure

17. Pursuant to paragraph 16 of this Annex, each facility designated by the Technical Secretariat for routine inspection, shall be subject to systematic on-site inspection. The number, intensity, duration, timing and mode of inspection and if appropriate, monitoring with on-site instruments shall be based on the guidelines outlined in paragraph 16 of this Annex.

Selection of the facilities for inspection will be done in such a way that the prediction of timing of the inspection is precluded.

18. The Technical Secretariat shall select the facilities not covered by the paragraph 17 above for on-site inspection on a random selective basis. The mechanism of random selective procedure shall be set out in such a manner that increase the probability of selection of the facilities which pose more risk to the objectives of the convention. The particular facility to be inspected shall be selected in such a way to preclude the prediction of precisely when the facility is to be inspected.

#### Inspection aims

19. The general aim of inspections shall be to verify that activities are in accordance with obligations under this Convention and consistent with the information provided in declarations on facilities. Particular aims of inspections at facilities declared under Section A shall include verification of:

- (a) Facilities declared under this Annex are not used to produce any chemical listed in Schedule 1;
- (b) Consistency with declarations of levels of production, processing or consumption of Schedule 2 chemicals;
- (c) Chemicals listed in Schedule 2 are not diverted or used for purposes prohibited under this Convention.

Inspection procedures

20. Inspections shall be carried out in accordance with agreed guidelines and other relevant provisions of verification Annex and the confidentiality Annex.

21. Each state party shall execute an agreement, based on a model agreement, with the organization, within 3 months after the completion of the initial inspection governing the conduct of inspections of the facilities declared by the State Party. The agreements shall specify for each facility the number, intensity, duration of inspections, detailed inspection procedures and if applicable, installation, operation, and maintenance of on-site instruments by the Technical Secretariat. The draft Model Agreements and facility agreements shall be prepared by the preparatory commission, endorsed by the conference of the states parties.

22. The areas of a facility to be inspected may, inter alia, include:

- (i) areas where feed chemicals (reactants) are delivered and/or stored;
- (ii) areas where manipulative processes are performed upon the reactants prior to addition to the reaction vessel;
- (iii) feed lines as appropriate from subparagraph (i) and/or subparagraph (ii) to the reaction vessel, together with any associated valves, flow meters, etc.;
- (iv) the external aspect of the reaction vessel and its ancillary equipment;
- (v) lines from the reaction vessels leading to long or short term storage or for further processing of the designated chemical;
- (vii) equipment and areas for waste and effluent handling;
- (viii) equipment and areas for disposition of off-specification chemicals.

23. Access to the records will be provided, as appropriate, to provide assurance that there has been no overproduction or diversion of the declared chemical.

C. Notification of inspection

24. A state party shall be notified by the Technical Secretariat of the decision to inspect a facility not less than 72 hours prior to the arrival of the inspection team at the site.



PART VIII

ACTIVITIES NOT PROHIBITED UNDER THE  
CONVENTION IN ACCORDANCE WITH ARTICLE VI

REGIME FOR CHEMICALS ON SCHEDULE 3, FACILITIES RELATED TO SUCH  
CHEMICALS, AND FACILITIES CAPABLE OF PRODUCING SCHEDULED CHEMICALS

A. DECLARATIONS

The initial and annual declarations to be provided by a State Party under paragraphs 6 and 7 of Article VI will be made for the Facilities on the basis of plant, and shall include:

Declarations of aggregate national data

1. Aggregate national data for the previous calendar year on the quantities produced, imported and exported of each chemical listed in Schedule 3, as well as a quantitative specification of import and export for each country involved.
2. Such quantities shall be calculated on the basis of the threshold specified in paragraph 3 (a) below.

General provisions on the declarations of facilities

3. Declarations are required for all:
  - (a) Facilities that produced during the previous year or are anticipated to produce in the next year more than 30 tonnes of a chemical listed in Schedule 3;
  - (b) Facilities that produced at any time since 1 January 1946 a chemical on Schedule 3 for chemical weapons purposes;
  - (c) Facilities which produce more than 30 tonnes of each chemical specified in part IX of the Verification Annex.
4. Declaration are not required for formulations of schedule 3 products containing a low concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the realtive ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this convention.

Declarations on past activities

5. Declarations required under subparagraph 3 (a) above shall include the following information on the Schedule 3 chemical:

(a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The approximate amount of production of the chemical in the previous calendar year, expressed in the ranges: 30 to 100 tonnes specified to the nearest 10 tonnes, 100 tonnes to 1,000 tonnes specified to the nearest 100 tonnes, and above 1,000 tonnes specified to the nearest 1,000 tonnes; and

(c) The purpose (s) for which the chemical was produced.

6. Declarations required under subparagraph 3 (b) above shall include the following information:

(a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The dates the chemical was produced and the quantity produced;

(c) The location to which the chemical was delivered and the final product produced there, if known.

7. Declarations required under subparagraphs 3 (a), (b) and (c) shall include the following information for the facilities:

(a) The name of the plant and of the owner, company, or enterprise operating the plant;

(b) The name of the plantsite in which the plant is located and the name of the owner, company, or enterprise operating the plantsite;

(c) The precise location of the plant (including the address, location of the plantsite, location of the plant within the plantsite including the specific building or structure number, if any);

(d) Within the plantsite, the number of plants which are declared under Part VII of this Annex;



#### Notifications of anticipated activities

8. The notifications relating to anticipated activities as required in paragraph 3 shall follow the same format as provided for in paragraphs 5 to 7.

#### Procedural provisions

9. Each State Party shall submit, when the Convention enters into force for it:

(a) Initial declarations not more than 30 days later (Article VI, paragraph (6)) on past and anticipated activities;

(b) Subsequent annual declarations relating to past activities not later than 31 March for the preceding calendar year, starting in the year which follows the year of entering into force;

(c) Subsequent annual notifications relating to anticipated activities not later than 31 October for the following calendar year. Subsequently planned notifiable activities in the same reporting year shall be notified not later than five days before this additionally planned activity begins.

#### Information to States Parties

10. The list of all facilities declared under this Section together with the information provided under subparagraphs 5 (a), 7 (a) and (c) and 6 (a), (b), (c) shall be transmitted by the Technical Secretariat to State Parties which request such information within 30 days after the declarations have become due.

### B. VERIFICATION

#### General

11. International on-site verification provided for in paragraph 4 of Article VI shall be carried out by the Technical Secretariat through on-site visits at facilities declared under Section A:

(a) Producing in excess of 300 tonnes aggregate of any Schedule 3 chemical above the declaration threshold of 30 tonnes; and

(b) producing more than 500 tonnes of each chemical specified in part IX of the Verification Annex.

12. Declarations are not required for formulations of schedule 3 products containing a low

concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this convention.

13. The draft programme and budget of the Organization to be submitted by the Executive Council pursuant to Article VIII, paragraph 27 (a), shall contain, as a separate item, a draft programme and budget for verification under this section. Forty percent of the resources available for verification under parts VII and VIII of the verification Annex, shall be devoted to verification under this Annex.

14. The random selection of facilities for general surveillance of data and random selective visit shall be conducted by the Technical Secretariat through appropriate mechanisms, including the use of specially designed computer software.

15. Under this Section, the maximum number of visits to be received by a State Party shall not exceed three plus five per cent of the number of specific declarations by it under Section A, or 15 visits whichever is the lower.

16. No facility shall receive more than two visits per year under the provisions of this Section.

#### Verification aims

17. At facilities declared under Section A, the general aim of inspections shall be to verify that activities are consistent with the information provided in declarations.

#### Verification procedures

18. The visits from the facilities shall be carried out in accordance with agreed guidelines and other relevant provisions of the Verification Annex and the Confidentiality Annex.

19. The areas of a facility to be visited may include:

- (i) Identification of exact location of the facility (geographical coordinates).
- (ii) Observation of storage area and storage vessels.
- (iii) Observation of production line.
- (iv) Observation of waste treatment facilities and the means of disposal.

20. The inspection team may be provided access to records in situations in which the inspection team and the inspected state party agree that such access will assist in achieving the objectives of the inspection.



21. Sampling and on-site analysis may be undertaken to check for the absence of undeclared scheduled chemicals. In case of unresolved ambiguities, samples may be analysed in an accredited off-site laboratory, subject to the inspected party's agreement;

22. The period of inspection shall not last more than 24 hours, however, extension may be agreed between the inspection team and the inspected state party.

C. Notification of Inspection

23. A state party shall be notified by the Technical Secretariat of the decision to inspect a facility not less than 120 hours prior to the arrival of the inspection team at the site.

## PART IX

### Definition of Capable Facility

Capable facility is any facility which:

1. Is capable of producing organic chemicals containing the elements of phosphorous, fluorine, and sulfur or those involving the processes of phosphorylation, fluorination or sulfuration identical to those chemicals included in Schedule 1 as well as Schedule 2 chemicals;
2. Has the same process equipment and machinery as for the Schedule 2 chemicals;
3. Has the same process equipment layout as for production of Schedule 2 chemicals.









# CONFERENCE ON DISARMAMENT

CD/CW/WP.407

4 June 1992

ENGLISH ONLY

## Ad Hoc Committee on Chemical Weapons

### Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

### GUIDELINES FOR SCHEDULES OF CHEMICALS

GE.92-61684

## GUIDELINES FOR SCHEDULES OF CHEMICALS

### Guidelines for Schedule 1

1. The following criteria for a chemical shall be taken into account in considering whether a chemical should be included in Schedule 1:
  - (a) It has been developed, produced, stockpiled or used as a chemical weapon as defined in Article II;
  - (b) It poses otherwise a high risk to the objectives of the Convention by virtue of its high potential for use for activities prohibited under this Convention because one or more of the following conditions is met:
    - i. It possesses a chemical structure closely related to that of other Toxic Chemicals listed in Schedule 1 and has, or can be expected to have, comparable properties;
    - ii. It possesses such lethal or incapacitating toxicity as well as other properties that might enable it to be weaponized and used as chemical weapon;
    - iii. It may be used as a precursor in the final technological stage of production of a Toxic Chemical listed in Schedule 1, regardless of whether this stage takes place in facilities, in munitions or elsewhere;
  - (c) It has little or no use for purposes not prohibited under this Convention.

### Guidelines for Schedule 2 part A

2. The following criteria shall be taken into account in considering whether a precursor to a Schedule 1 chemical would be included in Schedule 2 part A:
  - (a) It may be used in one of the chemical reactions at the final stage of formation of a chemical listed in Schedule 1.
  - (b) It may pose a significant risk to the objectives of the Convention by virtue of its importance in the production of a chemical listed in Schedule 1.
  - (c) It is not produced in large commercial quantities for purposes not prohibited under this convention.

### Guidelines for Schedule 2 part B



3. Super-toxic lethal chemicals and other chemicals which are not included in Schedule 1 and are not precursor chemicals but which are deemed to pose a significant risk to the objectives of the Convention.

Guidelines for Schedule 3

4. The following criteria shall be taken into account when considering whether a dual purpose chemical or precursor, not listed in other schedules, would be included in Schedule 3:

A. Dual purpose chemical

5. It is produced in large commercial quantities for purposes not prohibited under this convention, and

6. It has been stockpiled as a chemical weapon, or

7. It may pose a risk to the objectives of the convention by virtue of its physical, chemical and toxicological properties being similar to those of chemical weapons.

B. Precursor Chemical

8. It is produced in large commercial quantities for purposes not prohibited under this convention, and

9. It may pose to the objectives of the convention by virtue of its importance in the production of one or more chemicals listed in schedule 1, or in the production of precursors to such chemicals.

## SCHEDULES OF CHEMICALS

The following Schedules list toxic chemicals and their precursors. For the purpose of implementing this Convention, these Schedules identify chemicals that are subject to monitoring according to the provisions of the Verification Annex. Pursuant to Article II, subparagraph 1 (a), these Schedules do not constitute a definition of chemical weapons.

Chemical marked "\*" on Schedule 2B is subject to special thresholds for declaration and verification, as specified in Parts VII of the Verification Annex.

### A. Schedule 1

1. O-Alkyl ( $\leq C_{10}$ , incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates ...  
  
e.g. Sarin: O-isopropyl methylphosphonofluoridate (107-44-8)  
Soman: O-pinacolyl methylphosphonofluoridate (96-64-0)
2. O-Alkyl ( $\leq C_{10}$ , incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates ..  
  
e.g. Tabun: O-ethyl N,N-dimethylphosphoramidocyanidate (77-81-6)
3. O-Alkyl (H or  $\leq C_{10}$ , incl. cycloalkyl) S-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated and protonated salts.  
  
e.g. VX: O-ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate (50782-69-9)
4. Sulphur mustards:  
  
2-Chloroethylchloromethylsulphide (2625-76-5)  
bis(2-chloroethyl)sulphide: Mustard Gas (H) (505-60-2)  
bis(2-chloroethylthio)methane (63869-13-6)  
1,2-bis(2-chloroethylthio)ethane: Sesquimustard (Q) (3563-36-8)  
1,3-bis(2-chloroethylthio)-n-propane (63905-10-2)  
1,4-bis(2-chloroethylthio)-n-butane  
1,5-bis(2-chloroethylthio)-n-pentane  
bis(2-chloroethylthiomethyl)ether  
bis(2-chloroethylthioethyl)ether: O-Mustard (T) (63918-89-8)
5. Lewisites:  
  
Lewisite 1: 2-chlorovinylchloroarsine (541-25-3)  
Lewisite 2: bis(2-chlorovinyl)chloroarsine (40334-69-8)  
Lewisite 3: tris (2-chlorovinyl)arsine (40334-70-1)
6. Nitrogen mustards:  
  
HN1: bis(2-chloroethyl)ethylamine (538-07-8)  
HN2: bis(2-chloroethyl)methylamine (51-75-2)  
HN3: tris(2-chloroethyl)amine (555-77-1)



7. Saxitoxin (35523-89-8)

8. Ricin

9. Alkyl (Me, Et, n-Pr or i-Pr) Phosphonyldifluorides ..

e.g. DF: methylphosphonyldifluoride (676-99-3)

10. O-Alkyl (H or  $\leq C_{10}$ , incl. cycloalkyl) O-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonites and corresponding alkylated and protonated salts

e.g. QL: O-ethyl O-2-diisopropylaminoethyl methylphosphonite (57856-11-8)

11. O-Alkyl ( $\leq C_{10}$ , incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonochloridates

e.g. Chloro Sarin: O-isopropyl methylphosphonochloridate (1445-76-7)  
Chloro Soman: O-pinacolyl methylphosphonochloridate (7040-57-5)

B. Schedule 2 part A

1. Chemicals containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal or iso) group but not further carbon atoms, except for those chemicals listed under Schedule 1.

*Exemption:*

*Fonofos : O-ethyl S-phenyl ethylphosphonodithioate*

(944-22-9)

2. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides

3. Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates

4. Arsenic trichloride (7784-34-1)

5. 2,2-Diphenyl-2-hydroxyacetic acid (76-93-7)

6. Quinuclidin-3-ol (1619-34-7)

7. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts .. ..

8. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding *protonated salts* .. ..

*Exemptions:*

*N,N*-dimethylamino ethanol and corresponding *protonated salts*

(108-01-0)

*N,N*-diethylamino ethanol and corresponding *protonated salts*

(100-37-8)

9. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding *protonated salts* .. ..

10. Bis (2-hydroxyethyl)sulphide (thiodiglycol) (111-48-8)

11. 3,3-Dimethylbutan-2-ol (pinacolyl alcohol) (464-07-3)

C. Schedule 2 part B

1. Amiton : O,O-Diethyl S-(2-(diethylamino)ethyl) phosphorothiolate and corresponding alkylated and *protonated salts* (78-53-5)
2. PFIB :  
1,1,3,3,3-pentafluoro-2-(trifluoromethyl)-1-propene 2/ (382-21-8).
3. 3-Quinuclidinyl benzilate (BZ) \* (6581-06-2)



D. Schedule 3

- |   |              |
|---|--------------|
| 1. Phosgene                             | (75-44-5)    |
| 2. Cyanogen chloride                    | (506-77-4)   |
| 3. Hydrogen cyanide                     | (74-90-8)    |
| 4. Trichloronitromethane (chloropicrin) | (76-06-2)    |
| 5. Phosphorus oxychloride               | (10025-87-3) |
| 6. Phosphorus trichloride               | (7719-12-2)  |
| 7. Phosphorus pentachloride             | (10026-13-8) |
| 8. Trimethyl phosphite                  | (121-45-9)   |
| 9. Triethyl phosphite                   | (122-52-1)   |
| 10. Dimethyl phosphite                  | (868-85-9)   |
| 11. Diethyl phosphite                   | (762-04-9)   |
| 12. Sulphur monochloride                | (10025-67-9) |
| 13. Sulphur dichloride                  | (10545-99-0) |
| 14. Thionyl chloride                    | (7719-09-7)  |











# CONFERENCE ON DISARMAMENT

CD/CW/WP.408

4 June 1992

ENGLISH ONLY

Ad Hoc Committee on Chemical Weapons

Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

## ARTICLE IX

### CONSULTATIONS, COOPERATION AND FACT-FINDING

GE.92-61685

ARTICLE IXCONSULTATIONS, CO-OPERATION AND FACT-FINDING

1. States Parties shall consult and cooperate, directly among themselves, or through the Organization or other appropriate international procedures, including procedures within the framework of the United Nations and in accordance with its Charter, on any matter which may be raised relating to the object and purpose or the implementation of the provisions of this Convention.

2. **In the first instance**, States Parties shall make every possible effort to clarify and resolve, through exchange of information and consultations among them, any matter which may cause doubt about compliance with this Convention, or which gives rise to **a concerns** about a related matter which may be considered ambiguous. A State Party which receives a request from another State Party for clarification of any matter which the requesting State Party believes causes such **a doubts** or concerns shall provide the requesting State Party, not later than **seven ten** days after the request, with information sufficient to answer the doubts or concerns raised along with an explanation of how the information provided resolves the matter. Nothing in this Convention shall affect the right of any two or more States Parties to arrange by mutual consent for inspections or any other procedures among themselves to clarify and resolve any matter which may cause doubts about compliance or gives rise to **a concerns** about a related matter which may be considered ambiguous. Such arrangements shall not affect the rights and obligations of any State Party under other provisions of this Convention.

Procedure for requesting clarification

3. A State Party shall have the right to request the Executive Council to assist in clarifying any situation which may be considered ambiguous or which gives rise to **doubts a concern** about the **non-compliance** of another State Party with this Convention. The Executive Council shall provide appropriate information and data in its possession relevant to such **a concerns**.

4. A State Party shall have the right to request the Executive Council to obtain clarification from another State Party on any situation which may be considered ambiguous or which gives rise to **doubts a concern** about its **non-compliance** with this Convention. In such a case, the following shall apply:

(a) The Executive Council shall forward the request for clarification to the State Party concerned **through the Director General** not later than 24 hours after its receipt;

(b) The requested State Party shall provide the clarification to the Executive Council not later than **seven**



ten days after the receipt of the request;

(c) The Executive Council shall consider the clarification within 24 hours of its receipt.

(e d) The Executive Council shall forward the clarification to the requesting State Party not later than 24 48 hours after its receipt;

(d e) If the requesting State Party deems the clarification to be inadequate, it shall have the right to request the Executive Council to obtain from the requested State Party further clarification;

(e f) For the purpose of obtaining further clarification requested under subparagraph (d e) of this paragraph, the Executive Council may call on the Director General to establish a group of experts from the Technical Secretariat to examine all available information and data relevant to the situation causing the doubt concern. The group of experts shall submit a factual report to the Executive Council on its finding;

(f g) If the requesting State Party considers the clarification obtained under subparagraphs (d e) and (e f) of this paragraph to be unsatisfactory, it shall have the right to request a special meeting of the Executive Council in which State Parties involved that are not members of the Executive Council shall be entitled to take part. In such a special meeting, the Executive Council shall consider the matter and may recommend any measure it deems appropriate to cope with the situation.

5. A State Party shall also have the right to request the Executive Council to clarify any situation which has been considered ambiguous or has given rise to doubts a concern about its non-compliance with this Convention. The Executive Council shall respond by providing such assistance as appropriate.

6. The Executive Council shall inform the States Parties about any request for clarification provided in this Article.

7. If the doubts or concerns of a State Party about non-compliance have not been resolved within 60 days after the submission of the request for clarification to the Executive Council, or it believes its doubts warrants urgent consideration, notwithstanding its right to request an on-site challenge inspection, it shall have the right to request a special session of the Conference in accordance with Article VIII. In such a special session, the Conference shall consider the matter and may recommend any measure it deems appropriate to resolve the situation.

#### Procedures for Challenge Inspections

8. (a) Each State Party has the right to request an on-site challenge inspection of any facility or location in the



territory or under the jurisdiction or control of any other State Party for the sole purpose of clarifying and resolving any questions concerning **non-compliance** with the provisions of this Convention, and to have this inspection conducted anywhere without delay by an inspection team designated by the Director General and in accordance with the Verification Annex.

(b) Each State Party is under the obligation to keep the request within the scope of this Convention and to provide in the request all appropriate information on the **basis of which a concern has arisen** regarding **non-compliance** with this Convention ~~as specified in the Verification Annex~~. Each State Party shall refrain from unfounded requests, care being taken to avoid abuse. The challenge inspection shall be carried out for the sole purpose of determining facts relating to **the alleged non-compliance**.

9. For the purpose of verifying compliance with the provisions of this Convention, each State Party shall permit the Technical Secretariat to conduct **an on-site challenge inspections** pursuant to paragraph 8.

10. Pursuant to a challenge of its facility or location, and in accordance with the procedures provided for in the Verification Annex, a State Party has :

(a) The right and the obligation to make every reasonable efforts to demonstrate its compliance with this Convention ~~and, to this end, to enable the inspection team to fulfil its mandate;~~

(b) The obligation to provide access within the requested site for the sole purpose of establishing facts relevant to the **request concern regarding non-compliance;** and

(c) The right to take measures to protect sensitive installations, and to prevent disclosure of confidential information, not related to this Convention.

11. (a) The requesting State Party may, subject to the agreement of the inspected State Party, send a representative who may be a national either of the requesting State Party or of a third State Party, to observe the conduct of the inspection.

(b) The inspected State Party shall then grant access to the observer in accordance with the Verification Annex.

(c) The inspected State Party shall, as a rule, accept the proposed observer, but if the inspected State Party exercises a refusal, that fact shall be recorded in the final report.

12. (a) The requesting State Party shall present a request for an on-site challenge inspection to the **Executive Council** which shall **immediately forward it to the** Director General for processing.



(b) The Director General shall immediately ascertain that the request meets the requirements specified in the Verification Annex (Part IX, paragraph 3), and, if necessary, assist the requesting State Party in filing the request accordingly. When the request fulfils the requirements, preparations for the inspection shall begin.

(c) The Director General shall transmit the request to the inspected State Party ~~and the members of the Executive Council~~ **not less than 24** hours prior to the planned arrival of the inspection team at the point of entry.

(d) After having been ~~informed~~ **seized** of the inspection request, the Executive Council shall take note of the Director General's actions on the request and shall keep the case under its consideration throughout the inspection procedure. However, its deliberations shall not delay the inspection process.

(e) ~~If it considers the request to be frivolous, abusive or clearly beyond the scope of this Convention as described in paragraph 8 of this Article, the~~ **The** Executive Council may **shall**, within 12 hours after having received the inspection request, ~~decide by consensus against~~ **take a decision on** carrying out the inspection. Neither the requesting nor the inspected State Party shall participate in such a decision. If the Executive Council **considers the request to be frivolous, abusive or beyond the scope of this Convention as described in paragraph 8 of this Article** or decides against the inspection, preparations shall be stopped, no further action on the request shall be taken, and the States Parties concerned shall be informed accordingly.

13. The Director General shall issue a mandate for the conduct of the inspection. The mandate shall be the request referred to in paragraph 8 put into operational terms, and shall conform with the request.

14. The inspection shall be conducted in accordance with Part IX or, in the case of alleged use, in accordance with Part X of the Verification Annex. The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission.

15. The inspected State Party shall assist the inspection team throughout the inspection and facilitate its task. If the inspected State Party proposes, pursuant to Part IX, Section C of the Verification Annex, arrangements to demonstrate compliance with this Convention, alternative to full and comprehensive access, it shall make every reasonable effort, through consultations with the inspection team, to reach agreement on the modalities for establishing the facts with the aim of demonstrating its compliance.

16. The final report shall contain the factual findings as well as an assessment by the inspection team of the degree and nature of access and cooperation granted for the satisfactory implementation of the inspection. The Director



General shall promptly transmit the final report of the inspection team to the requesting State Party, to the inspected State Party, to the Executive Council and to all other States Parties. The Director General shall further transmit promptly to the Executive council the assessment(s) of the requesting and of the inspected States Parties, as well as the view(s) of other States Parties which may be conveyed to the Director General for that purpose, and then provide them to all States Parties.

17. (a) The Executive Council shall ~~in accordance with its powers and functions~~, review the final report of the inspection team as soon as it is presented, and ~~deal appropriately with~~ **decide on:**

- (i) ~~The concern regarding compliance as expressed in the inspection request~~ **whether any non-compliance with the Convention has occurred;**
- (ii) ~~The question of whether~~ **whether** the request had been within the scope of this Convention;
- (iii) ~~The question of whether~~ **whether** the right to request a challenge inspection had been abused.

(b) If the Executive Council ~~considers~~ **decides**, ~~in keeping with its powers and functions~~, further action to be necessary **with regard to (i) (ii) and (iii) above**, it shall take the appropriate measures to redress the situation and to ensure compliance with this Convention, including specific proposals to the Conference. **In case of abuse, the Executive Council shall take the necessary measures to ensure that the requesting State Party bears all financial implications of the inspection and all other financial implications thereupon.**

(c) The requesting State Party and the inspected State Party shall have the right to participate in the review process. The Executive Council shall inform the States Parties and the next Conference of the outcome of the process.

(d) If the Executive Council has made specific recommendations to the Conference, the Conference shall consider action in accordance with Article XII.

## PART IX

### CHALLENGE INSPECTIONS PURSUANT TO ARTICLE IX

#### A. DESIGNATION AND SELECTION OF INSPECTORS AND INSPECTION ASSISTANTS

1. Inspections under Article IX shall only be performed by Inspectors and inspection assistants especially designated for this function. In order to designate Inspectors and inspection assistants for inspections under Article IX, the



Director General shall, by selecting inspectors and inspection assistants from among the full-time inspectors and inspection assistants for routine inspection activities, establish a list of proposed inspectors and inspection assistants. It shall comprise a sufficiently large number of inspectors and inspection assistants having the necessary qualification, experience, skill and training, **and, as far as possible, wide and equitable geographical distribution** to allow for flexibility in the selection of the inspectors, taking into account their availability, **and the need for rotation and, as far as possible, wide geographical representation.** The designation of inspectors and inspection assistants shall follow the procedures provided for under Part II, Section A of this Annex.

2. The Director General shall determine the size of the inspection team and select its members taking into account the circumstances of a particular request. **Each inspection team shall be kept to a minimum necessary for the proper execution of its task.** No national of the requesting State Party, or the inspected State Party shall be a member of the inspection team.

#### B. PRE-INSPECTION ACTIVITIES.

##### Notification

3. The request for a challenge inspection ~~to be submitted to the Director General~~ shall contain at least the following information:

(a) the State Party to be inspected and, if applicable, the host State;

(b) the point of entry;

(c) the size and type of the inspection site;

(d) **the all appropriate information on the basis of which a concerns regarding non-compliance with the Convention has arisen** including a specification of the relevant provisions of the Convention about which **the concerns have has arisen** and of the nature and circumstances of the suspected non-compliance, as well as any further relevant information on the specific concerns regarding compliance;

(e) the name of the observer of the requesting State Party.

The requesting State Party may submit any additional information it deems necessary.

4. The requesting State Party shall notify the Director General of the location of the inspection site in due time for the Director General to be able to provide this information to the inspected State Party not less than ~~±2~~ **24** hours prior to the planned arrival of the inspection team at



the point of entry.

5. The inspection site shall be designated by the requesting State Party as specifically as possible by providing a site diagram related to a reference point with geographic coordinates specified to the nearest second if possible. If possible, the requesting State Party shall also provide a map with a general indication of the inspection site and a diagram specifying as precisely as possible the perimeter of the site to be inspected.

6. The requested perimeter shall:

(a) Run at least a 10 metre distance outside any buildings or other structures;

(b) Not cut through existing security enclosures;

(c) Run at least a 10 metre distance outside any existing security enclosures that the requesting State Party intends to include within the requested perimeter;

7. If the requested perimeter does not conform with the specifications of paragraph 6 above, it shall be redrawn by the inspection team so as to conform with this provision.

8. The Director General shall within one hour acknowledge to the requesting State Party receipt of its request.

9. The Director General shall inform the Executive Council about ~~the request as submitted,~~ and the location of the inspection site as specified in paragraph 5 above, not less than ~~±2~~ 24 hours prior to the planned arrival of the inspection team at the point of entry. Contemporaneously, the inspected State Party shall receive the same information.

10. The Director General shall also notify the inspected State Party as soon as possible of the size of the inspection team as well as of relevant information regarding aircraft and other travel arrangements, if applicable.

11. Upon arrival of the inspection team at the point of entry, the inspected State Party shall be informed by the inspection team of the inspection mandate.

#### Entry into the territory of the inspected State Party or Host State

12. In accordance with Article IX, paragraph 12, the Director General shall dispatch an inspection team as soon as possible after a request is received by ~~in~~ the Technical Secretariat. The inspection team shall arrive at the point of entry specified in the request in the minimum time possible, consistent with the provisions of paragraphs 9 and 10 above.

13. If the requested perimeter is acceptable to the



inspected State Party, it shall be designated as the final perimeter as early as possible but in no case later than 24 hours after the arrival of the inspection team at the point of entry. The inspected State Party shall transport the inspection team to the final perimeter of the inspection site. Such transportation shall be accomplished as soon as practicable, and shall take ~~in-any-case~~ no more than ~~±2~~ 24 hours after agreement on the perimeter.

14. For all declared facilities (Articles III, IV, V, and VI), the following procedures would apply:

(a) If the requested perimeter is contained within or conforms with the declared perimeter, the declared perimeter shall be considered the final perimeter, with one exception: if agreed by the inspected State Party, the final perimeter may be made smaller to conform with that requested by the requesting State Party.

(b) The inspected State Party shall transport the inspection team to the final perimeter as soon as practicable, ~~but-in-any-case~~ and shall ensure their arrival at the perimeter not later than ~~±2~~ 24 hours after the arrival of the inspection team at the point of entry.

#### Alternative determination of final perimeter

15. At the point of entry, if the inspected State Party cannot accept the requested perimeter, it shall propose an alternative perimeter as soon as possible, but in any case not later than 24 hours after the arrival of the inspection team at the point of entry. Differences shall be negotiated between the inspected State Party and the inspection team with the aim of reaching agreement on a final perimeter.

16. The alternative perimeter should be designated as specifically as possible in accordance with paragraph 6 above. It shall include the whole of the requested perimeter and should as a rule bear a close relationship to the latter, taking into account natural terrain features and man-made boundaries. It should normally run close to the surrounding security barrier if such a barrier exists. The inspected State Party should seek to establish such a relationship between the perimeters by a combination of at least two of the following means:

(a) An alternative perimeter that does not extend to an area significantly greater than that of the requested perimeter;

(b) An alternative perimeter that is a short, uniform distance from the requested perimeter;

(c) At least part of the requested perimeter is visible from the alternative perimeter.

17. If the alternative perimeter is acceptable to the inspection team, it shall become the final perimeter and the



inspection team shall be transported from the point of entry to that perimeter as soon as possible, but ~~and in any case~~ no longer than ~~12~~ 24 hours after acceptance.

18. If a final perimeter is not readily agreed, the perimeter negotiations at the point of entry shall be concluded as early as possible, but in no case shall they continue more than 24 hours after the arrival of the inspection team at the point of entry. If no agreement is reached at the point of entry, the inspected State Party shall transport the inspection team to a location at the alternative perimeter as soon as practicable, but in any case shall ensure their arrival at the location no later than 12 hours after the expiration of the time period for the perimeter negotiations at the point of entry.

19. Once at the location, the inspected State Party shall provide the inspection team with prompt access to the alternative perimeter to facilitate negotiations and agreement on the final perimeter and access within the final perimeter.

20. If no agreement reached within 72 hours after the arrival of the inspection team at the location, the alternative perimeter shall be designated the final perimeter.

#### Verification of location

21. To help establish that the site to which the inspection team has been transported corresponds to the site specified by the requesting State Party, the inspection team shall have the right to use location-finding equipment and have such equipment and other approved equipment installed according to its directions. The inspection team may verify their location by reference to local landmarks identified from maps. The inspected State Party shall assist them in this task.

#### Securing the site, exit monitoring

22. No later than 12 hours after the arrival of the inspection team at the point of entry, the inspected State Party shall identify all exit points for all land, air, and water vehicles from the requested perimeter. In this regard, it shall begin collecting factual information of all vehicular exit activity from the requested perimeter. It shall provide this information to the inspection team upon its arrival at the alternative or final perimeter, whichever occurs first.

23. This obligation may be met by collecting factual information in the form of traffic logs, photographs, video recordings, or data from chemical evidence equipment provided by the inspection team to monitor such exit activity. Alternatively, the inspected State Party may also meet this obligation by allowing one or more members of the inspection



team independently to maintain traffic logs, take photographs, make video recordings of exit traffic, or use chemical evidence equipment, and conduct other activities as may be agreed between the inspected State Party and the inspection team.

24. Upon the inspection team's arrival at the alternative perimeter or final perimeter, whichever occurs first, securing the site, which means exit monitoring procedures by the inspection team, shall begin.

25. Such procedures shall include: the identification of vehicular exits; the making of traffic logs, the taking of photographs and the making of video recording by the inspection team of exit traffic. The inspection team has the right to go, under escort, to any other part of the perimeter to check there is no other exit activity.

26. Additional procedures for exit monitoring activities as agreed upon by the inspection team and the inspected State Party could include, inter alia:

- (a) Use of sensors;
- (b) Random selective access;
- (c) Sample analysis.

27. All activities for securing the site and exit monitoring shall take place within a band around the outside of the perimeter, not to exceed 50 meters in width, measured outward.

28. The inspection team has the right to inspect on a managed access basis vehicular traffic exiting the site. The inspected State Party shall make every reasonable effort to demonstrate to the inspection team that any vehicle subject to inspection to which the inspection team is not granted full access is not being used for purposes related to the non-compliance concerns raised in the inspection request.

29. Personnel and vehicles entering and personnel and personal passenger vehicles exiting the site are not subject to inspection.

30. The application of the above procedures may continue for the duration of the inspection, but may not unreasonably hamper or delay the normal operation of the facility.

#### Pre-inspection briefing and inspection plan

31. To facilitate development of an inspection plan, the inspected State Party shall provide a safety and logistical briefing to the inspection team prior to access.

32. The pre-inspection briefing shall be held in accordance with Part II, paragraph 36. In the course of the pre-inspection briefing, the inspected State Party may indicate



to the inspection team the equipment, documentation or areas it considers sensitive and not related to the purpose of the inspection. Additionally, personnel responsible for the site will brief the team on the physical layout and other relevant characteristics of the site; the team shall be provided with a map or sketch drawn to scale showing all the structures and significant geographic features at the site. The team shall also be briefed on availability of facility personnel and records.

33. After the pre-inspection briefing the inspection team shall prepare, on the basis of the information available and appropriate to it, an initial inspection plan which specifies the activities to be carried out by the inspection team, including the specific areas of the site to which access is desired. The plan shall also specify whether the inspection team will be divided into subgroups. The plan shall be made available to the representatives of the inspected State Party and the inspection site. The implementation shall be consistent with the provisions of Section C below, including those related to access and activities.

#### Perimeter activities

34. Upon the inspection team's arrival at the final or alternative perimeter, whichever occurs first, the team shall have the right to commence immediately perimeter activities in accordance with the procedures set forth in this section, and to continue these activities until the completion of the inspection.

35. In conducting the perimeter activities, the inspection team shall have the right to:

(a) use monitoring instruments (consistent with Part II, paragraphs 26 to 29)

(b) take wipes, air, soil or effluent samples, and

(c) conduct any additional activities which may be agreed between the inspection team and the inspected State Party.

36. The perimeter activities of the inspection team may be conducted within a band around the outside of the perimeter up to 50 meters in width measured outward from the perimeter. If the inspected State Party permits, the inspection team may also have access to any building or structure within the perimeter band. All directional monitoring shall be oriented inward. For facilities declared under Articles III, IV, V and VI, at the discretion of the inspected State Party, the band could run inside, outside, or on both sides of the declared perimeter.

#### C. CONDUCT OF INSPECTIONS



General rules

37. The inspected State Party shall ~~be under the obligation~~ to provide access within the requested perimeter as well as, if different, the final perimeter. The extent and nature of access to a particular place or places within these perimeters shall be negotiated between the inspection team and the inspected State Party on a managed access basis.

38. The inspected State Party shall provide access within the requested perimeter as soon as possible, but in any case no later than ~~±00~~ 120 hours after the arrival of the inspection team at the point of entry in order to clarify the concerns regarding **non-compliance** with the Convention raised in the inspection request.

39. In meeting the requirement to provide access as specified in paragraph 37, the inspected State Party shall be under the obligation to allow the greatest degree of access taking into account any constitutional obligations it may have with regard to proprietary rights or searches and seizures. The inspected State Party has the right under managed access to take such measures as are necessary to protect national security. The provisions in this paragraph may not be invoked by the inspected State Party to conceal evasion of its obligations not to engage in activities prohibited by the Convention.

40. In the event that the inspected State Party provides less than full access to places, activities, or information, it shall be under the obligation to make every reasonable effort to provide alternative means to satisfy the **non-compliance** concerns that generated the challenge inspection.

41. Upon arrival at the final perimeter of facilities declared under Articles IV, V and VI, access shall be granted following pre-inspection briefing and discussion of the inspection plan which shall be limited to the minimum necessary and in any event shall not exceed three hours. For facilities declared under Article III, paragraph 3 negotiations will be conducted and managed access commenced within 12 hours of arrival at the final perimeter.

42. In carrying out the inspection in accordance with the request, the inspection team shall use only those methods necessary to provide sufficient relevant facts to clarify ~~debts the concern~~ about **non-compliance** with the provisions of the Convention, and shall refrain from activities not relevant thereto. It shall collect and document such evidence as is related to the **non-compliance** with the Convention by the inspected State Party but shall neither seek nor document information which is clearly not related thereto, unless the inspected State Party expressly requests it to do so. Any material collected and subsequently found not to be relevant shall be retained.

43. The inspection team shall be guided by the principle of



conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission. Wherever possible, it shall begin with the least intrusive procedures it deems acceptable and proceed to more intrusive procedures only as it deems necessary.

#### Managed access

44. The inspection team shall take into consideration suggested modifications of the inspection plan and proposals which may be made by the inspected State Party, at whatever stage of the inspection including the pre-inspection briefing, to ensure that sensitive equipment, information or areas, not related to chemical weapons, are protected.

45. The inspected State Party shall designate the perimeter entry/exist points to be used for access. The inspection team and the inspected State Party shall negotiate: the extent of access to any particular place or places within the final and requested perimeters as provided in paragraph 46 below; the particular inspection activities (including sampling) to be conducted by the inspection team; the performance of particular activities by the inspected State Party; and the provision of particular information by the inspected State Party.

46. In conformity with the relevant provisions in the Confidentiality Annex the inspected State Party shall have the right to take measures to protect sensitive installations and prevent disclosure of confidential data not related to chemical weapons. Such measures may include, inter alia:

- (a) removal of sensitive papers from office spaces;
- (b) shrouding of sensitive displays, stores, and equipment;
- (c) shrouding of sensitive pieces of equipment, such as computer or electronic systems;
- (d) logging off of computer systems and turning off of data indicating devices;
- (e) restriction of sample analysis to presence or absence of chemicals on Schedules 1, 2 and 3 or appropriate degradation products;
- (f) using random selective access techniques whereby the inspectors are requested to select a given percentage or number of buildings of their choice to inspect; the same principle can apply to the interior and content of sensitive buildings;
- (g) in exceptional cases, giving only individual inspectors access to certain parts of the inspection site, or **aerial access for members of the inspection team.**



47. The inspected State Party shall make every reasonable effort to demonstrate to the inspection team that any object, building, structure, container or vehicle to which the inspection team has not had full access, or which has been protected in accordance with paragraph 46 above, is not used for purposes related to the **non-compliance** concerns raised in the inspection request.

48. This may be accomplished by means of, *inter alia*, the partial removal of a shroud or environmental protection cover, at the discretion of the inspected State Party, by means of a visual inspection of the interior of an enclosed space from its entrance, or by other methods.

49. For facilities declared under Articles IV, V, and VI, the following shall apply:

(a) For facilities with facility agreements, access and activities within the final perimeter shall be unimpeded within the boundaries established by the agreements.

(b) For facilities without facility agreements, negotiation of access and activities shall be governed by the applicable general inspection guidelines established under the Convention.

(c) Access greater than that granted for inspections under Articles IV, V and VI shall be managed in accordance with procedures of this section.

50. For facilities declared under Article III, paragraph 3, the following shall apply: If the inspected State Party, using procedures of paragraphs 45 and 46 in this section, has not granted full access to areas or structures not related to chemical weapons, it shall make every reasonable effort to demonstrate to the inspection team that such areas or structures are not used for purposes related to the **non-compliance** concerns raised in the inspection request.

#### Observer

51. In accordance with the provisions of Article IX, paragraph 11 on the participation of an observer in the inspection, the requesting State Party shall liaise with the Technical Secretariat to coordinate the arrival of its observer at the same point of entry as the inspection team within a reasonable period of the inspection team's arrival.

52. The observer shall have the right throughout the period of inspection to be in communication with the embassy of the requesting State Party located in the host State or, in the case of absence of an embassy, with the requesting State Party itself. The inspected State Party shall provide means of communication to the observer.

53. The observer shall have the right to arrive at the inspection site (the alternative or final perimeter, wherever the inspection team arrives first) and to have access to the



inspection site as granted by the inspected State Party. ~~The observer shall have the right to make recommendations to the inspection team, which the team shall take into account to the extent it deems appropriate.~~ Throughout the inspection, the inspection team shall keep the observer informed about the conduct of the inspection and the findings.

54. Throughout the in-country period, the inspected State Party shall provide or arrange for the amenities necessary for the observer such as communication means, interpretation services, transportation, working space, lodging, meals and medical care. All the costs in connection with the stay of the observer on the territory of the inspected State Party or the host State shall be borne by the requesting State Party.

#### Duration of inspection

55. The period of inspection shall not exceed 84 hours, unless extended by agreement with the inspected State Party.

#### D. POST-INSPECTION ACTIVITIES

##### Departure

56. Upon completion of the post-inspection procedures at the inspection site, the inspection team and the observer of the requesting State Party shall proceed promptly to a point of entry and shall then leave the territory of the inspected State Party in the minimum time possible.

##### Reports

57. The inspection report shall summarize in a general way the activities conducted by the inspection team and the factual findings of the inspection team, particularly with regard to the concerns regarding **non-compliance** with the Convention cited in the request for the challenge inspection and shall be limited to information directly related to the Chemical Weapons Convention. It shall also include an assessment by the inspection team of the degree and nature of access and cooperation granted to the inspectors and the extent to which this enabled them to fulfil their mandate. Detailed information relating to the concerns regarding **non-compliance** with the Convention cited in the request for the challenge inspection shall be submitted as an Appendix to the final report and be retained within the Technical Secretariat under appropriate safeguards to protect sensitive information.

58. The Inspectors shall within 72 hours of their return to their primary work location submit a preliminary inspection report to the Director-General. The Director-General shall promptly transmit the preliminary report to the requesting State Party, the inspected State Party and to the Executive Council. A draft final report shall be made available to the



inspected State Party within 20 days of the completion of the inspection for identification of any non-CW-related information it considers should due to its confidentiality not be circulated outside the Technical Secretariat. The Technical Secretariat shall consider proposals for changes to their draft final report made by the inspected State Party and, using its own discretion, wherever possible, adopt them. The final report shall then be submitted within 30 days of the completion of the inspection to the Director-General for further distribution and consideration in accordance with Article IX paragraphs 16 and 17.











# CONFERENCE ON DISARMAMENT

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Ad Hoc Committee on Chemical Weapons

Working Paper presented by

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

on

ARTICLE XI

ECONOMIC AND TECHNOLOGICAL DEVELOPMENT

ECONOMIC AND TECHNOLOGICAL DEVELOPMENT

- The implementation of this Convention shall
1. ~~The provisions of this Convention shall be implemented~~  
~~in a manner which avoids, as far as possible, hampering~~ not hamper the economic or technological development of States Parties to this Convention, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.
  2. Each State Party shall, subject to the provisions of this Convention:-
    - (a) Have the right, individually or collectively, to conduct research with, to develop, produce, acquire, retain, transfer, and use chemicals;
    - (b) Undertake to facilitate, and have the right to participate in, the fullest possible exchange of chemicals, equipment and scientific and technical information relating to the development and application of chemistry for purposes not prohibited under this Convention.
    - (c) Not maintain in regard to other States Parties any ~~arbitrary~~ restrictions, except those in this Convention, which would impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for purposes not prohibited under this Convention;
    - (d) Not in any way impede or interfere in trade between other States Parties in the field of chemistry for purposes not prohibited under the Convention;
    - (e) Undertake to review its existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention;
- <sup>These</sup> ~~This~~ provisions shall be without prejudice to the generally recognised principles and applicable rules of international law.
- .....









Spain CD/CW/WP.410 Report on a trial chal-  
lenge inspection

Also issued  
as CD/1152  
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# CONFERENCE ON DISARMAMENT

CD/CW/WP.411

5 June 1992

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Ad Hoc Committee on Chemical Weapons

CUBA

Aspects and principles of a system for funding the budget of the future Organization for the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction

## INTRODUCTION

The problem of the funding of the future Organization for the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction has been approached from various angles. However, the subject's complexity and its bearing on other delicate problems to be dealt with by the Convention have been recognized.

The purpose of this working paper is to identify a number of principles and factors which might be helpful in considering this intricate aspect of the current negotiations of the Committee on Chemical Weapons.

Factors and principles to be considered:

(a) All States Parties will have the right, as well as the obligation, to contribute to the funding of the activities provided for in the Organization's budget, without any distinction whatsoever;

(b) All factors to be taken into account in determining the contributions of States Parties to the funding of the Organization's activities must be quantifiable.

For the application of this principle, the following possibilities might be considered:

- (i) Use of the assessments of Member States for the budget of the United Nations in determining States Parties' contributions to the budget of the new Organization;
- (ii) Consideration of a possible adjustment factor to allow for inflation;
- (iii) Use of other possible factors for adjusting contributions of Member States to take account of various specific aspects associated with the Convention, such as the number of installations to be inspected;

(c) Preferential treatment for a group of States Parties, taking into account their limited ability to pay.

Ideas for possible consideration in this context are the following:

- (i) Preparation of a list of States Parties to receive preferential treatment (token contributions to the budget);
- (ii) Setting a quantifiable indicator to be used in drawing up this list, such as per capita income or any other indicator representative of a State's capacity to pay;
- (iii) Fixing an upper limit for the contributions of beneficiary States to the financing of the Organization's activities;

(d) Voluntary acceptance of preferential treatment by beneficiary States;

(e) Dynamic nature of the system. Aspects to be taken into account in connection with this principle are the following:

- (i) Aspects or factors of the system to be changed or reviewed, which might include the list of beneficiary States, the criterion used in drawing up the list and the upper limit for contributions of beneficiary States to the financing of the Organization's activities;

(ii) The time-limit for carrying out these changes or reviews;

(iii) Method to be used in carrying out these changes or reviews;

(f) Relative stability of the system. Aspects which might be considered include:

Length of the period during which the system would remain stable, i.e. without any change being made, and the factors which would remain unchangeable during that period;



(g) The cost of all activities of a State Party during the carrying out of any type of inspection, over and above those which must normally be performed under the obligations assumed by the State in question, must be refunded by the Organization;

In this context, the following points should be taken into account:

- (i) Establishment of procedures for requesting reimbursement;
- (ii) Establishment of routine activities associated with the various types of inspection, for which States would not be reimbursed;
- (h) Voluntary funding of various activities associated with the work of the Organization, including verification.

#### Additional considerations

1. In determining the inflation factor, the following options, inter alia, might be considered:

- (a) Taking the increase in prices used to calculate the Organization's annual budget;
- (b) Using a factor calculated by the Organization itself;
- (c) Using the inflation factor adopted officially by the country in which the Organization's headquarters is established;
- (d) Using the inflation indicator adopted by the international financing agencies.

2. Additional adjustment factors might include:

- (a) The number of man days of inspection per country as a percentage of the total;
- (b) The number of facilities in each country to be physically inspected in one year as a percentage of the total;
- (c) The number of facilities in a given country as a percentage of the total;
- (d) Volume of trade and production of chemical substances governed by the Convention in each country as a percentage of the total (in tonnes or foreign exchange);
- (e) Number of chemical weapons and/or facilities associated with such weapons to be destroyed in each country as a proportion of the total.

3. Additional indicators which might be taken into account in drawing up the list of beneficiary States include the following:

- (a) The average per capita income of the 36 countries with the highest per capita income recognized by the United Nations.

Consideration could be given if necessary to other possibilities regarding the number of countries to be used as a basis in calculating this indicator.

The countries with per capita incomes below the fixed level would be included in the list of beneficiary countries.

4. In determining the upper limit for contributions of beneficiary countries to the Organization's budgets within a given period, the possibilities to be taken into account could include the following:

(a) Setting the upper limit on the basis of a fixed percentage of the Organization's total budget for verification activities;

(b) Setting a fixed amount on the basis of the economic situation, capacity to pay and chemical weapons status of beneficiary countries, among other factors.

5. The period after which changes might be made to the system could be:

(a) 5 years;

(b) 10 years.

If the budget is to be biennial, 6 or 10 years could be possible alternatives.

6. With regard to the method to be used in making changes or adjustments to the system, the following could be considered:

(a) Automatic procedure (no negotiation of the changes made);

(b) Prior discussion and approval by all States Parties at the end of the preceding period.

7. A possible procedure for requesting inspection activities in addition to those provided for and having financial consequences for which the States concerned should be reimbursed is as follows:

(a) The inspector would request the written authorization of the Technical Secretariat to carry out the activities in question and would notify the State concerned of the decision adopted;

(b) Once the necessary written authorization had been received from the Technical Secretariat, it would be communicated to the State concerned which would decide whether to permit the activities in question to be carried out or not. In the former case, it would subsequently request reimbursement for any expenditures incurred;



(c) If the State in question considered such activities unnecessary, it would so inform the Technical Secretariat in writing, at the time when the inspector requested authorization to carry out the inspection.

Should the Technical Secretariat concur with the explanations provided by the State concerned, the activities requested by the inspector would not be carried out. Should the Technical Secretariat and the State concerned disagree on the need for the activities requested, they would not be carried out and the situation would be recorded in the inspection report.

If the Technical Secretariat maintained its position after studying the report of the Inspection Team, it would bring the situation to the attention of the Executive Council to enable it to take the necessary decision.

8. Consideration could be given to the following possibilities for the financing of challenge inspections:

(a) Setting up an additional fund for financing such inspections, to which all Member States would be obligated to contribute;

(b) Challenge inspections would be wholly financed by the requesting country;

(c) Challenge inspections requested by industrialized Member States would be wholly financed by them and those requested by developing countries by the Technical Secretariat.

Another possibility would be for the Technical Secretariat to pay only a portion of the cost of challenge inspections requested by developing countries, with the requesting State paying the rest;

(d) All challenge inspections would be financed from the Organization's budget.

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Norway CD/CW/WP.412 Letter dated 11 June 1992 Also issued  
from the Charge d'affaires a.i. of Norway addressed as CD/1153  
to the President of the Conference on Disarmament, transmitting a research report, entitled 'Verification of a Chemical Weapons Convention: recommended operating procedures for sampling and sample handling, Part XI' 11.6.92

NOT REPRODUCED  
(see WP volume)

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AHCCW CD/CW/WP.413 Tentative outline of work 15.6.92  
Chair- until the end of this  
man year's session of the  
Conference on Disarmament  
(3 September 1992)

NOT REPRODUCED

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.414  
26 June 1992

Original: ENGLISH

## Ad Hoc Committee on Chemical Weapons

### Chairman of the Ad Hoc Committee on Chemical Weapons

#### EXPLANATORY NOTE

on the draft Chemical Weapons Convention contained in  
Document CD/CW/WP.400/Rev.1

#### Table of Contents

	<u>Page</u>
I. INTRODUCTION	3
II. MAIN ELEMENTS OF THE OVERALL COMPROMISE PACKAGE	6
III. DETAILED OUTLINE OF MAJOR ISSUES	7
A. General Obligations and Definitions (Articles I and II)	8
B. Chemical Weapons and Chemical Weapons Production Facilities	9
C. Old and Abandoned Chemical Weapons	15
D. Executive Council: Composition and Decision-Making	16
E. Challenge Inspections (Article IX and Part X of the Verification Annex)	19
F. Verification in Chemical Industry (Article VI and Parts VII to IX of the Verification Annex)	23
G. Economic and Technological Development (Article XI)	28
H. Annex on Chemicals	31
J. Financing of the Organisation	32
K. Amendments (Article XV)	33
L. Seat of the Organisation	35
M. Note on Questions of Editing	35





## I. INTRODUCTION

1. The draft Chemical Weapons Convention bears witness to a unique endeavour of the international community. There is no precedent of an international treaty which, like this draft Convention, provides for a co-operative, non-discriminatory instrument to resolve a global issue of security and disarmament once and for all. The negotiating effort resulting in the draft Convention has also been unique in many respects like the breadth and diversity of its objectives as well as its duration and intensity, to name only a few aspects. Today, the Ad Hoc Committee on Chemical Weapons of the Conference on Disarmament is finally in a position to meet the expectations of governments and peoples around the world, to accomplish its task, and to see the fruit of work of many dedicated negotiators brought to maturity.

2. The Conference on Disarmament and its predecessors have discussed a complete ban on chemical weapons since 1961, and negotiated it on the basis of a formal mandate since 1983. Since the mid-1980s, achievement has seemed reachable. Only since last year, however, a real sense of urgency has developed. This year, finally, has seen a growing awareness in the Ad Hoc Committee that the main issues have been mostly resolved, or at least discussed and negotiated in all their aspects and brought as close as ever possible to a solution. Thus, the Chairman of the Ad Hoc Committee has been asked to record the results of negotiations in a Chairman's draft. This has been done in document CD/CW/WP.400/Rev.1.

3. On the vast majority of substantive matters covered by the Convention, the Chairman was in the fortunate position of having simply to record the solutions which the Ad Hoc Committee had already agreed upon or which had been brought so close to consensus that the Chairman could clearly sense the solution. Some of these solutions have been found only recently, especially in the course of the extraordinarily intensive negotiations of the past weeks. The list of fully or at least tentatively agreed provisions is impressive:



- Preamble** (including recognition of the prohibition of the use of herbicides as a method of warfare)
- Article I** **General Obligations** (all basic obligations effecting a total ban on CW, including the prohibition of military preparations to use CW, the obligations on destruction with an ad referendum solution to the difficult problem of abandoned chemical weapons, and the obligation not to use riot control agents as a method of warfare)
- Article II** **Definitions and Criteria** (including all key terms whose clear and unambiguous definition was extremely difficult)
- Article III** **Declarations** (setting forth the most important obligations to declare, in particular, CW and CW production facilities)
- Article IV** **Chemical Weapons** (comprising, in conjunction with Part IV of the Verification Annex, the detailed provisions on the destruction of chemical weapons and its verification)
- Article V** **Chemical Weapons Production Facilities** (comprising, in conjunction with Part V of the Verification Annex, the detailed provisions on the destruction of chemical weapons production facilities and its verification)
- Article VI** **Activities not Prohibited Under this Convention** (comprising, in conjunction with the relevant Parts of the Verification Annex, the provisions on verification in chemical industry - basically agreed upon with regard to chemicals listed in Schedules 1, 2, and 3, as well as facilities related to such chemicals)
- Article VII** **National Implementation Measures**
- Article VIII** **The Organization** (including the provisions on composition, procedures, and decision-making of the Conference of the States Parties and the Executive Council - though the composition of the latter is not yet fully agreed upon, and the decision on the seat of the Organization)
- Article IX** **Consultations, Co-operation and Fact-Finding** (agreed upon with regard to general provisions and the procedure for requesting clarification, as well as, partly, challenge inspections)
- Article X** **Assistance and Protection Against Chemical Weapons**
- Article XI** **Economic and Technological Development** (agreed in its general outline, not yet in its specific contents)



- Article XII Measures to Redress a Situation and to Ensure Compliance, including Sanctions
- Article XIII Relation to Other International Agreements
- Article XIV Settlement of Disputes
- Article XV Amendments
- Article XVI Duration and Withdrawal
- Article XVII to XXIV (technical provisions)
- Annex 1: Annex on Chemicals (agreed in its concept, but not yet in a number of details)
- Annex 2: Annex on Implementation and Verification  
- "Verification Annex" - (Parts I, II, III, IV, V, VI, XI basically agreed; Parts VII and VIII basically agreed in terms of substance, but not yet in terms of structure; Part X basically agreed except for some details)
- Annex 3: Annex on the Protection of Confidential Information - "Confidentiality Annex"

4. On some issues, however, a final consensus has remained elusive despite of all efforts, most notably on:

- Article VI Activities not Prohibited Under this Convention (with regard to monitoring and verification of "other chemical production facilities", cf. also Part IX of the Verification Annex)
- Article IX Consultations, Co-operation and Fact-Finding (with regard to some details of challenge inspections, cf. also Part X of the Verification Annex)
- Article XI Economic and Technological Development (with regard to the question of export controls in the field of chemistry among States Parties)
- Annex 1: Annex on Chemicals (with regard to the position of some chemicals on the Schedules and some points in the guidelines)

Here, the Chairman has developed solutions by applying two principles: overall balance and adaptability of the Convention to future needs. His "leitmotif" was the desire to offer to future States Parties a balanced legal instrument providing clarity on the fundamental obligations and, at the same time, enough subtlety on matters of implementation so that, with the consent of States Parties, the respective provisions may still mature and evolve in



the course of future practice. The result reflects in his judgement the solutions best suited to be finally adopted by consensus.

## II. MAIN ELEMENTS OF THE OVERALL COMPROMISE PACKAGE

1. The following features of the draft Convention - relating to the agreed text as well as to the few provisions suggested by the Chairman - are considered by the Chairman as key components of the overall compromise package. They may be looked upon separately, but their real significance flows from their entirety. All of the following paragraphs represent only parts of one single body of provisions - the Convention:
2. The comprehensive scope of general obligations set forth in Article I and supplemented by the Preamble. This exhaustive list of basic obligations, which was fought for long and hard, bans all conceivable actions in contravention to the object and purpose of the treaty in an absolutely non-discriminatory way.
3. The built-in safeguards to deal with situations where the basic obligations had not been respected, in particular Articles X (Assistance and Protection against Chemical Weapons) and XII (Measures to Redress a Situation and to Ensure Compliance, including Sanctions).
4. The very clear and unambiguous provisions on the destruction, including its verification, of chemical weapons and chemical weapons production facilities as elaborated in Articles IV and V in conjunction with Parts IV and V of the Verification Annex.
5. The extremely delicate and equitable balance which has been established in Article VIII in the provisions on the Executive Council, its composition, procedure, decision-making, powers and functions.
6. The general verification package beyond the specific provisions for verification of destruction, which consists of



challenge inspections (Article IX and Part X of the Verification Annex) and verification in chemical industry (Article VI and Parts VII to IX of the Verification Annex):

- The political instrument of challenge inspections which reconciles the diverging objectives of maximum assurance against non-compliance, protection of the inspected State Party's sovereign rights, and the prevention of abuse; key elements of these provisions must also be seen in the context of the Executive Council's composition, powers and functions.
- The graduated regime of verification in industry which balances the objectives of reliable confidence-building, simplicity of administration, and non-interference with perfectly legitimate activities in chemical industry; which, furthermore, contributes to reducing the need for challenge inspections to a minimum as well as to enhancing international co-operation and exchange in the field of chemistry.

7. The evolutionary concept for economic and technological development as contained in Article XI and highlighted in the Preamble, which, in conjunction with an equally evolving confidence-building regime of verification in chemical industry, opens the door to increased and intensified co-operation and exchange in the future.

### III. DETAILED OUTLINE OF MAJOR ISSUES

1. The following detailed notes focus on issues of particular importance for the overall balance where consensus proved most difficult to be established. These notes are not intended to provide a comprehensive commentary on the provisions of the Convention.



A. General Obligations and Definitions (Articles I and II)

1. Article I incorporates the basic undertakings of the Convention, adding up to a total ban of chemical weapons and any activities aiming at or contributing to their use, and providing for the destruction of all chemical weapons and chemical weapons production facilities. The differing wording in paragraphs 2, 3 and 4 ("chemical weapons", "all chemical weapons", "any chemical weapons") on the destruction obligations emerged as a precondition of a compromise on the particularly sensitive issue of responsibility for the destruction of abandoned chemical weapons (cf. Section C below).

2. Due to compromises and concessions in summer 1991, the basic obligations regarding the ban of chemical weapons and their destruction as contained in the draft Convention are unreservedly comprehensive and absolutely non-discriminatory.

3. In the final stages of the negotiations, also two seemingly less important issues rose to fresh controversy and, finally, compromise: in many years of negotiations, positions had remained contentious on whether and how the possible war-time use of so-called "herbicides" and "riot control agents" should be dealt with in the Convention, as witnessed by footnotes and bracketed text which stayed untouched until recently.

4. Particularly riot control agents constitute a real problem. These irritants, physically disabling agents are used around the world in law enforcement and riot control, by police and other organs responsible for maintaining law and order. The same agents, however, would constitute an immediate risk and danger if they were allowed to develop into a new generation of non-lethal but nonetheless effective chemical agents of warfare, causing insurmountable problems in trying to distinguish in the ensuing grey area between "real" and "non-lethal" chemical weapons as well as between "real" and "non-lethal" chemical warfare units.

5. Only in the last week of negotiations a point near consensus has been reached on this important issue touching upon the very scope of the Convention. It was possible because a common view has



emerged among delegations that the preparation and application of any method of warfare dependent upon the toxic properties of chemicals should be banned under the Convention.

6. The compromise package consists of a new seventh paragraph in the Preamble, reiterating the already existing prohibition of the use of herbicides as a method of warfare, and a new paragraph 5 in Article I banning the use of riot control agents as a method of warfare. This solution drew largely on document CD/CW/WP.403 of 4 June 1992, presented by twelve delegations. Since all important terms used in Article I are defined in Article II, the term "riot control agent" required to be defined as well. Consensus on that definition could finally be reached, but some resistance remained against the obligation to declare riot control agents under Article III.

7. The suggested solution to this question in Article III strikes a balance between the latter position and those who argued for much more detailed declarations, including toxicity data on the chemicals and types of munitions and devices deployed for riot control purposes. This compromise should contribute to avoiding verification problems as well as to confidence-building and transparency.

8. As to other questions regarding the definitions under Article II, consensus was reached during the final, very intensive phase of negotiations on all outstanding issues. As a result of agreements on the definitions of "chemical weapons", "toxic chemical", "precursor" and "key component of binary or multicomponent chemical systems", the positions of document CD/CW/WP.404 of 4 June 1992, presented by twelve delegations, are largely reflected.

**B. Chemical Weapons and Chemical Weapons Production Facilities**

**Time period for the destruction of chemical weapons**

9. The provision that all chemical weapons of the States Parties shall be completely destroyed until the end of the tenth year



after entry into force of the Convention was consensus throughout the negotiations on the Chemical Weapons Convention over the past years. It is one of the core provisions of the Convention, setting out one of the basic obligations, and at the same time defining the time frame within which chemical weapons, the issue the Convention is all about, will still remain in existence.

10. Yet, as is well known, the Conference on Disarmament was informed, in a speech by the Foreign Minister of the Russian Federation on 12 February 1992, that there would be serious problems in meeting this deadline for Russia, and that the Russian Federation would find it very difficult indeed to ratify the Convention in its then wording as Russia could not guarantee correct implementation of the Convention. Since Russia is one of the two major possessors of chemical weapons, a serious situation developed. Neither ignoring the Russian problem nor overlooking the security concerns of other States which would be affected by simply extending the ten year destruction deadline would have been an appropriate and acceptable solution.

11. In order to better understand the problem and thus base any decision on solid ground, the Chairman of the Ad Hoc Committee on Chemical Weapons sent, as part of a Questionnaire, a set of specific questions to the Russian authorities. Although the answers have not yet arrived, the understanding that the problem is real and needs a solution has become widely held in the Ad Hoc Committee.

12. The compromise solution that has been incorporated in the draft Convention builds to a very large extent on the results of the work undertaken by the friends of the Chair on Destruction Matters, Mr. Canonne from France and Dr. Saghafinia from Iran, by the Moderator on this issue in the final round of negotiations before the draft was tabled, Ambassador Garcia Moritan from Argentina, and on results achieved in bilateral consultations between the Russian and American delegations.

13. The solution retains the ten year destruction period and makes any extension an unlikely but not entirely impossible event. It adjusts the sequence and pace of the destruction of chemical



weapons in a way that gives the Russian Federation some flexibility at the beginning while assuring that chemical weapons will be destroyed at a higher rate at the end of the overall destruction period in order to meet the ten year goal. If extension becomes unavoidable, it puts this decision in the hands of the highest decision making body of the Organization, the Conference of States Parties, and at the same time gives the Executive Council, in which States Parties from all regions are presented in a carefully balanced manner, the right to set a number of conditions for the State Party that requests an extension. The compromise includes the following elements:

14. In Article IV, the ten year time-line for destruction is retained in an unqualified manner. It is thus the fundamental obligation of all States Parties possessing chemical weapons to destroy them within ten years, in accordance with the provisions of the Convention.

15. In Part IV (A) of the Verification and Implementation Annex, the provisions for the Order of Destruction of chemical weapons in paragraphs 15 to 19 have been adjusted to the new situation, by dropping the concept of destroying chemical weapons in a linear manner, in equal annual increments, as foreseen so far. Instead, a later beginning and a lower initial rate of destruction is now foreseen, followed by accelerated destruction in the later years. This takes into account the fact that a major element of the problem relates to the difficulty to begin destruction of chemical weapons sufficiently early. At the same time, the draft Convention contains more detailed requirements and provisions for the preparation, design and conduct of international verification activities at these destruction facilities than the Rolling Text did.

16. As that in itself would not have solved the problem, two more adjustments became necessary. The first relates to the possibility that even under the new Order of Destruction, a State Party might not be able to meet one or more of the newly set intermediate time lines, thus violating the Convention. This is not entirely unlikely as the new intermediate aggregate destruction goals, expressed in percentages of the initial chemical weapons stocks,



have been drawn up with too little detailed knowledge of the problems the Russian Federation faces or will face in destroying its chemical weapons stocks. Hence, the new paragraphs 20 to 23 of Part IV (A) of the Verification Annex have been added, to provide for the possibility to adjust an intermediate deadline, yet without in doing so automatically affecting later intermediate deadlines or the overall destruction deadline of ten years. Adjustment will require the submission of detailed explanations as to why the State Party proposing that change cannot meet the original deadline, and it will require approval by the Executive Council, thus taking care of a balance of interests of all States Parties potentially affected by such a decision. Any change of a later intermediate deadline will, under these provisions, require another application for decision by the Executive Council.

17. Even with these adjustments, however, it is not certain that the Russian Federation, and for that matter perhaps even other States Parties possessing of chemical weapons, will be able to destroy all their chemical weapons within ten years after entry into force. Hence, and based on all consultations on that issue which took place over the past weeks, it was inevitable to foresee also provisions for a possible extension of that overall destruction goal. To take the decision to include such provisions was not at all easy because it affects the very heart, the object and purpose, of the Convention. A simple extension to, for example, 15 years, or a mechanism for extending the destruction period that would be almost routine, would have been unacceptable. It was necessary to find a solution that would make an extension unlikely but not entirely impossible, and that would take care of the interests, including the security interests, of all concerned future States Parties. On that basis, the following solution has been included in the draft, under paragraphs 24 to 28 of Part IV (A) of the Verification Annex:

18. In the understanding that a request for extending the ten year deadline cannot be made at the outset of the Convention but that in the earlier years requests for adjustment of intermediate deadlines will be made instead, a State Party may require extension of the ten year deadline not later than 9 years after entry into force. That request would then be scrutinized by the



Executive Council which may recommend to the Conference that extension be granted under certain conditions. These conditions can relate to specific verification measures, to provisions on how the costs resulting from the extension shall be met, and to specific actions the State Party requesting the extension will be required to undertake in order to overcome the problems that delayed implementation of the destruction programme.

19. Taking into account the gravity of such a decision, and the fact that the security interests of all other States Parties will be affected by it, it seemed appropriate to have such a decision taken by the highest body of the Organization where all States Parties can take part in the decision making, the Conference. This is foreseen in paragraph 26. At the same time, and with a view to address the security concerns of all, there will be enhanced reporting, and specific verification measures, during the extension period, with reports to be provided every three months rather than annually, and the reports will be available to all States Parties on request.

Conversion of chemical weapons production facilities to purposes not prohibited under the Convention

20. As in the case of destruction of CW, the provisions on the destruction of CW production facilities also enjoyed consensus over the years. So far, the understanding of all negotiating States had been that all CW production facilities will be destroyed in order to assure that no stand-by capacity for production of chemical weapons will be retained by any State Party.

21. However, as the Conference on Disarmament was informed by the Foreign Minister of the Russian Federation on 12 February 1992, there is, given the present political and economic situation in his country, a strong desire and in fact a compelling need to convert certain CW production facilities for purposes not prohibited under the Convention. As in the case of the time frame for destruction of chemical weapons, the understanding that this problem should be solved in a balanced manner has become widely shared.



22. The solution that has been incorporated in the draft Convention builds again to a very large extent on the results of the work undertaken by the friends of the Chair on Destruction Matters, Mr. Canonne from France and Dr. Saghafinia from Iran, by the Moderator on this issue in the final round of negotiations before the draft was tabled, Ambassador Garcia Moritán from Argentina, and on results achieved in bilateral consultations between the Russian and American delegations.

23. In Article V, provisions are now included which allow States Parties to request the Executive Council to permit the conversion of a CW production facility for purposes not prohibited, in cases of compelling need. The new paragraph 14 underscores the requirement that, if such conversion were permitted, it would have to be done in such a manner that the State Party would not retain a standby CW production capability. Finally, paragraph 15 of Article V establishes the legal basis for stringent verification of the facility to be converted, the conversion itself, and the converted facility after conversion.

24. The detailed provisions for conversion have been included in a new Section under Part V, Section D, of the Verification Annex. The main provisions which made incorporation of conversion acceptable, and balanced the economic and political needs of the Russian Federation with the security concerns of others, are these:

25. Irrespective of whether the request relates to a plant already converted in the past or planned to be converted in the future, a detailed declaration will be required. Furthermore, in case of a facility still to be converted, a detailed justification of the economic needs causing the request is to be submitted. There is, thus, no automaticity in reaching a favourable decision by the Executive Council for conversion.

26. There is a cut-off date after which requests for conversion cannot be made any more, which is 4 years after the Convention enters into force for the State Party.



27. There are well-defined conditions in Section D which lists activities that a converted CW plant will never be allowed to undertake, in particular chemical production of Schedule 1 or Schedule 2 chemicals and of chemicals which would require a technological lay-out somewhat similar to what is needed for Schedule 1 production. These provisions were included to assure that no CW stand-by capacity will be retained.

28. Conversion is dependent upon a decision by the Executive Council which in turn will base its decision on a sound and thorough verification of the facility and the plan for conversion. Thus, interests of other States concerned by the planned conversion will be taken into due account. If a favourable decision is taken, a combined plan for conversion and verification will be agreed upon between the Technical Secretariat and the State Party, subject to scrutiny by each Executive Council Member.

29. Finally, the converted plant will be under very strict verification indeed, with unimpeded access for inspectors to the facility at any time and access to other parts of the plant site as required. The State Party will, during the first ten years, be obliged to annually report about the activities at the facility. At the end of this period, the Executive Council will decide on the nature of the future verification regime at the facility.

### **C. Old and Abandoned Chemical Weapons**

30. The compromise solutions on both of these issues have emerged as the result of private and open-ended consultations of the Friend of the Chair charged with this task, Ambassador Brotodiningrat of Indonesia.

31. The Draft Convention contains special provisions in Part IV B of the Verification Annex for destruction of old chemical weapons produced before 1946. These provisions take into account that such old chemical weapons can either be considered as toxic waste and do no longer pose a security risk at all, or, at least, pose a lesser security risk.



32. Part IV B of the Verification Annex also contains detailed provisions for destruction of chemical weapons which a State abandoned on the territory of another State, which build on the general obligations contained in Article I, paragraphs 2 and 3.

33. The question of responsibility for destruction of abandoned chemical weapons was a much disputed issue in the negotiations. Whilst many delegations insisted that the obligation to destroy these weapons must remain with the State on whose territory the abandoned weapons are located, others argued that such a solution would "punish the victim" and that the responsibility for destruction should lie with the abandoning State.

34. The draft Convention includes a clear message on this issue. Part IV B paragraph 14 of the Verification Annex puts the main burden for destruction of the abandoned chemical weapons on the shoulders of the abandoning State by stipulating that "the abandoning State shall provide all necessary financial, technical, expert, facility as well as other resources. The territorial State shall provide appropriate co-operation".

#### **D. Executive Council: Composition and Decision-Making**

35. The composition of the Executive Council has been one of the most controversial and politically sensitive issues in the negotiations. The text contained in the draft Convention is the result of a long and intensive consultation process, conducted by the Friend of the Chair on this question, Ambassador Toth of Hungary. This consultation process included bilateral and open-ended meetings with CD members as well as meetings with observers to the CD and separate meetings with the regional groupings.

36. Diverging or even contradicting interests had to be harmonized:

- the need for a relatively small and effectively functioning but at the same time representative body,
- the interests of all future States Parties to have a fair chance for participation in the work of the Executive Council,



- the particular interests of future States Parties with large chemical industries most affected by the implementation of the Convention.

37. At the beginning of this year's session most delegations still favoured an Executive Council with approximately 30 members. Negotiations showed, however, that the diverging interests could only be harmonized by increasing the number of seats up to now 40 members.

38. The proposed composition of the Council is based on five regional groups as they exist in the United Nations. There was considerable support for a different approach based on four groupings, namely Africa, the Americas, Asia and Europe. Many delegations felt, however, that it was not appropriate, at this stage, to depart from the UN pattern in a security-related Convention. As a compromise solution the pattern of the UN-grouping has been maintained and a provision added in paragraph 25 which allows for review of the composition of the Council after full implementation of Articles IV and V.

39. The key concepts and interests that dominated the discussion are reflected in the chapeau of paragraph 23: effective functioning of the Convention; equitable geographical distribution of seats; the importance of chemical industry; political and security interests. As such, these concepts have been undisputed. Their translation into provisions for the distribution of seats, however, was the focus of controversies, particularly on the following issues:

- number of seats to be given to each region;
- ratio between seats allocated on the industrial criteria and other seats;
- the question of whether distribution of seats within the region should be spelled out in more detail or left completely to arrangements within each regional group.

40. Article VIII, paragraph 23, suggests a text which has undergone several revisions in order to integrate the variety of ideas. This text seems to be very close to consensus. The proposed solution is based on the following considerations:



41. The CW Convention is a security agreement which will affect the security of all States Parties. It should be designed to enable universal adherence. Therefore it is essential that each State Party has the right to serve on the Executive Council. It is also essential that, through equitable geographical distribution of seats, all States Parties obtain a fair chance to participate in the work of the Council. The different number of seats allocated to the five regions is the result of consultations and seems to be an acceptable compromise.

42. The implementation of the Convention will - apart from those countries that will have to destroy chemical weapons or chemical weapons production facilities - put the largest burden on those countries that have a particularly significant chemical industry. Presence of these countries in the work of the Executive Council and their contributions will be essential for the effective functioning of the body. Whilst this importance of the "industrial criterion" was generally recognized, its practical application for allocation of seats was disputed. In the draft Convention, the importance of chemical industry for implementation of the Convention is taken into account in two respects:

43. It plays a role in the number of seats allocated to regional groups.

44. It is reflected in the approach taken for distribution of seats within the regional groups. The number of seats allocated on this criterion is differing from group to group as a result of consultations. There are groups which were ready to concede permanent seats to some of their members having the most significant chemical industry, whereas other groups chose not to do so. In the latter groups other criteria such as security-related considerations or aspects of adequate representation of sub-regions were taken into account. As the approach for distribution of seats within each region should be the same for all groups, it was not possible to translate the different positions prevailing in the groups into different wording for allocation of the seats under subparagraphs (a) to (d).



45. The draft Convention tries to balance the differing positions by stating that, "as a basis for designation", special seats shall be allocated "as a rule" to "the States Parties with the most significant chemical industry in the region". The regional group shall also take into account other regional factors in designating these members. By using this balanced approach, regional groups are given some flexibility in designating the special seats.

46. Article VIII, paragraph 29, on decision-making in the Executive Council follows an approach quite frequently used in such international bodies. It allows for quick decision-making while assuring that no group be in a dominating position.

#### **E. Challenge Inspections (Article IX and Part X of the Verification Annex)**

47. Challenge inspections are intended to resolve concerns regarding possible non-compliance. The challenge inspection regime can be regarded as a means for a State Party to re-establish confidence in the compliance of another State Party, thus relieving also the international community of a concern about possible non-compliance.

#### **Negotiating Problems**

48. There is consensus in the Conference on Disarmament that a challenge inspection regime is required in the CW Convention. It is the common assessment of all delegations that this regime constitutes a novelty in the verification of a universally applicable arms control and disarmament treaty; that, furthermore, it constitutes a politically sensitive concept which must carefully balance

- the verification interests of a State Party and of the international community and the interest of the inspected State Party to protect sensitive information not related to the CW Convention; and



- the right of any sovereign State Party to request a challenge inspection, the national sovereignty of the inspected State Party, and the rights of the community of States Parties as represented by the Executive Council and executed by the Technical Secretariat.

However, very diverging national priorities of CD delegations on how to strike this multi-dimensional balance made negotiations and the development of a consensus extremely difficult.

49. Some delegations gave the verification interests of a State Party or of the community of States Parties to the CW Convention a high priority. This would have resulted in a very stringent and intrusive challenge inspection regime.

50. Other delegations accorded overriding importance to security interests regarding areas not related to the CW Convention. Views to which extent these security needs should be allowed to impact on the execution of a challenge inspection differed widely: while some delegations were prepared to concede only a few hours preparation time for the inspected State Party to provide access to a facility or location, others would have accepted 72 hours, while a third group wanted to allow for 144 hours preparation time; there was even a proposal in the air to give six months preparation time.

51. For some delegations, access to the facility or location to be inspected should have been permitted to be nearly unrestricted, only limited in rather exceptional situations. Others asked for full access limited by a managed access regime to protect sensitive installations and to prevent disclosure of sensitive information not related to the Convention. A third position suggested a managed access regime which would have allowed to give, in exceptional cases, only aerial access in the form of an overflight.

52. Some delegations emphasized the right of a State Party to request a challenge inspection, the request to be implemented by the Technical Secretariat without any questioning. As a result, the Executive Council, the executive organ of the CW Organisation,



would not have been involved before the start of a challenge inspection and would have had no substantial role in evaluating the results of the inspection with regard to the question of possible non-compliance. Furthermore, as national security interests are involved whenever a State Party requests a challenge inspection, some delegations were in favour of having the right to send an observer to participate in the challenge inspection as an additional element of assurance.

53. Other delegations emphasized the assurance against an excessive use of the right of the requesting State Party. The inspected State Party should be protected against any frivolous or abusive inspection requests. One group wanted the Executive Council to decide on the carrying out of an inspection request by a two-third majority. Others felt that in the exceptional case of a decision against the request for a challenge inspection by a sovereign State, a consensus decision was required. Furthermore, some delegations stressed their reluctance to concede the infringement on their sovereignty by the participation of an observer.

#### Solutions in the Draft CW Convention

54. The draft Convention establishes a credible challenge inspection regime, striking a very carefully crafted balance between the diverging views summarized before:

(a) Before filing a request, the requesting State Party may ask the Director-General of the Technical Secretariat if capacity is available to start the challenge inspection immediately. If not, the requesting State Party can delay the request and consequently guard all the information linked with it until after capacity is available. This procedure ensures prompt action of the Technical Secretariat after having eventually received the request; at the same time, it prevents the inspection request from becoming public knowledge long before it is carried out.

(b) The inspected State Party has to file two copies of the inspection request at the same time; one to the Executive Council, another to the Director-General of the Technical Secretariat. This two-track approach allows the Technical Secretariat to prepare immediately for the challenge inspection while, at the same time, the inspection request can be examined by the Executive Council.



(c) The inspected State Party has the right to withhold the information on the location of the inspection site up to 12 hours before the planned arrival of the inspection team at the point of entry. This provision, as much as the provision on the prior inquiry on available inspection capacity mentioned before, permits the requesting State Party to keep the preparation time for the State Party to be inspected to a minimum, if so desired. This contributes to the deterrent effect of the challenge inspection regime.

(d) The Executive Council may decide, within 12 hours after having received the inspection request, by a three-quarter majority of all its members, against carrying out the challenge inspection. Such a decision may be taken only if the request is considered to be frivolous, abusive or clearly beyond the scope of the CW Convention. This provision, on the one hand, emphasizes the right of the sovereign State Party to request a challenge inspection by limiting the number of criteria preventing the implementation of an inspection request, and by prescribing a three-quarter majority for such a decision. On the other hand, it protects the State Party to be inspected effectively against inspection requests clearly frivolous, abusive or beyond the scope of the CW Convention.

(e) The time period usable for preparing for a challenge inspection by the inspected State Party ranges from up to 48 hours in a situation when the inspected State Party is able to conform fully with the inspection request (this should be the normal case) and up to 120 hours when the inspected State Party, for reasons not related to the CW Convention, is not able to provide access earlier, and to the perimeter as requested. This flexibility granted to the inspected State Party balances the verification needs and the right to protect sensitive installations and information not related to the CW Convention.

(f) The inspected and the requesting States Parties may agree to have a representative of the requesting State Party, or of a third State Party, observing the challenge inspection. While the right to send an observer could have been interpreted as an element of distrust in the Technical Secretariat, and for a number of delegations was not acceptable, a jointly agreed observer constitutes a great chance for confidence building. It should be expected that a great majority of States Parties will take advantage of this provision in the course of the implementation of the CW Convention.

(g) The inspected State Party has the responsibility to transport the inspection team from the point of entry to the inspection site. Conditions for transportation vary from country to country and are dependent on weather conditions. While all States Parties should select as many points of entry as necessary on their territory in order to ensure a regular transportation time of 12 hours from the point of entry to any inspection site, the draft CW Convention provides flexibility for the inspected State Party. If necessary, and this is meant to be an exceptional case, the inspected State Party can use up to 24 hours for transportation while continuing other activities at the same time, such as negotiating on perimeters.



(h) Access to the inspection site is to be given fully and comprehensively. If the inspected State Party has to protect sensitive installations and confidential information not related to the CW Convention, it can do so under a managed access regime. However, in exceptional cases, at least individual inspectors must be given access to certain parts of the inspection site and, furthermore, the inspected State Party is under the obligation to make every reasonable effort to demonstrate its compliance with the CW Convention and to enable the inspection team to fulfill its mandate. The provisions on access again strike a balance between the verification needs and the legitimate right of a State Party to protect sensitive installations and confidential information not related to the CW Convention.

(i) Quotas, neither passive nor active, found sufficient support with CD delegations, although desired by some. Those delegations against quotas considered that quotas might lead to institutionalizing challenge inspections as a normal means of verification, while it has been designed to constitute an exceptional one. Others, in favour of quotas, regarded them to be an appropriate means to protect States Parties as well as the Technical Secretariat against an excessive number of challenge inspection requests. The draft CW Convention does not suggest any quotas; however, it contains a provision which allows the Director-General to ask the Executive Council to take appropriate action if, as a result of too many inspection requests, the Technical Secretariat cannot fulfill its task in such way as States Parties would expect.

(k) The Executive Council shall, after a challenge inspection, review the final report of the inspection team. While this is to be done in accordance with the powers and functions of the Executive Council, which would not exempt any question in connection with a particular challenge inspection from review, special attention is to be given to the questions of non-compliance, scope and abuse. While some delegations favoured a formal decision after this review process, others rejected such a provision. The draft CW Convention designs a procedure which, as a result of the review, would allow the Executive Council to conclude that further action may be necessary and appropriate measures, including specific proposals to the Conference, are to be taken. This compromise provides sufficient flexibility to the Executive Council to take any action necessary for safeguarding the functioning and credibility of the CW Convention, while, at the same time, avoiding a formal decision, which could be misused as a verdict in the public domain.

**F. Verification in Chemical Industry (Article VI and Parts VII to IX of the Verification Annex)**

55. Monitoring by data reporting and international on-site verification in chemical industry is intended to confirm that "Activities not Prohibited Under this Convention" (title of Article VI) remain within the bounds of the Convention, to provide



a reasonable assurance against misuse of industrial facilities, and to strengthen the ground for growing international co-operation and exchange between chemical industries.

56. Thus, the nature of verification in industry is very different from that of the challenge inspection regime: verification in industry aims at steady and continuous confidence building, it does not provide for highly political action to answer concrete concerns about possible non-compliance. At the same time, verification in industry and the challenge inspection regime are complementary: ideally, smooth and efficient implementation of verification measures under Article VI will greatly reduce the need for challenge inspections, which, however, remain the ultimate safety net also to answer concrete concerns about possible non-compliance in industry.

57. There has long been a broad consensus on these basic objectives of verification measures under Article VI. The task of translating them into concrete treaty provisions, however, proved to be particularly thorny. Many very detailed, laboriously prepared, but contradictory concepts were developed over the years, presented and fought for with equal conviction. Finally, a basic consensus on a three-tiered regime emerged, which is reflected in Parts VII, VIII, and IX of the Verification Annex, and which provides for a graduated approach distinguishing between:

- Chemicals listed in Schedule 2 of the "Annex on Chemicals" and facilities related to such chemicals;
- Chemicals listed in Schedule 3 of the "Annex on Chemicals" and facilities related to such chemicals; and
- Other chemical production facilities.

(The special regime for Schedule 1 chemicals, i.e. chemical warfare agents, and related facilities has already been agreed upon for some time; it is contained in Part VI of the Verification Annex. Given the extremely limited use of these chemicals for industry, this regime is usually not considered as part of general verification in industry).



58. Despite of the basic consensus on the three-tiered regime, a number of technical details and some political questions continued to elude consensus. Thus, the solutions incorporated in the draft Convention necessarily had to fill in some gaps. In doing that, the Chairman could build largely on the results of the work undertaken by the Chairman of the Working Group on Verification, Mr. Morris from Australia, reflected in his "Paper No.12 Rev.2" of 29 May 1992; on the work by the Moderator on this issue in the final round of negotiations before the draft was tabled, Ambassador Hyltenius from Sweden; on the document CD/CW/WP.406 tabled on 4 June 1992 by twelve delegations; and on the results of many private consultations.

59. During year-long negotiations, it had become more and more apparent that there are inherent limitations in the hypothetical search for rigid solutions to practical problems whose nature will fully emerge only in the course of future implementation. Therefore, the draft Convention contains a regime for industry verification which is:

- conducive to enhancing confidence and international co-operation, but not excessively ambitious in its verification goals;
- simple to administer; and, above all,
- flexible and open to future adjustment in the light of practical experience gained.

60. The goal of simplicity led to the application of a common structure in the provisions for all three types of facilities. The general structure applied throughout Parts VII to IX of the Verification Annex uniformly uses "plant site" as unit of reference for declarations and "plant" as unit of reference for verification measures:

- "Plant site" as unit of reference for declarations avoids a fragmentation of declarations, which would render the task of the Technical Secretariat very difficult indeed. It also liberates both national authorities and the Technical Secretariat from unnecessary red tape by avoiding the listing of all individual plants in the declarations under Part IX;



- "Plant" as unit of reference for verification measures, on the other hand, helps to focus inspections on those parts of a plant site that are of particular relevance for the objectives of the Convention. At the same time, this focussing of inspections meets the concerns about undue interference in industrial activities.

- (The distinction between the larger unit "plant site" and the smaller unit "plant" - both defined in Part I of the Verification Annex - had provided an example of how prima facie technical questions sometimes acquired a surprising political prominence which led to most intractable negotiating problems).

61. The goal of simplicity has, however, not led to an undue levelling out of the different verification requirements for the different types of industrial facilities, which are briefly outlined in the following paragraphs.

**Part VII of the Verification Annex - Regime for chemicals listed in Schedule 2 and facilities related to such chemicals:**

62. The Schedule 2 regime reflects the long-held position of most delegations that these facilities deserve the relatively highest degree of attention. It is assumed that the substance of Part VII of the Verification Annex comprises all the essential consensus elements elaborated in the Ad Hoc Committee. Part VII covers producers, processors, and consumers of Schedule 2 chemicals; it builds on the distinction between Schedule 2 A and 2 B; thresholds triggering declarations and inspections represent agreed figures; it contains compromise provisions on initial and subsequent inspections, on inspection aims, facility agreements, allocation of resources earmarked for verification, duration of inspections, and notification. The emphasis on Schedule 2 facilities has been maintained, their inspections will not be downgraded to the same procedures as applied in Schedule 3 and other production facilities.

**Part VIII of the Verification Annex - Regime for chemicals listed in Schedule 3 and facilities related to such chemicals:**

63. This Part may not be so easily acceptable as Part VII. Whilst it reflects the essence of document CD/CW/WP.406 of 4 June 1992, it contains some features consistently put into question by a



number of delegations: it covers only producers of Schedule 3 chemicals; thresholds triggering inspections are closer to the high end of figures under discussion; no national nominations are foreseen in the selection process for inspections; the access for inspectors is largely limited to plants only. On the other hand, it contains compromise provisions on the duration of inspections, on the notification time, and on inspection quota. Seen in conjunction with Parts VII and IX, also Part VIII should meet general support as part of a larger package.

**Part IX of the Verification Annex - Regime for other chemical production facilities.**

64. The most difficult question of verification in chemical industry, which had to be answered in Part IX, has always been the question of "scope". To what extent should industry come under a verification regime at all? "Deep and narrow", "broad and shallow", and "nothing beyond Schedule 3 facilities" were catchwords for extremes in a multi-faceted, very technical, and extremely complex debate. This debate has led the Chairman to two conclusions:

- Firstly: it might not be possible to find a definite hypothetical answer to practical questions of future implementation;
- Secondly: this, however, should not lead to a hasty choice of the lowest common denominator since such a choice might prove to be very harmful to the potential of the Convention to enhance security as well as future co-operation in the chemical field.

65. Building on these two conclusions, Part IX strikes a careful balance. It does not foreclose the confidence-building potential of a wide scope. Withholding this potential would seem politically very unfortunate because it might undermine the further evolution of the co-operative approach to economic and technological development outlined in Article XI. Therefore, Part IX of the Verification Annex sets forth a simple, but broad declaration regime for a "List of Other Chemical Production Facilities". This



list shall contain some basic data on all plant sites which meet either one of two "triggers":

- All plant sites that produced by synthesis during the previous calendar year more than 200 tonnes of non-scheduled discrete organic chemicals;
- Likewise, all plant sites that comprise one or more plants which produced by synthesis during the previous calendar year more than 30 tonnes of a non-scheduled discrete organic chemical containing the elements phosphorus, fluorine, or sulphur (so-called "PSF-plants").

66. A number of elements balance the decision for a "wide scope": the high declaration threshold of 200 tonnes annual production for plant sites which do not include "PSF-plants"; the possibility of asking for the assistance of the Technical Secretariat in compiling the list of other chemical production facilities; in the suggested verification regime, the focus of inspections on "PSF-plants" and the only limited access for inspectors; the Schedule 3 regime contained in Part VIII as outlined above.

67. The main element of balance, however, lies in the evolutionary approach with regard to verification: the implementation of verification measures is deferred into the fourth year after entry into force of the Convention. In the third year, the Conference of States Parties may decide otherwise, if experience gained by then led to a different conclusion. The question of applying national proposals to the selection for inspections has also been left to a future decision by the Conference of States Parties. Furthermore, the eventual adaptation of verification in industry as a whole has been put on the agenda of the first review conference of the States Parties.

#### G. Economic and Technological Development (Article XI)

68. In preparing the language of Article XI, a wide range of views with regard to the question of export controls among States Parties to the Convention had to be taken into consideration. On the one side, it was felt that no restrictions in international regimes parallel to the Convention should be maintained after



entry into force of the Convention. On the other side, it was argued that the Convention should not put into jeopardy the sovereign right of a State to control its national exports and imports.

69. In order to strike a reasonable balance between these views a flexible and dynamic approach to the issue had to be adopted. In particular, the approach had to lay the basis for a solution of the export control issue which can evolve in parallel with the implementation of verification in chemical industry, thus taking into account the confidence generated by the Convention, and providing the framework for a future-oriented co-operative political process after entry into force of the Convention. This approach seems best suited to command consensus since the Convention itself - as explicitly provided for in Article VI, paragraph 6 - is based on the assumption of a gradual implementation of verification in chemical industry.

70. With these considerations in mind, it was felt that the proposals contained in "Working Paper No.7" of the Friend of the Chair on Article XI, Mr. Felicio from Brazil, would constitute a solid basis for the missing language in Article XI. The proposals put forward in Document CD/CW/WP.409 of 4 June 1992, and recent intensive consultations led, however, to an in-depth review and improvement of these suggestions.

71. On the basis of Working Paper No. 7 and in the light of the recent proposals and deliberations the Chairman decided to propose the following key elements for his version of Article XI:

- Additional language in the Preamble now reflects the thrust of Article XI in the very beginning of the Convention itself: (The States Parties ...) "Desiring to promote free trade in chemicals as well as international co-operation and exchange of scientific and technical information in the field of chemical activities for purposes not prohibited under the Convention in order to enable economic and technological development of States Parties".

(This is relevant language for the interpretation of Article XI since the Preamble - including also its part "to exclude completely the possibility of use of chemical weapons, through the implementation of this Convention" - constitutes according to Article 31 paragraph 2 of the Vienna Convention on the Law of Treaties an integral part of the Convention.)



- Paragraph 1 of Article XI stipulates that the provisions of the Convention shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international co-operation in the field of chemical activities for purposes not prohibited under this Convention.

(The language for Article XI, paragraph 1, contained in "Working Paper No.7" has thus been reinforced by deleting "as far as possible" after "avoids").

- Paragraph 2 c of Article XI sets forth that subject to the provisions of the Convention and without prejudice to the principles and applicable rules of international law, States Parties shall not maintain among themselves any restrictions, including those in any international agreements, inconsistent with the object and purpose of this Convention, which would restrict or impede trade in the field of chemistry for industrial, agricultural, research, medical and pharmaceutical or other peaceful purposes

(The language proposed in "Working Paper No.7" has thus been amended in two respects: in order to meet concerns about the term "arbitrary" this word was deleted and replaced by "inconsistent with the object and purpose of this Convention". Furthermore, language capturing the idea that no international agreement inconsistent with the object and purpose of the Convention should be maintained after entry into force of the Convention was inserted.

The notion of consistency with the object and purpose of the Convention is referring, according to the relevant wording in the Preamble, to both: "to exclude completely the possibility of use of chemical weapons, through the implementation of this Convention" as well as "to promote free trade in chemicals". Thus, in the view of the Chairman, to the extent that successful implementation of the Convention realizes the objective "to exclude completely the possibility of use of chemical weapons" other restrictions specifically designed to curb the spread of chemical weapons lose their legitimacy under this Convention. At the same time the Chairman feels - against the background of the object and purpose of this Convention - that the sovereign right of States Parties to maintain export control for non-CW-related purposes is not affected by this paragraph.)

- Paragraph 2 d provides that, subject to the provisions of the Convention and without prejudice to the principles and applicable rules of international law, the States Parties shall not use the Convention as grounds for applying any measure other than those provided for by, or permitted under, the Convention nor use any other international agreement for pursuing an objective inconsistent with the object and purpose of this Convention.



(This new language was incorporated to specify further the thrust of Article XI. The former paragraph 3 d becomes paragraph 3 e).

72. As to transfers of scheduled chemicals to Non-States Parties the Chairman refrained from including specific provisions in the draft Convention. It was felt that the obligation of a State Party not to assist anyone to engage in any activity prohibited under this Convention stipulated in Article I paragraph 1 d could serve as a sufficient basis for measures against Non-States-Parties. In the view of the Chairman such an approach would allow for the indispensable flexibility to take the specifics of a given case duly into account while at the same time provide for a framework for relations between States Parties and Non-States Parties to the Convention.

#### H. Annex on Chemicals

73. After years of tough negotiations, no complete consensus could be reached with respect to the Schedules of Chemicals. Remaining problems of some delegations who could not accept the Schedules as contained in CD/CW/WP.400 focussed on the shifting and/or exclusion of certain chemicals. A balanced solution has been developed, building on the work done by the Friend of the Chair on Technical Issues, Dr. Cooper from the United Kingdom:

(a) Botulinum toxin was deleted from Schedule 2, although some delegations argued for keeping this chemical on Schedule 2, pointing to the lack of a verification system under the Biological Weapons Convention, which continues to be a reason of concern to many delegations. However, support prevailed in favour of a deletion of botulinum toxin from Schedule 2, since the coverage of toxins by the CW Convention was felt to be sufficiently marked by the two toxins on Schedule 1.

(b) Support was prevailing for keeping chlorosarin and chlorosoman on Schedule 1, BZ and pinacolyl alcohol on Schedule 2 (as suggested in CD/CW/WP.400). The particular risk posed by BZ is reflected by the marker "\*" referring to much lower thresholds for declaration and verification.

(c) There was also a proposal to delete six chemicals from Schedule 3. On the other hand, two of these chemicals, the precursors for the nitrogen mustards HN1 and HN2, were even considered as candidates for Schedule 2, rather than Schedule 3, in terms of risk to the object and purpose of the Convention and



of the quantities produced. As a compromise, the precursors to the nitrogen mustards remained in place, while the three chemicals exempted from Schedule 2 were deleted. (This compromise on the Schedules should be evaluated also in connection with the exclusion of the wide area of consumers of Schedule 3 chemicals from the declaration requirement in Part VIII of the Verification Annex).

(d) All of the Schedules were re-structured and divided in parts A, toxic chemicals, and B, precursors. This does not only represent an additional element of compromise as proposed earlier this year in open-ended consultations, but seems to be an editorial improvement as well, making reference to particular categories of scheduled chemicals easier.

(e) The language of the guidelines had to be adjusted accordingly and streamlined in places where this was believed to facilitate the understanding of the text. In doing so, elements of guidelines as proposed in CD/CW/WP.407 were included. However, the structure of the guidelines remained unchanged as compared to CD/CW/WP.400.

#### J. Financing of the Organisation

74. The fundamental provision for financing of the Organization is contained in Article VIII paragraph 7 which stipulates that "the costs of the Organizations' activities shall be paid by States Parties in accordance with the United Nations scale of assessment adjusted to take into account differences in membership between the United Nations and this Organization.

75. Intensive discussions and study of the UN scale of assessment and the principles underlying its elaboration by the General Assembly indicated that, by and large, this process is taking into account all criteria that are of relevance for the distribution of costs of the Organization. Therefore, and in order to avoid time-consuming and difficult discussion at each yearly session of the Conference, agreement on paragraph 7 was reached.

76. The distribution of costs of verification for destruction of chemical weapons and chemical weapons production facilities was the only issue where consensus could not be reached in the discussion. Some delegations argued that costs of verification should also be allocated according to the UN scale of assessment since this verification was in the security interest of all States



parties and CW possessor States already shouldered a particularly heavy financial burden by paying the costs of destruction of CW. Other delegations, including all developing countries, argued that such a solution would be unacceptable to them and might create a disincentive to join the Convention.

77. The compromise solution proposed takes into account the interests of the two large CW-possessor States that have already concluded a bilateral agreement on destruction of chemical weapons while, at the same time, safeguarding the interests of all States Parties. The compromise solution provides that:

- Those States that are obliged to destroy CW or CW production facilities also bear the costs of verification of destruction.
- States Parties may, however, conclude between them bilateral verification agreements. In this case the Organization can decide to limit its verification to complementary activities. These complementary verification and monitoring measures by the Organization would then be paid according to the UN scale of assessment.

78. This solution does allow States Parties that conclude a bi- or multilateral agreement to use respective national inspectors equipment, airlines etc. for inspection activities, which is likely to be cheaper than inspection through the Organization. On the other hand, costs for complementary verification and monitoring are likely to be quite low and should certainly not lead to considerable increases in States Parties financial contributions.

#### **K. Amendments (Article XV)**

79. Article XV contains a rather unique procedure for amendments and changes to the Convention. The text has been elaborated mainly under the Chairmanship of Mr. Wadhwa of India, and been adopted by the Ad Hoc Committee on June 19, 1992.

80. The discussion on the issue was difficult for the following reasons:



- Delegations felt that the CW Convention as a security treaty should not allow for any split regime whereby different provisions would apply to different States. As a consequence, the provision in Article XV had to be such that any amendment would enter into force for all States Parties at the same time.

- The Convention contains many provisions that require implementation by national law and that affect civil rights protected by national constitutions. Therefore, a number of States maintained that amendments should not enter into force without ratification by their parliaments.

81. Given the two aspects mentioned, one solution would have been to require ratification of all States Parties before an amendment could enter into force. This, however, would have made the Convention unamendable.

82. With the solution chosen, any parliament wanting to ensure its right of ratification can do so by ensuring that the government participates and votes in the Amendment Conference. The fact that the solution provides for a veto right of every State Party was part of an overall compromise and essential for those States who wanted to exclude certain articles completely from any possibility of amendment.

83. Most disputed was the identification of provisions to be subject to a simplified procedure, allowing for changes without ratification, as contained in Article XV, paragraph 4:

- The great majority of delegations spoke in favour of submitting all annexes to a simplified procedure whereby any change to these annexes could enter into force without ratification by parliament. These delegations argued that any other procedure would be very dangerous for the Convention given that the Annexes contain detailed verification procedures which have not yet sufficiently been tested in practice. Asking for ratification of changes in the annexes would endanger the effective adaptation to experience gained in the course of implementation.

- Some delegations felt that amendments to most of the Annexes should remain subject to ratification since such amendments could in many instances be of relevance in terms of national implementation and in terms of protection of civil rights.



84. The solution chosen is a compromise that goes a long way in accommodating the concerns of those States that insisted on a ratification procedure for most Annexes by

- stating in paragraph 4 that only changes related to matters of an administrative or technical nature shall follow the non-ratification procedure,
- stipulating that any amendment to the annexes most sensitive in terms of protection of civil rights would have to follow the ratification procedure.

**L. Seat of the Organisation**

85. The decision on the seat of the Headquarters of the Organization for the Prohibition of Chemical Weapons, thanks to Ambassador Kamal from Pakistan, was arrived at in a very pragmatic manner.

86. In open-ended consultations and after a thorough and highly transparent analysis of the competing bids of three bidding states - namely Austria (Vienna), the Netherlands (The Hague) and Switzerland (Geneva) - the members of the Conference on Disarmament reached consensus and opted for the Netherlands' offer.

87. It must be commended that the decision-making process on the future seat of the Headquarters of the Organization was not troubled by political factors at all, but was concluded on the basis of factual criteria only.

**M. Note on Questions of Editing**

88. The draft Convention does not spell out in detail any cross-references where they are made within the same level (i.e. within the same Part, Article, Paragraph, Subparagraph etc.)

- Example 1: Article IV, paragraph 6: "Each State Party shall destroy all chemical weapons specified in paragraph 1..." This cross-reference refers to paragraph 1 of the same Article.

- Example 2: Article III paragraph 1 (a) (ii):  
"...except for those chemical weapons referred to in sub-  
subparagraph (iii)"  
This refers to the same subparagraph (a).

89. In cases where cross references are made to other sections without specifying paragraphs in these sections, the cross reference includes all provisions of the section referred to.

- Example: Part IV B of the Verification Annex: "All chemical weapons shall be destroyed as provided for in Section B".

90. The draft Convention tries to avoid any resort to the formulation "and/or" as it was still frequently contained in CD/1116, since such alternative formulations should not be used in legally binding instruments.

91. In choosing "or" in any listing of different elements, the draft Convention follows the rule that "or" is to be understood in the sense that each of the listed elements, taken separately, is already sufficient to meet a definition or trigger an obligation contained in the paragraph or article. This can perhaps best be seen in Article II paragraph 8 concerning the definition of chemical weapons production facilities.









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Ad Hoc Committee on Chemical Weapons

ALGERIA, CHINA, EGYPT, INDIA, INDONESIA, ISLAMIC REPUBLIC OF IRAN,  
KENYA, MEXICO, MYANMAR, PAKISTAN, SRI LANKA AND ZAIRE

Preliminary comments on the Chairman's Draft  
(CD/CW/WP.400/Rev.1)

The Group of Developing Countries which had earlier presented the proposals contained in Working Papers CD/CW/WP-402 to 409 with the objective of identifying possible compromise solutions, despite their preferred national positions, have found, in their preliminary examination of document CD/CW/WP.400-Rev.1, that many of the suggestions made by them, and to which they attach high importance, have not been reflected in the Chairman's draft. Some of these are the following:

I. Article II:

Paragraph 9(d) of the Article should be replaced by the agreed language contained in paragraph 5(a) of Article II in CD/1116.

II. Article III:

The requirement for declarations of riot control agents is an unnecessary burden on States Parties and should be deleted.

III. Article VI and Parts VII, VIII and IX of the Verification Annex:

i) The realities of the chemical industry and the commitment to avoid hampering the economic and technological development as well as facilitating the free trade of chemicals and related technology require that the scope of the verification regime be designed in a manner that while it builds confidence, parts of the chemical industry with no relevance to the objectives of the Convention are not placed under the verification system which will unnecessarily put a heavy burden on the chemical industry as the whole, particularly on the chemicals importing countries of the developing world. This important aspect has not been fully addressed in the verification regime for Schedule 3 and capable facilities.

ii) The thresholds for Schedule 3 and capable facilities have not been designed to take into account this reality. A facility to be economic has to produce more than what has been referred to in WP.400-Rev.1. Definition of capable facility with such a broad domain will include facilities irrelevant to the convention and create a verification regime which will not be cost-effective, and in addition to affecting trade in non-scheduled chemicals, will have adverse effects on the chemical and petrochemical industries.

iii) In the selection process, any politicization of the issue is not advisable. That is why the Group had proposed a system of criteria and standards for this process and not a reliance on the political decisions of the States Parties. The Group's position has not been reflected in the paper.

iv) The reference to declarations relating to protective programmes should be deleted.

IV. Article IX and Part X of the Verification Annex.

i) The timeframes laid down for prior notification and transportation are impractical.

ii) There is a requirement for the Executive Council to play its due role of decision-making at the beginning, during and at the conclusion of a challenge inspection. In particular a decision by the Executive Council at the conclusion of a challenge inspection is essential in order to finally conclude the procedure. The text does not establish this concept.



iii) The concept of "abuser pays" should be clearly established.

iv) Selection of inspectors and inspection assistants who would carry out challenge inspections should be done on an equitable geographical basis.

v) Photo taking and video recording by the inspection team should be confined to traffic exiting from the requested perimeter.

vi) Aerial access to the inspection site in exceptional circumstances is an important element of managed access and should be included in the text.

vii) Reference to an Observer's right to make recommendations and to have them taken into account by the inspection team is an unnecessary intrusion in the task of the inspection team and should be deleted.

#### V. Article XI :

In WP/403 the Group had put forward amendments to WP.400 which would ensure that States Parties to the future Chemical Weapons Convention are not subjected to controls other than those specified in the Convention, which would impede and restrict their economic development on the premise that States Parties to the Convention will undertake to abide by its provisions, and subject their chemical industry to monitoring and verification as provided for in the Convention. Any other control regimes which may be applied once the Convention enters into force, would discriminate against some States Parties to the Chemical Weapons Convention, even though the stated aim of these control regimes would be to further the object and purpose of this Convention.

#### VI. Annex on Chemicals

i) A clear distinction between the guidelines of the schedules should be made without any ambiguity for further inclusion in the future. Meanwhile, the risk assessment of chemicals contained in the schedules has not been taken into account.

ii) For inclusion, exclusion and transferring the chemicals from and between the schedules, the risk assessment of chemicals and commercial application of the chemicals should be considered together. Accordingly, in particular, Schedule 3 should be limited to the minimum necessary (maximum 14 chemicals as contained in CD/1116).



iii) The views advanced by the Group on these issues have not been taken into account.

2. In addition some new language has been introduced in CD/CW/WP.400-Rev.1. The Group's preliminary comments on these provisions are as follows :-

I. Article III :

A reference to declarations on transfer or receipt of documentation relevant to the production of chemical weapons is needed as was the case in Article III in CD/1116.

II. Article IV and Part IV of the Verification Annex.

i) The concepts of changing the order of destruction and extending the established 10 year deadline for complete destruction of chemical weapons, are new and will impact adversely on the scope of the Convention.

ii) In order to prevent high risk chemical weapons from being kept till the end of the destruction period the principle of "levelling out" needs to be incorporated. The principle implies that the destruction of chemical weapons should be carried out in such a manner that it takes into account the qualitative aspect and gives greater priority to those chemical weapons with higher risk factor.

III. Article V and Part V of the Verification Annex.

The idea of conversion of chemical weapons production facilities to permitted activities is new and changes the fundamental obligation of States Parties to destroy all such facilities.

IV. Article VIII

The imbalances in the allocation of seats in the Executive Council between developed and developing countries need to be redressed.



3. The Group has some comments on Article X which are as follows :-

Article X

In case of use or threat of use of chemical weapons against a State Party, the Organization should be in a position to provide necessary emergency assistance within a very limited timeframe without being taken hostage to a time-consuming decision-making procedure.

4. The Group of Developing Countries will be ready to make its further contribution at the third part of the 1992 session of the Conference on Disarmament in order to advance and conclude the negotiations on the Chemical Weapons Convention.











# CONFERENCE ON DISARMAMENT

CD/CW/WP.416  
22 July 1992

ENGLISH  
Original: SPANISH

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Ad Hoc Committee on Chemical Weapons

CUBA

Basic considerations concerning the functions, general structure and qualifications of the staff of the Technical Secretariat and the Advisory Board of the new international organization to be established to ensure compliance with the provisions of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction

Introduction

An international organization will have to be established in order to ensure the implementation of the provisions of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. In order to discharge its responsibilities as efficiently as possible the Organization will have to be staffed by a group of competent international officials, who should be assigned a set of well detailed activities the essential elements of which should be embodied in the version of the draft convention laid before the Conference on Disarmament for final approval.

The international officials would constitute what is called the Technical Secretariat in the present text of the draft convention now under negotiation in Geneva.

Functions

The Technical Secretariat will inter alia, discharge the following function; it shall:

- (a) Address and receive communications on behalf of the Organization to and from States Parties on matters pertaining to the application of the Convention;

GE.92-62391/4677H

(b) Negotiate supplementary arrangements with States Parties relating to systematic on-site international verification, for approval by the Executive Council;

(c) Implement the international verification procedures provided for in the Convention;

(d) Inform the Executive Council of any problems that may have arisen with regard to the discharge of its functions or that have come to its notice in the performance of its verification activities and that it has been unable to resolve or clarify through consultations with the State Party concerned;

(e) Provide technical assistance and evaluation to States Parties in the implementation of the provisions of the Convention, including evaluation of scheduled and unscheduled chemicals;

(f) Prepare and submit to the Executive Council the draft programme and budget of the Organization;

(g) Prepare and submit to the Executive Council the draft report of the Organization on the implementation of the Convention and such other reports as the Executive Council or the Conference of States Parties may request;

(h) Provide administrative and technical support to the Conference of States Parties, the Executive Council and subsidiary organs;

(i) Negotiate agreements relating to the implementation of verification activities with States Parties, subject to approval by the Executive Council.

#### General structure

The general structure of the Technical Secretariat will reflect the responsibilities assigned to it. A set of these responsibilities is set out in detail in point II.

The Technical Secretariat should therefore comprise the following units or offices:

(a) A Director-General with an office to assist him in the discharge of his duties;

(b) An office to service the activities of the governing bodies of the organization, namely:

The Conference of States Parties

The Executive Council

This office will also furnish assistance to subsidiary bodies established by decision of the governing bodies;

(c) An internal audit office;



(d) A unit, which could be a department, with responsibility for undertaking the verification activities provided for in the Convention.

This department would be headed by an official with the rank of Deputy Director-General.

The department could comprise the following divisions:

- A division dealing with one or more geographical regions; the international inspectors would be located in this division. A division would be established for each region or group of regions established;
- A development and technical services division;
- A data processing division;

(e) A division, which might be a department, responsible for the administrative and financial management of the Organization.

This department would be headed by an official with the rank of Deputy Director-General.

The department might comprise the following divisions:

- Budget and Finance
- General Services
- Legal Affairs
- Personnel
- Conference and Language Services;

(f) An external relations unit which would include a protocol office, and an office for relations with other international organizations and bodies;

(g) A technical and scientific information division, which would be responsible for promoting the exchange of information among States Parties. It might also be responsible for any publications undertaken by the Organization;

(h) A unit for the promotion of the transfer of technology and development in areas not prohibited under the Convention.

This office, which might be a department in order to emphasize the importance of this function of the Organization, would be headed by an official with the rank of Deputy Director-General.



This office, whose functions would be of great importance to the developing countries, would be responsible for promoting and guiding the transfer of advanced technology in this field and for identifying the most appropriate areas for countries intending to undertake fundamental development and research, bearing in mind activities being carried out in this field at the international level;

(i) Bearing in mind the possibility that the Convention may include an article on assistance and protection against chemical weapons, it may be appropriate to provide for an office responsible for this function, at least during the period in which the destruction of all chemical weapons would be completed in accordance with the Convention.

### Personnel

All States Parties will have the right to put forward candidates for any post in the Technical Secretariat, including that of Director-General.

No professional or higher post in the Technical Secretariat will be assigned to a particular country, and an appropriate rotation of posts among States Parties will be guaranteed. States Parties will have the right to propose candidates for such posts, in accordance with their own interests and capabilities.

The number of posts open to any country in the Technical Secretariat will depend on its contribution to the work of the Organization and its level of scientific, technical and industrial development. The principle that all States Parties will be represented in the Secretariat will be observed, with due regard to a proper balance between the various geographical groups. Notwithstanding this requirement, the Secretariat will be governed by the principle that for every post only properly qualified staff will be recruited.

All vacant posts in the Technical Secretariat must be notified to States Parties, including the post of Director-General.

The Technical Secretariat will not have permanent staff. Appropriate measures will however be taken to guarantee continuity and the efficient operation of the Secretariat. As a general rule, contracts will not be renewable for more than two consecutive terms.

The highest posts in the Secretariat (heads of departments and divisions) may not be occupied by the same official for more than two consecutive periods. This will apply also to the post of Director-General.

The staff of the Technical Secretariat will be answerable to the Director-General alone. In the discharge of their responsibilities as international officials they will not follow the instructions of their Governments or any other source.

The other obligations and rights of the staff of the Technical Secretariat will be embodied in staff rules which will be approved by the Executive Council and the Conference of States Parties.



Scientific Advisory Board (SAB)

The Board will consist of highly qualified experts from the States Parties and who will discharge their responsibilities in their personal capacity. The Board will advise the Director-General in the discharge of his responsibilities in all matters of a technical and specialized character submitted to it for consideration.

The Board will be renewed periodically to ensure that no expert is a member of the Board for more than two consecutive terms.

The members of the Board will be appointed by the Director-General, subject to the approval of the Executive Council.

The widest possible representation of States Parties will be ensured in the Board, subject to the proviso that account will be taken in the first place of the qualifications and experience of candidates for appointment.

A summary of the reports, recommendations and suggestions submitted by the Board to the Director-General on technical and specialized matters which are considered, because of their importance, to be of interest to all States Parties will be circulated as an official document of the Organization. If necessary the recommendations and suggestions will be discussed at a meeting of the Executive Council in which all interested States Parties will have the right to participate.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.417  
24 July 1992

ENGLISH ONLY

Ad Hoc Committee on Chemical Weapons

ALGERIA, CHINA, CUBA, EGYPT, ETHIOPIA, INDIA, INDONESIA,  
ISLAMIC REPUBLIC OF IRAN, KENYA, MEXICO, MYANMAR, PAKISTAN,  
SRI LANKA AND ZAIRE

Proposed joint amendments to CD/CW/WP.400/Rev.1\*

## I. ARTICLE I

PAGE 8 PARA 5

5. Each State Party undertakes not to use ~~herbicides or riot control agents~~ as a method of warfare.

## II. ARTICLE II

PAGE 10 PARA 7

7. "Riot Control Agent" means:

Any chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure ~~and is used for domestic law enforcement and riot control purposes.~~

PAGE 11 PARA 9(d)

9. "Purposes not Prohibited under this Convention" means:

- (a)
- (b)
- (c)
- (d) ~~Domestic~~ law enforcement ~~including~~ <sup>and</sup> ~~domestic~~ riot control purposes.

III. ARTICLE III

PAGE 14 PARAS 1(e) AND 2

1. ~~(e) With respect to riot control agents:~~

~~(i) Specify the chemical name, structural formula and Chemical Abstract Service registry number, if assigned, of each chemical it holds for riot control purposes, and~~

~~(ii) Update its declaration not later than 30 days after any change becomes effective.~~

~~2. The provisions of this Article and the relevant provisions of Part IV of the Verification Annex shall not, at the discretion of a State Party, apply to chemical weapons buried on its territory prior to 1 January 1977 and which remain buried, or which had been dumped at sea prior to 1 January 1985.~~

IV. ARTICLE IV

PAGE 16 PARA 12

12. Any State Party which has on its territory chemical weapons that are owned or possessed by another State, or that are located in anyplace under the jurisdiction or control of another State, shall make the fullest efforts to ensure that these chemical weapons are removed from its territory not later than one year after this Convention enters into force for it. If they are not removed within one year, the State Party may request the Organization and other States Parties to provide assistance in the destruction ~~or removal~~ of these chemical weapons.

PAGE 17 PARAS 17 AND 18

17. Each State Party shall meet the costs of destruction of chemical weapons it is obliged to destroy. It shall also meet the costs of verification of storage and destruction of these chemical weapons unless the Executive Council decides otherwise. ~~If the Executive Council decides to limit verification measures of the Organization~~ Pursuant to paragraph ~~14~~ 15, the costs of ~~complementary verification and~~ monitoring by the Organization shall be paid in accordance with the United Nations scale of assessment, as specified in Article VIII, paragraph 7.

18. ~~At the request of a State Party,~~ the provisions of this Article and the relevant provisions of Part IV of the Verification Annex shall not, at the discretion of a State Party, apply to chemical weapons buried on its territory prior to 1 January 1977 and which remain buried, or which had been dumped at sea prior to 1 January 1985, ~~if the Executive Council decides that such chemical~~



weapons do not pose a risk to the object and purpose of this Convention. Any request as referred to in this paragraph shall contain a detailed explanation of the reasons for the non-application of the Verification Annex to these chemical weapons.

PAGE 18 PARA 22

V. ARTICLE V

PAGE 19 PARA 13

13. A State Party may request, in exceptional cases of compelling need, permission to use a chemical weapons production facility specified in paragraph 1 for purposes not prohibited under this Convention. The Executive-Council Conference shall decide whether or not to approve the request and shall establish the conditions upon which approval is contingent in accordance with Part V, Section D, of the Verification Annex.

PAGE 20 PARA 19

19. Each State Party shall meet the costs of destruction of chemical weapons production facilities it is obliged to destroy. It shall also meet the costs of verification under this Article unless the Executive Council decides otherwise. ~~If the Executive Council decides to limit verification measures of the Organization~~ Pursuant to paragraph ~~16~~ 17, the costs of ~~complementary verification and~~ monitoring by the Organization shall be paid in accordance with the United Nations scale of assessment, as specified in Article VIII, paragraph 7.

VI. ARTICLE VI

PAGE 21 PARA 2

2. Each State Party shall adopt the necessary measures to ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred, or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention. To this end, ~~and in order to verify that activities are in accordance with obligations under this Convention,~~ each State Party shall subject toxic chemicals and their precursors listed in Schedules 1, 2 and 3 of the Annex on Chemicals, facilities related to such chemicals,



and other facilities as specified in the Verification Annex, that are located on its territory or in any other place under its jurisdiction or control, to international monitoring as provided in the Verification Annex.

PAGE 22 PARAS 11 AND 12

11. The provisions of this Article shall be implemented in a manner which ~~avoids-hampering~~ **does not hamper** the economic or technological development of States Parties and international co-operation in the field of chemical activities for purposes not prohibited under this Convention, including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.

~~12.--For-the-purposes-of-increasing-the-transparency-of-national programmes-related-to-protective-purposes,-each-State-Party-shall provide-annually-to-the-Technical-Secretariat-information-on-its programme,-in-accordance-with-procedures-to-be-developed-by-the Preparatory-Commission-~~

VII. ARTICLE VIII

PAGE 28 PARA 23

23. The Executive Council shall consist of ~~40~~ **41** members. Each member shall have the right, in accordance with the principle of rotation, to serve on the Executive Council. The members of the Executive Council shall be elected by the Conference for a term of two years. In order to ensure the effective functioning of this Convention, due regard being specially paid to equitable geographical distribution, to the importance of chemical industry, as well as to political and security interests, the Executive Council shall be composed as follows:

PAGE 29 PARA 23(a)

23. (a) ~~Eight~~ **Nine** States Parties from Africa to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these eight States Parties, three members shall, as a rule, be the States Parties with the most significant national chemical industry in the region as determined by internationally reported and published data; in



addition, the regional group shall agree also to take into account other regional factors in designating these three members;

PAGE 30 PARA 29

29. Each member of the Executive Council shall have one vote. Unless otherwise specified in this Convention, the Executive Council shall take decisions on matters of substance by a two-thirds majority of all its members. The Executive Council shall take decisions on questions of procedure by a simple majority of all its members. ~~When the issue arises as to whether the question is one of substance or not, that question shall be treated as a matter of substance unless otherwise decided by the Executive Council by the majority required for decisions on matters of substance.~~

PAGE 32 PARA 39

39. The Technical Secretariat shall:

(a) Negotiate agreements or arrangements relating to the implementation of verification activities with States Parties, subject to approval by the Executive Council;

(b) Establish and maintain, not later than 60 days after the entry into force of this Convention, a permanent stockpile of emergency and humanitarian assistance. Lists of items to be stockpiled will be developed by the Preparatory Commission.

~~(b)~~ (c) Administer the voluntary fund referred to in Article X, compile declarations made by the States Parties and register, when requested, bilateral agreements concluded between States Parties of between a State Party and the Organization for the purposes of Article X.

VIII. ARTICLE IX

PAGE 37 PARA 11

11. Pursuant to a request for a challenge inspection of a facility or location, and in accordance with the procedures provided for in the Verification Annex, the inspected State Party shall have:



(a) The right and the obligation to make every reasonable effort to demonstrate its compliance with this Convention. ~~and, to this end, to enable the inspection team to fulfil its mandate;~~

(b) The obligation to provide access within the requested site for the sole purpose of establishing facts relevant to the concern regarding possible non-compliance; and

(c) The right to take measures to protect sensitive installations, **particularly non-relevant facilities and locations**, and to prevent disclosure of confidential information, not related to this Convention.

PAGE 38 PARAS 14, 16, 17 AND 18

14. The requesting State Party shall present an inspection request for a challenge inspection to the Executive Council **with a copy** and at the same time to the Director-General for immediate processing.

16. The Director-General shall transmit the inspection request to the inspected State Party not less than ~~±2~~ **24** hours prior to the planned arrival of the inspection team at the point of entry.

17. After having received the inspection request, the Executive Council shall ~~meet~~ **to** take cognisance of the Director-General's actions on the request and shall keep the case under its consideration throughout the inspection procedure. However, its deliberations shall not delay the inspection process.

18. The Executive Council ~~may~~ **shall**, within ~~±2~~ **24** hours after having received the inspection request, ~~decide by a three-quarter majority of all its members against~~ **take a decision** on carrying out the challenge inspection, ~~if it considers the inspection request to be frivolous, abusive or clearly beyond the scope of this Convention as described in paragraph 8.~~ Neither the requesting nor the inspected State Party shall participate in such a decision. If the Executive Council **considers the inspection request to be frivolous, abusive or clearly beyond the scope of this Convention as described in paragraph 8** and decides against the challenge inspection, preparations shall be stopped, no further action on the inspection request shall be taken, and the States Parties concerned shall be informed accordingly.

PAGE 39 PARAS 22 AND 23

22. The Executive Council shall ~~in accordance with its powers and functions,~~ review the final report of the inspection team as soon as it is presented, and ~~address any concerns as to~~ **decide on:**



- (a) Whether any non-compliance has occurred;
- (b) Whether the request had been within the scope of this Convention; and
- (c) Whether the right to request a challenge inspection had been abused.

23. If the Executive Council reaches the conclusion, ~~in-keeping with its powers and functions,~~ that further action may be necessary with regard to paragraph 22, it shall take the appropriate measures to redress the situation and to ensure compliance with this Convention, including specific recommendations to the Conference. In the case of abuse, the Executive Council shall ~~examine whether take the necessary measures to ensure that~~ the requesting State Party ~~should bears any of all~~ the financial implications of the challenge inspection ~~and all other financial implications thereupon.~~

#### IX. ARTICLE X

#### PAGE 41 PARAS 7, 8, 9 AND 10

7. Each State Party has the right to request and, subject to the procedures set forth in paragraphs 8, 9 and 10, to receive assistance and protection against the use or threat of use of chemical weapons if it considers that:

- (a) Chemical weapons have been used against it;
- (b) **Herbicides and riot control agents have been used against it as a method of warfare.**

~~(b)~~ (c) It is threatened by actions or activities of any State that are prohibited for States Parties by Article I.

8. The request, substantiated by relevant information, shall be submitted to the Director-General, who shall transmit it immediately to the Executive Council and to all States Parties. The Director-General shall **despatch emergency assistance in the case of use of chemical weapons, or humanitarian assistance in the case of serious threat of use of chemical weapons to the State Party concerned, not later than 12 hours after receipt of the request, and shall initiate, not later than 24 hours after receipt of the request, an investigation in order to provide foundation for further action.** He shall complete the investigation within 72 hours and forward a report to the Executive Council. If additional time is required for completion of the investigation, an interim



report shall be submitted within the same time-frame. The additional time required for investigation shall not exceed 72 hours. It may, however, be further extended by similar periods. Reports at the end of each additional period shall be submitted to the Executive Council. The investigation shall, as appropriate and in conformity with the request and the information accompanying the request, establish relevant facts related to the request as well as the type and scope of ~~supplementary~~ assistance and protection needed.

9. The Executive Council shall meet not later than 24 hours after receiving an investigation report to consider the situation and shall take a decision by simple majority within the following 24 hours on whether to instruct the Technical Secretariat to provide ~~supplementary~~ assistance. The Technical Secretariat shall immediately transmit to all States Parties and relevant international organizations the investigation report and the decision taken by the Executive Council. When so decided by the Executive Council, the Director-General shall provide assistance immediately. For this purpose, the Director-General may cooperate with the requesting State Party, other States Parties and relevant international organizations. The States Parties shall make the fullest possible efforts to provide assistance.

10. If the information available from the ongoing investigation or other reliable sources would give sufficient proof that there are victims of use of chemical weapons and immediate action is indispensable, the Director-General shall notify all States Parties and shall take ~~further~~ emergency measures of assistance, using the resources the Conference has placed at his disposal for such contingencies. The Director-General shall keep the Executive Council informed of actions undertaken pursuant to this paragraph

#### X. ARTICLE XI

##### PAGE 42 PARAS 1 AND 2(c), (d) AND (e)

1. The provisions of this Convention shall be implemented in a manner which ~~avoids-hampering does not hamper~~ the economic or technological development of States Parties, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.



2. Subject to the provisions of this Convention and without prejudice to the principles and applicable rules of international law, the States Parties shall:

(a)

(b)

(c) Not maintain among themselves any restrictions, including those in any international agreements, ~~inconsistent with the object and purpose of this Convention~~, which would restrict or impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes **not prohibited under this Convention**;

(d) Not use this Convention as grounds for applying any measures other than those provided for by, or permitted under, this Convention nor use any other international agreement for pursuing an objective inconsistent with ~~the object and purpose~~ of this Convention;

(e) Undertake to review ~~its~~ **their** existing national regulations in the field of trade in chemicals in order to render them consistent with ~~the object and purpose of~~ this Convention.

## XI. ANNEX ON CHEMICALS

PAGE 52 AND 53

### Guidelines for Schedule 2A

2. The following criteria shall be taken into account in considering whether a toxic chemical not listed in Schedule 1 ~~or and is not a precursor to a Schedule 1 chemical or to a chemical listed in Schedule 2, part A~~ should be included in Schedule 2A:

(a) It poses a significant risk to the object and purpose of this Convention because it possesses such lethal or incapacitating toxicity as well as other properties that could enable it to be used as a chemical weapon;

### Guidelines for Schedule 2B

3. The following criteria shall be taken into account in considering whether a precursor to a Schedule 1 chemical or to a chemical listed in Schedule 2, part A, would be included in Schedule 2 part B:

~~(b)~~ (a) It may be used as a precursor in one of the chemical reactions at the final stage of formation of a chemical listed in Schedule 1 or Schedule 2, part A;

~~(e)~~ (b) It poses a significant risk to the object and purpose of this Convention by virtue of its importance in the production of a chemical listed in Schedule 1 or Schedule 2, part A;

~~(d)~~ (c) It is not produced in large commercial quantities for purposes not prohibited under this Convention.

### Guidelines for Schedule 3

3- 4. The following criteria shall be taken into account in considering whether a toxic chemical or precursor, not listed in other Schedules, should be included in Schedule 3:

(a) It has been produced, stockpiled or used as a chemical weapon;

(b) It poses otherwise a risk to the object and purpose of this Convention because it possesses such lethal or incapacitating toxicity as well as other properties ~~that-might-enable-it-to-be used-as-a~~ which are similar to those of chemical weapons;

(c) It poses a risk to the object and purpose of this Convention by virtue of its importance in the production of one or more chemicals listed in Schedule 1 or Schedule 2, part B;

(d) It ~~may-be~~ is produced in large commercial quantities for purposes not prohibited under this Convention.

### PAGE 54

Delete heading "A. Toxic Chemicals:"

### PAGE 55

Delete heading "B. Precursors:"

Add "A" to the heading "Schedule 2" to read "Schedule 2A"

Delete heading "A. Toxic Chemicals:"



PAGE 56

Substitute heading "B. Precursors" with "Schedule 2B"

Delete heading "A. Toxic Chemicals"

PAGE 57

Delete heading "B. Precursors:"

Delete chemicals listed at Serial Numbers 15,16 and 17.

XII. VERIFICATION ANNEX

PART IV(A), PAGE 91 PARA 17(a)

17. A State Party shall start:

(a) The destruction of Category 1 chemical weapons not later than two years after this Convention enters into force for it, and shall complete the destruction not later than 10 years after entry into force of this Convention. A State Party shall destroy chemical weapons in accordance with the following destruction deadlines:

(i) Phase 1: Not later than two years after entry into force of this Convention, testing of its first destruction facility shall be completed. Not less than ~~4~~ 5 percent of the Category 1 chemical weapons shall be destroyed not later than three years after entry into force of this Convention;

(ii) Phase 2: Not less than ~~20~~ 30 percent of the Category 1 chemical weapons shall be destroyed not later than five years after entry into force of this Convention;

(iii) Phase 3: Not less than ~~45~~ 60 percent of the Category 1 chemical weapons shall be destroyed not later than seven years after entry into force of this Convention;

(iv) Phase 4: All Category 1 chemical weapons shall be destroyed not later than ten years after entry into force of this Convention.



PAGE 92 PARA 21

21. If a State Party, due to exceptional circumstances beyond its control, believes that it cannot achieve the level of destruction specified for Phase 1, Phase 2 or Phase 3 of the order of destruction of Category 1 chemical weapons, it may propose changes in those levels. Such a proposal must be made not later than 120 days after the entry into force of this Convention and shall contain a detailed explanation of the reasons for the proposal. ~~If the proposed changes are approved by the Executive Council, the other States Parties that have submitted general plans for destruction of chemical weapons shall not be obliged to destroy chemical weapons at a faster rate than the State Party that proposed the changes.~~

PAGE 93 PARAS 22 AND 26

22. Each State Party shall take all necessary measures to ensure destruction of Category 1 chemical weapons in accordance with the destruction deadlines set forth in paragraph 17 (a) as changed pursuant to paragraph 21. However, if a State Party believes that it will be unable to ensure the destruction of the percentage of Category 1 chemical weapons required by an intermediate destruction deadline, it may request the ~~Executive Council~~ **Conference** to grant an extension of its obligation to meet that deadline. Such a request must be made not less than 180 days before the intermediate destruction deadline and shall contain a detailed explanation of the reasons for the request and the plans of the State Party for ensuring that it will be able to fulfil its obligation to meet the next intermediate destruction deadline.

26. A decision on the request shall be taken by the Conference at its next session, on the recommendation of the Executive Council. Any extension shall be the minimum necessary, but in no case shall the deadline for a State Party to complete its destruction of all chemical weapons be extended beyond 15 years after the entry into force of this Convention. The Executive Council shall set conditions for the granting of the extension, including the specific verification measures deemed necessary ~~and the provisions for meeting the costs, if needed,~~ as well as specific actions to be taken by the State Party to overcome problems in its destruction programme. ~~The State Party shall meet all the costs of destruction of its chemical weapons, and all the costs of verification of storage and destruction of these chemical weapons, including the costs incurred during the extension period.~~



PART V, PAGE 123 PARA 68

68. Pending a decision of the ~~Executive-Council~~ **Conference**, a State Party may continue to use for purposes not prohibited under this Convention a facility that was being used for such purposes before this Convention enters into force for it, but only if the State Party certifies in its request that no specialized equipment and no specialized buildings are being used and that the specialized equipment and specialized buildings have been rendered inactive using methods specified in paragraph 13.

PAGE 124 PARAS 73 AND 75Decision by the ~~Executive-Council~~ **Conference**

73. Not later than 90 days after receipt of the request by the Director General, an initial inspection of the facility shall be conducted by the Technical Secretariat. The purpose of this inspection shall be to determine the accuracy of the information provided in the request, to obtain information on the technical characteristics of the proposed converted facility, and to assess the conditions under which use for purposes not prohibited under this Convention may be permitted. The Director-General shall promptly submit a report to the Executive Council, **the Conference** and to all States Parties containing his recommendations on the measures necessary to convert the facility to purposes not prohibited under this Convention and to provide assurance that the converted facility will be used only for purposes not prohibited under this Convention.

75. ~~As soon as possible Not-later-than-30-days~~ after receiving the report of the Director-General, the ~~Executive-Council~~ **Conference** shall decide, taking into account the report and any views expressed by States Parties, whether to approve the request, and shall establish the conditions upon which approval is contingent. If any ~~member-of-the-Executive-Council~~ **State Party** objects to approval of the request and the associated conditions, consultations shall be undertaken among interested States Parties for up to 90 days to seek a mutually acceptable solution. A decision on the request and associated conditions along with any proposed modifications thereto, shall be taken, as a matter of substance, ~~promptly~~ **as soon as possible** after the end of the consultation period.

PAGES 126 AND 127, PARAS 85 AND 86

85. For the ten years after the Director-General certifies that conversion is complete, the State Party shall provide unimpeded to



inspectors access to the facility at any time. The inspectors shall have the right to observe all areas, all activities, and all items of equipment at the facility. The inspectors shall have the right to verify that the activities at the facility are consistent with any conditions established under this Section and by the Executive Council ~~and the Conference~~. The inspectors shall also have the right, in accordance with provisions of Part II, Section E, of this Annex to receive samples from any area of the facility and to analyse them to verify the absence of Schedule 1 chemicals, their stable by-products and decomposition products and of Schedule 2 chemicals and to verify that the activities at the facility are consistent with any other conditions on chemical activities established by this Section, ~~and the Executive Council and the Conference~~. The inspectors shall also have the right to managed access, in accordance with Part X, Section C, of this Annex, to the plant site at which the facility is located. During the ten-year period, the State Party shall report annually on the activities at the converted facility. Upon completion of the ten-year period, the Executive Council, taking into account recommendations of the Technical Secretariat, shall decide on the nature of continued verification measures.

**86. The State Party shall meet all the costs of verification of the converted facility.**

PART VIII, PAGE 145 PARA 12

12. International on-site verification provided for in paragraph 5 of Article VI shall be carried out through on-site inspections at those declared plants ~~sites~~ which produced during the previous calendar year or are anticipated to produce in the next calendar year in excess of ~~200~~ **300** tonnes ~~aggregate~~ of any Schedule 3 chemical ~~above-the-declaration-threshold-of-30-tonnes~~.

PART IX, PAGE 149 PARA 1

1. The initial declaration to be provided by each State Party pursuant to Article VI, paragraph 7, shall include a list of all plant sites that:

~~(a) -- Produced by synthesis during the previous calendar year more than 200 tonnes of un-scheduled discrete organic chemicals; or~~

~~(b) Comprise one or more plants which produced by synthesis during the previous calendar year more than ~~30~~ **500** tonnes of a~~



unscheduled discrete organic chemical containing the elements phosphorus, sulphur or fluorine (hereinafter referred to as "PSF-plants" and "PSF-chemicals").

PAGE 150 PARAS 5, 6 AND 9

~~5.---With-regard-to-plant-sites-listed-pursuant-to-paragraph-1(a), the-list-shall-also-include-information-on-the-approximate aggregate-amount-of-production-of-the-unscheduled-discrete-organic chemicals-in-the-previous-calendar-year-expressed-in-the-ranges: under-1,000-tonnes, 1,000-to-10,000-tonnes-and-above-10,000-tonnes.~~

6. With regard to plant sites listed pursuant to paragraph 1(b), the list shall also specify the number of PSF-plants within the plant site and include information on the approximate aggregate amount of production of PSF-chemicals produced by each PSF-plant in the previous calendar year expressed in the ranges: under 200 tonnes, 200 to 1,000 tonnes, 1,000 to 10,000 tonnes and above 10,000 tonnes.

9. Subject to the provisions of Section C, international on-site verification as provided for in Article VI, paragraph 6, shall be carried out through on-site inspections at:

~~(a)--Plant-sites-listed-pursuant-to-paragraph-1(a)--and~~

~~(b)~~ Plant sites listed pursuant to paragraph 1(b) that comprise one or more PSF-plants which produced during the previous calendar year more than 200 500 tonnes of a PSF-Chemical.

PAGE 151 PARA 11

11. Under this Section, the Technical Secretariat shall randomly select plant sites for inspection through appropriate mechanisms, such as the use of specially designed computer software, on the basis of the following weighting factors:

(a) Equitable geographical distribution of inspections;

(b) The information on the listed plant sites, available to the Technical Secretariat, related to the characteristics of the plant site and the activities carried out there--and .

~~(c)--Proposals-by-States-Parties-on-a-basis-to-be-agreed-upon in-accordance-with-paragraph-25-below.~~



PAGE 152 PARA 17

17. The focus of inspection at a plant site selected for inspection shall be the plants producing the chemicals specified in paragraph 1, ~~in particular the PSF plants listed pursuant to paragraph 1(b)~~. The inspected State Party shall have the right to manage access to these plants in accordance with the rules of managed access as specified in Part X, Section C, of this Annex. If the inspection team, in accordance with Part II, paragraph 51, of this Annex, requests access to other parts of the plant site for clarification of ambiguities, the extent of such access shall be agreed between the inspection team and the inspected State Party.

PAGE 153 PARAS 24 AND 25

~~24. At its regular session in the third year after entry into force of this Convention, the Conference, on the basis of a report of the Director-General, may also decide on the distribution of resources available for verification under Section B between "PSF plants" and other chemical production facilities. Otherwise, this distribution shall be left to the expertise of the Technical Secretariat and be added to the weighting factors in paragraph 11.~~

~~25. At its regular session in the third year after entry into force of this Convention, the Conference, upon advice of the Executive Council, shall decide on which basis (e.g. regional) proposals by States Parties for inspections should be presented to be taken into account as a weighting factor in the selection process specified in paragraph 11.~~

PART X, PAGE 154 PARAS 1 AND 3

1. Challenge inspections pursuant to Article IX shall only be performed by inspectors and inspection assistants especially designated for this function. In order to designate inspectors and inspection assistants for challenge inspections pursuant to Article IX, the Director-General shall, by selecting inspectors and inspection assistants from among the full-time inspectors and inspection assistants for routine inspection activities, establish a list of proposed inspectors and inspection assistants. It shall comprise a sufficiently large number of inspectors and inspection assistants having the necessary qualification, experience, skill and training, **and, as far as possible, wide and equitable geographical distribution** to allow for flexibility in the selection of the inspectors, taking into account their availability, and the need for rotation. ~~Due regard shall be paid also to the importance of selecting inspectors and inspection assistants on as wide a~~



geographical-basis-as-possible. The designation of inspectors and inspection assistants shall follow the procedures provided for under Part II, Section A, of this Annex.

~~3.---Before-submitting-the-inspection-request-for-a-challenge inspection, the State Party may seek confirmation from the Director-General that the Technical Secretariat is in a position to take immediate action on the request. If the Director-General cannot provide such confirmation immediately, he shall do so at the earliest opportunity, in keeping with the order of requests for confirmation. He shall also keep the State Party informed of when it is likely that immediate action can be taken. Should the Director-General reach the conclusion that timely action on requests can no longer be taken, he may ask the Executive Council to take appropriate action to improve the situation in the future.~~

PAGE 155 PARA 6

6. The requesting State Party shall notify the Director-General of the location of the inspection site in due time for the Director-General to be able to provide this information to the inspected State Party not less than ~~±2~~ 24 hours prior to the planned arrival of the inspection team at the point of entry.

PAGE 156 PARAS 10 AND 14

10. The Director-General shall, not less than ~~±2~~ 24 hours prior to the planned arrival of the inspection team at the point of entry, inform the Executive Council about the location of the inspection site as specified in paragraph 7.

14. If the requested perimeter is acceptable to the inspected State Party, it shall be designated as the final perimeter as early as possible, but in no case later than 24 hours after the arrival of the inspection team at the point of entry. The inspected State Party shall transport the inspection team to the final perimeter of the inspection site. If the inspected State Party deems it necessary, such transportation may begin up to 12 hours prior to the expiry of the time period specified in this paragraph for the designation of the final perimeter. Transportation shall, ~~in any case,~~ be completed not later than ~~±6~~ 48 hours after the arrival of the inspection team at the point of entry.

PAGE 157 PARA 18

18. If the alternative perimeter is acceptable to the inspection team, it shall become the final perimeter and the inspection team



shall be transported from the point of entry to that perimeter. If the inspected State Party deems it necessary, such transportation may begin up to 12 hours prior to the expiry of the time period specified in paragraph 16 for proposing an alternative perimeter. Transportation shall ~~in any case~~ be completed not later than ~~36~~ **48** hours after the arrival of the inspection team at the point of entry.

PAGE 158 PARA 19

19. If a final perimeter is not agreed, the perimeter negotiations shall be concluded as early as possible, but in no case shall they continue more than 24 hours after the arrival of the inspection team at the point of entry. If no agreement is reached, the inspected State Party shall transport the inspection team to a location at the alternative perimeter. If the inspected State Party deems it necessary, such transportation may begin up to 12 hours prior to the expiry of the time period specified in paragraph 16 for proposing an alternative perimeter. Transportation shall ~~in any case~~ be completed not later than ~~36~~ **48** hours after the arrival of the inspection team at the point of entry.

PAGE 159 PARA 26

26. Such procedures shall include: the identification of vehicular exits, the making of traffic logs, the taking of photographs, and the making of video recordings by the inspection team of ~~exits and~~ exit traffic. The inspection team has the right to go, under escort, to any other part of the perimeter to check that there is no other exit activity.

PAGE 161 PARAS 38, 39 AND 40

38. The inspected State Party shall ~~be under the obligation to~~ provide access within the requested perimeter as well as, if different, the final perimeter. The extent and nature of access to a particular place or places within these perimeters shall be negotiated between the inspection team and the inspected State Party on a managed access basis.

39. The inspected State Party shall provide access within the requested perimeter as soon as possible, but in any case not later than ~~108~~ **120** hours after the arrival of the inspection team at the point of entry in order to clarify the concern regarding possible



non-compliance with this Convention raised in the inspection request.

~~40.--Upon-the-request-of-the-inspection-team, the-inspected-State Party-may-provide-aerial-access-to-the-inspection-site.--~~

PAGE 163 PARA 48(g)

48. (g) In exceptional cases, giving only individual inspectors access to certain parts of the inspection site, **or aerial access for members of the inspection team.**

PAGE 164 PARA 55

55. The observer shall have the right to arrive at the alternative or final perimeter of the inspection site, wherever the inspection team arrives first, and to have access to the inspection site as granted by the inspected State Party. ~~The-observer-shall-have-the right-to-make-recommendations-to-the-inspection-team, which-the team-shall-take-into-account-to-the-extent-it-deems-appropriate.~~ Throughout the inspection, the inspection team shall keep the observer informed about the conduct of the inspection and the findings.

PART XI, PAGE 166 PARA 1

1. Investigations of alleged use of chemical weapons, initiated pursuant to Articles IX or X, shall be conducted in accordance with this Annex and detailed procedures to be established by the Director-General.

**For the alleged use of herbicides and riot control agents as a methods of warfare the relevant parts of Part X and XI of this Annex shall apply.**











# CONFERENCE ON DISARMAMENT

CD/CW/WP.418  
27 July 1992

ENGLISH ONLY

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Ad Hoc Committee on Chemical Weapons

ALGERIA, CHINA, CUBA, EGYPT, ETHIOPIA, INDONESIA,  
ISLAMIC REPUBLIC OF IRAN, KENYA, MEXICO, MYANMAR,  
PAKISTAN, SRI LANKA AND ZAIRE

## Proposed additional amendment to Article II

### PARA 1 OF ARTICLE II

1. "Chemical Weapons" means the following, together or separately:

- (a)
- (b)
- (c)

The definition of munitions, devices and equipment mentioned in subparagraphs (b) and (c) above will be developed by the Preparatory Commission











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Ad Hoc Committee on Chemical Weapons

## THE RUSSIAN FEDERATION

### Proposed amendments to CD/CW/WP.400/Rev.1\*

#### 1. Meeting the costs of verification under Articles IV and V

During the very last stage of the negotiations a few new provisions were introduced into the current text of the draft Chemical Weapons Convention, which have raised doubts about the financial viability of the future Convention and, in particular, its verification mechanism.

The Russian Federation supports the view that the UN scale of assessment adjusted to take into account the membership of the future Organization should be taken as a basis for meeting the costs of the Organization. Equally natural would be the financial responsibility of States Parties to the Convention, possessing chemical weapons and chemical weapons production facilities, for their destruction.

At the same time the Russian Federation cannot share the view that CW possessing States Parties should also bear all costs related to international verification of destruction. Such an approach seems unreasonable at the least, both from the standpoint of equality of all States Parties that would, evidently, be interested in equal benefits from the security regime under the Convention, and from the standpoint of the security proper which would be put into direct dependence from a quite natural interest of paying States Parties to make such a security as cheap as possible, if solutions proposed in WP.400/Rev.1\* are to be preserved in the final draft Convention. This approach, if it were to find a way into the CWC, would set a dangerous precedent to other future disarmament agreements, because States possessing specific types of armaments would have no other choice but to object to effective verification measures that they would have to pay for.

It is also difficult to understand the reason for uneven financial arrangements for verification under different Articles of the Convention. While the possessors of chemical weapons and CW production facilities are supposed to pay for measures to verify that their respective stocks and facilities are destroyed, the verification costs are equitably distributed as far as the functioning of chemical industry is concerned. Due to some changes introduced into a number of technical provisions of the Convention, Article VI and respective Parts of the Verification Annex, at the late stage of negotiation, the current text of the Convention represents a rather lax system of continuing potential risk to the Convention, allowing for example unlimited production of Schedule 1 chemicals and other dangerous chemicals, including those which have been developed, produced, stockpiled or used as chemical weapons.

Some of the negotiation participants hold the view that the above mentioned provision for meeting the verification costs under Articles IV and V has been introduced into



WP.400/Rev.1\* with a view to existing Russian-US arrangements for mutual verification of CW destruction. Indeed, there are such arrangements. One of them is the Bilateral Agreement which was signed in 1990 and which is not in force yet. Nevertheless, it should be reminded that the scope of that Agreement is substantially narrower than that of the CWC.

A careful analysis of paragraph 17 of Article IV and paragraph 19 of Article V, as formulated in WP.400/Rev.1\*, shows also that it would not be serious to believe that these provisions would be viable at all, for there would be a strong disincentive for the Executive Council, in form of costs of complementary verification and monitoring, to take a decision in accordance with paragraph 14 of Article IV and paragraph 16 of Article V, as drafted.

Of serious doubt as well is the kind of a political signal that would be sent by the Convention's obligations to pay for one's own verification to those countries that have not yet declared their CW status and will be carefully weighing consequences of their possible adherence to the Convention.

In view of the above stated considerations the Russian Federation proposes to amend paragraph 17 of Article IV and paragraph 19 of Article V, as follows.

Article IV, paragraph 17

"17. Each State Party shall meet the costs of destruction of chemical weapons it is obliged to destroy. If the Executive Council decides to limit verification measures of the Organization pursuant to paragraph 14, the cost of monitoring by the Organization shall be paid in accordance with the United Nations scale of assessment, as specified in Article VIII, paragraph 7."

Article V, paragraph 19

"19. Each State Party shall meet the costs of destruction of chemical weapons production facilities it is obliged to destroy. If the Executive Council decides to limit verification measures of the Organization pursuant to paragraph 16, the costs of monitoring by the Organization shall be paid in accordance with the United Nations scale of assessment, as specified in Article VIII, paragraph 7."

2. Composition of the Executive Council

A future participation of the Russian Federation in the Chemical Weapons Convention would entail putting its chemical weapons stocks and CW production facilities under international verification and also destroying those stocks and facilities under international verification, involving great responsibility and financial effort. Therefore, when considering a decision to join the Convention the Russian Federation will have to evaluate whether its obligations under the Convention are commensurable with its rights in the Organization's framework. Guaranteed membership in the governing body of the Organization - its Executive Council will be the key element to the decision.

In the Russian Federation's opinion, the provisions for the composition of the Executive Council, as contained in WP.400/Rev.1\* would not be conducive to a positive decision. Moreover, the present composition formula, if accepted in the Convention's framework, would tend to promote unstable situations whenever the question of elections to the Executive Council comes up.

In view of these considerations it is proposed to come back to the composition formula contained in Ambassador Toth's proposal of June 18, 1992, that was the one preceding the



version which has been incorporated into WP.400/Rev.1\*. Taking the provision concerning the States Parties from Eastern Europe as an example, the composition of the Executive Council would look, as follows.

"(c) Five States Parties from Eastern Europe to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these five States Parties, one member shall be the State Party with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group may agree also to take into account other regional factors in designating this one member;"











# CONFERENCE ON DISARMAMENT

CD/CW/WP.420  
27 July 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

CUBA

Proposed amendments to CD/CW/WP.400/Rev.1\*

Article IV

- (a) Paragraph 6: change "two years" to "one year".
- (b) Paragraph 9: delete.

Article V

- (a) Paragraph 10: delete.
- (b) Paragraphs 13, 14 and 15: delete.

Article VIII

Section C, paragraph 23 (a) to (e): decision on the representation of regions in the Executive Council should be made by the regional groups on each occasion without spelling out the criteria in the text of the Convention.

VERIFICATION ANNEX

(a) Part II

Paragraph 2: include a reference to written acceptance of the inspectors list by the challenged State Party or delete the following sentence from paragraph 4: "It shall notify the Technical Secretariat of its objections...".

(b) Part IV (A)

Paragraph 17: change "two years" to "one year"

(c) Part VII

Paragraph 17: change the words: "the inspection team" in the last line to "the Technical Secretariat".

DESTRUCTION AND CONVERSION

Delete all parts relevant to the extension of the 10-year destruction period and conversion of chemical weapon production facilities.









# CONFERENCE ON DISARMAMENT

CD/CW/WP.421  
27 July 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

PERU

Proposed amendments to CD/CW/WP.400/Rev.1\*

Annex on Implementation and Verification

Part IV (A): Destruction of Chemical Weapons and its Veri-  
fication pursuant to Article IV.

Paragraph 17 (Pag. 91)

(a), (iii) Phase 3: Not less than 70 per cent of the  
Category 1 chemical weapons shall be destroyed  
not later than seven years after the entry into  
force of this Convention.

Paragraph 21

To drop the last sentence

INTERNATIONAL TRANSFERS OF SCHEDULED CHEMICALS

The following language is suggested for inclusion in Part VIII of the Annex on Implementation and Verification:

1. When transferring chemicals listed in Schedule 3 to States not party to the Convention each State Party shall adopt the necessary measures to ensure that such transferred chemicals shall only be used for purposes not prohibited by the Convention. Inter alia, the State Party shall require from the recipient State a certificate stating, in relation to the transferred chemicals:

- a) that they will only be used for purposes not prohibited under the Convention;
- b) that they will not be retransferred;
- c) their types and quantities;
- d) their end use; and
- e) the name(s) and address(es) of the end user(s).

2. Five years after the entry into force of this Convention, the Conference of the States Parties shall consider the need to establish other measures regarding transfers of Schedule 3 chemicals to the States not party to the Convention.



## INTERNATIONAL TRANSFERS OF SCHEDULED CHEMICALS

The following language is suggested for inclusion in Part VII of the Annex on Implementation and Verification:

1. Chemicals listed in Schedule 2 shall only be transferred to or received from States Parties to this Convention. This obligation shall take effect 3 years after the Convention enters into force.

2. During this interim 3 year period, each State Party shall require an end use certificate, as specified below, for transfers of Schedule 2 chemicals to States not party to the Convention. For such transfers, each State Party shall adopt the necessary measures to ensure that the transferred chemicals shall only be used for purposes not prohibited by the Convention. Inter alia, the State Party shall require from the recipient State a certificate stating, in relation to the transferred chemicals:

- a) that they will only be used for purposes not prohibited under the Convention;
- b) that they will not be retransferred;
- c) their types and quantities;
- d) their end use; and
- e) the name(s) and address(es) of the end user(s).











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Ad Hoc Committee on Chemical Weapons

## AUSTRIA

### Results of a trial identification of "capable facilities" in Austria

#### 1 Introduction

According to the Chemical Weapons Convention production facilities capable of producing chemicals listed in Schedules 1, 2 and 3 of the Convention will have to be identified as they will be subject to international inspection. This identification will have to be implemented on a national basis, i.e. by the National Authorities to be appointed according to Art. VII of the Convention.

The rules for this identification will have to be agreed upon internationally in order to ensure comparable results in all countries. For this purpose a questionnaire has been proposed (Proposal for the Identification of "capable" facilities within the framework of the Chemical Weapons Convention, ). This questionnaire asks for the existence of certain equipment of special design needed for the production of chemical warfare agents as listed in the by the Australia group of countries for export control purposes as well as for certain details of the infrastructure of the facility.

A trial for this identification has been conducted in Austria with a limited number of chemical companies.

#### 1. The Trial identification

48 chemical firms were contacted by letter and requested to complete a questionnaire (see annex) on a voluntary basis. The selection of the firms contacted was on a random basis from the list of chemical firms in the country.

A number of these firms, irrespective of their responding to the request or not, were afterwards contacted and asked for their comments to the questionnaire. The results of the evaluation and the comments are listed and discussed in the following paragraphs.

## 2. The answers to the questionnaire

Questionnaires distributed:	48	100%
Responses:	15	31%
No response:	33	69%

11 of the responses received were in form of a partially or completely answered questionnaire; 4 of the answers were by telephone stating that the questionnaire was not pertinent for their firm as they were traders only and had no production facilities in the country. The 11 answers covered 51 production facilities.

Facilities evaluated:	51	100%
Classification as "Capable Facilities":	37	73%
Classification as "Not-capable facilities":	14	27%

A graphical presentation of the results is shown in the figures attached.

The result shows that it can be expected that the majority of the chemical industry's production facilities will have to be classified as "capable facilities" in the sense of the CWC.

In the evaluation of the questionnaires returned it appeared that a number of errors occurred in the answers to the questions. This was probably due to language difficulties as the questionnaire was sent out in English language. Nevertheless it is suggested that the same questionnaire - and not translations - should be used in all countries in order to ensure comparable results, but it will be necessary to supply instructions in the native language of the country explaining the purpose of the questions and certain technical terms.

## 3 Comments by the companies

Nearly all of the firms had no comment as to the technical content of the questionnaire but considered the formulation of the questions too complicated. They suggested an improved structuring of the questions in order to facilitate their answering. As mentioned earlier the formulation of the questions was copied from the export control list of the Australia group of countries, which is a legal, not a technical document. It appears to be necessary to reformulate the questions into a more technical wording.

There were no complaints as to the time required for completing the questionnaire.



Most of the firms expressed their concern that they would be classified as "capable facilities" and thus would fall under the inspection regimes of the CWC; this appears to be the main reason for the low rate of response.

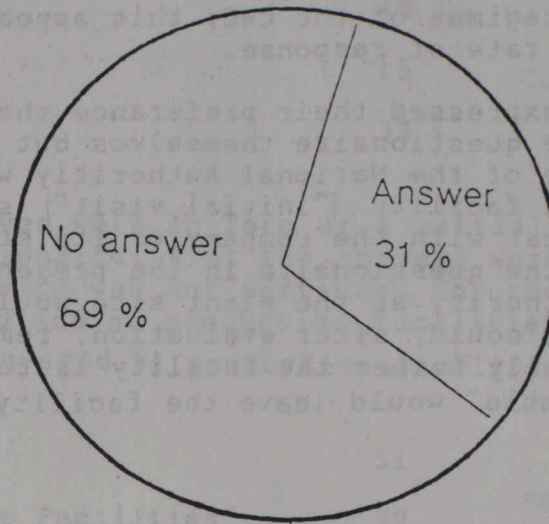
Some firms expressed their preference that they would not have to complete the questionnaire themselves but that an official representative of the National Authority would do this during a visit to the facility ("initial visit") so that the responsibility would not rest with the company or its staff only. An advantage of completing the questionnaire in the presence of an official of the National Authority at the plant site would be that the completed questionnaire could, after evaluation, remain within the firm and the result only whether the facility is to be considered "capable" or "not-capable" would leave the facility.

#### 4 Conclusions

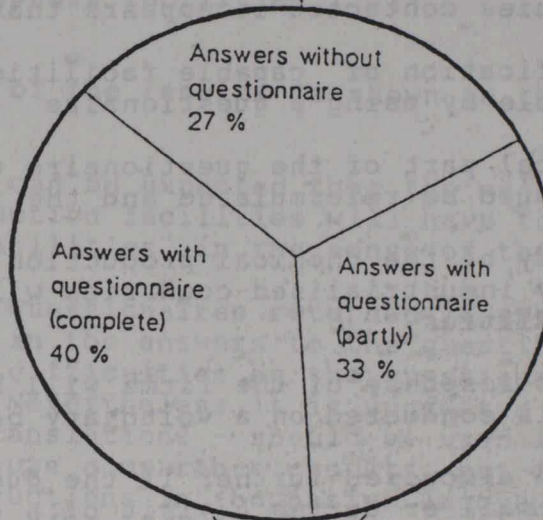
From the results of the trial identification and from the comments by the companies contacted it appears that

- the identification of "capable facilities" in the sense of the CWC is possible by using a questionnaire
- the technical part of the questionnaire used is acceptable but the questions should be reformulated and the format improved
- the majority of the chemical production facilities in Austria and in comparably industrialised countries will be classified as "capable facilities"
- the rate of response of the firms will be rather low if the questioning is conducted on a voluntary basis
- it is to be discussed further if the questioning should be conducted by mail or during a visit of a official of the National CWC Authority ("initial visit") especially in view of the fact that in the latter case it would not be necessary to take technical information concerning the facility out of the plant site.

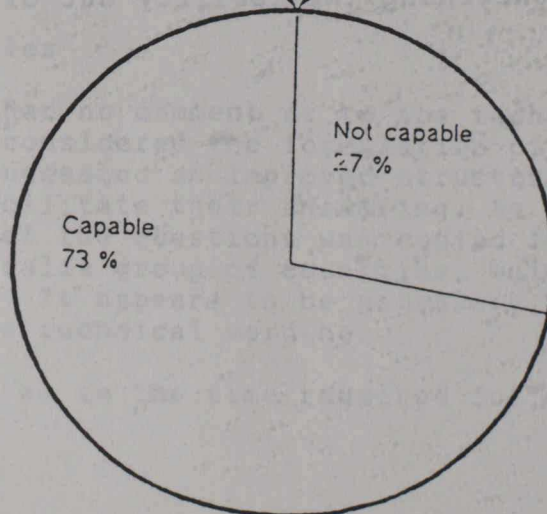
## GRAPHIC PRESENTATION OF RESULTS



### DETAILED RESPONSE



### CAPABILITY





THE QUESTIONNAIRE

Definitions:

**PLANT SITE** means the local integration of one or more facilities with any intermediate administration levels, which are under one operational control and include common infrastructure, inter alia

- administration and other offices
- repair and maintenance shops
- medical care
- utilities
- central analytical laboratory
- research and development laboratories
- central effluent and waste treatment area
- warehouse storage.

**FACILITY** means a relatively self-contained area, structure or building containing one or more units with auxiliary and associated infrastructure, which could include, inter alia:

- small administrative unit
- storage/handling areas for feedstock and products
- effluent/waste handling/treatment area
- control/analytical laboratory
- first aid service/related medical unit
- records associated with declared chemicals and its feedstock or product chemicals formed from it, as appropriate, into, around and from the site.

**UNIT** means the combination of those items of equipment, including vessels and vessel set up, necessary for the production, processing or consumption of a chemical.

The questionnaire consists of three parts:

Part 1: The plant site

Part 2: The production facility

Part 3: The process unit

If there is more than one production facility at the plant site please complete one questionnaire, Part 2, for each of them.

If there is more than one process unit within the production facility please complete one questionnaire, Part 3, for each of them.

Part 1: The plant site

Name of the plant site ..... (nicht beantworten).....

Address and location of the plant site ..... (nicht beantworten).....

Owner of the plant site .....

Number of plant facilities on the site .....

Area of the plant site .....		
Distance to nearest inhabited area .....		
	Yes	No
Central waste water treatment available	0	0
Central disposal of chemical wastes available	0	0
Medical service available on site	0	0
Fire brigade available on site	0	0
Steam supply available	0	0
Pressure(s) of steam supply .....		
Inert gas supply available	0	0
Storage for liquified gases available	0	0
Hydrogen supply available	0	0
Chlorine storage and supply available	0	0
Analytical laboratory available	0	0
MS-GC available	0	0
GC available	0	0
NMR available	0	0
Laboratories and/or laboratory equipment suitable for use at the biological containment level P3 or P4 available	0	0
Class II and/or class III biological safety cabinets available	0	0
Laboratory size in-line separators (centrifuges) available	0	0
Pass-through autoclaves available	0	0
Equipment for sterile filling and/or packaging available	0	0
Equipment for filling liquids designed to prevent any contamination of the surrounding available	0	0
Plant site guarded	0	0
Training level of personal available	0	0
Personal trained for work with highly toxic material available	0	0
Detection or monitoring system for toxic organic substances in the atmosphere available	0	0



Part 2: The production facility

Remark: the following questions to be answered for each of the production facilities within the plant site

Single-product or multi-purpose plant

Single-product plant

- Product .....
- Nominal Capacity .....
- Process .....

Multi-purpose plant

- Number of process units in the facility .....
- Ventilation of the production area available Yes No
- Vent gas treatment available
- Type and capacity of vent gas treatment .....
- Remote control available for production unit(s)
- Equipment for sterile operation available
- Equipment for sterile filling and/or packaging available
- Equipment suitable for handling highly toxic materials available
- Instruments and/or systems for the determination or monitoring of toxic organic compounds in the air inside the building available

Part 3: The process unit

Remark: the following questions to be answered for each of the process units within each production facility

Which of the following equipment is available in the process unit:

- 1.1 Reaction vessels with or without agitator having a design capacity in excess of 50 litres;
- 1.2 Storage tanks and receivers having a design capacity in excess of 100 litres;
- 1.3 Distillation and absorption columns with or without internals having an internal diameter in excess of 80 millimetres;

- |  | Yes                   | No                    |
|--|-----------------------|-----------------------|
| 1.4 Heat exchangers and condensators having a heat exchange surface in excess of 0.1 square metres;  | <input type="radio"/> | <input type="radio"/> |
| 1.5 Filtration equipment having a filter area in excess of 0.1 square metres;                        | <input type="radio"/> | <input type="radio"/> |
| 1.6 Pumps having a design capacity in excess of 0.5 cubic metres per hour                            | <input type="radio"/> | <input type="radio"/> |
| 1.7 Vacuum pumps having a design capacity in excess of 85 cubic metres per hour (standard pressure); | <input type="radio"/> | <input type="radio"/> |
| 1.8 Stop and control valves;   | <input type="radio"/> | <input type="radio"/> |
| 1.9 Process control instruments;   | <input type="radio"/> | <input type="radio"/> |

provided

those parts which come into contact with the chemical media are made from or are lined with any of the following special corrosion resistant materials of construction:

- special stainless steels containing more than 40 % by weight alloy components other than iron;
- nickel or its alloys containing more than 40 % by weight nickel;
- tantalum and its alloys;
- zirconium alloys;
- ferrosilicon;
- materials on the basis of graphite;
- ceramics;
- glass and enamel;
- corrosion resistant plastic materials like fluoropolymers as e.g. PTFE, PVDF, or PFA;

or

they are designed to prevent any leakage, i.e. any contamination of the surroundings (e.g. agitator and pump shafts with double mechanical seals, canned or magnetic drives, valve shafts with special seals, flanges).

- |  |                       |                       |
|--|-----------------------|-----------------------|
| 2.1 Bioreactors or fermenters having a design capacity in excess of 20 litres;   | <input type="radio"/> | <input type="radio"/> |
| 2.2 Pumps  | <input type="radio"/> | <input type="radio"/> |
| 2.3 Valves with the exception of diaphragm valves  | <input type="radio"/> | <input type="radio"/> |
| 2.4 Class S high-efficiency particulate air filters (DIN 24184) having a design rate in excess of 1000 cubic metres per hour unless used in connection with the production of electronic equipment | <input type="radio"/> | <input type="radio"/> |



	Yes	No
2.5 In-line separators (centrifuges)	<input type="radio"/>	<input type="radio"/>
2.6 Spray driers, fluid-bed driers and freeze-drying systems	<input type="radio"/>	<input type="radio"/>
2.7 Micro-encapsulation systems	<input type="radio"/>	<input type="radio"/>
2.8 Aerosol generators	<input type="radio"/>	<input type="radio"/>

if suitable for use at biological containment levels P3 or P4.











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Ad Hoc Committee on Chemical Weapons

AUSTRIA

Proposal for the identification of "capable facilities" within  
the framework of the Chemical Weapons Convention

1 Introduction

Already at an early stage of the negotiations for a Chemical Weapons Convention it became apparent that the verification of compliance would be one of the crucial issues of the Convention. Over the past several years a coherent approach for the necessary verification has been developed. It consists basically of

- verification of chemical weapons stocks and production facilities and their destruction;
- verification of non-production of chemical weapons; and
- clarification and verification procedures in case of ambiguous situations and doubts about compliance.

Verification of chemical weapons stocks and production facilities and of non-production of chemical weapons are based on

- declarations by the State parties, and
- inspections by members of the Technical Secretariat of the Convention.

Declarations by the State Parties include chemical weapons stocks and production facilities, but also data for a number of chemicals set forth in Schedules 1, 2, and 3 of the Annex on Chemicals of the Convention. Schedule 1 lists chemical weapons, Schedule 2 key precursors of chemical weapons, and Schedule 3 other chemicals necessary for the production of chemical weapons. For each of the three Schedules, regimes for the declarations necessary and the inspections to be made are listed.

For the clarification and verification in case of ambiguous situations and doubts about compliance "challenge inspections" were proposed. Challenge inspections can be directed towards any facility or activity of concern regardless of whether it is declared or undeclared, military or civil. It is based on the principle of



"any-where" and "any-time" and it is mandatory.

Although the principle of the challenge inspections has been adopted by the United States of America and by the Soviet Union in 1987, it appears that a number of states, including the United States, have serious problems with them because of security problems involved and because of constitutional limitations of the right to search private installations.

A number of ways has been proposed to cope with these difficulties. They include the right of a State Party to file initially a list of sites not open for challenge inspections, or a certain limitations of access to a facility, which has been called "managed access".

In addition, it became clear, that chemical weapons could be produced not only in facilities intended for their production, but also in other existing facilities of the chemical industry, and even of other industries, i.e. in facilities not declared under the rules of the Convention.

The verification regime of Article VI of the Rolling Text provides for the declaration and verification of facilities only which actually produce, or have produced in the past, chemicals listed in the three Schedules, so only a very small number of facilities would be declared and inspected. As substances very similar in composition to chemical weapons are produced for use as pesticides in large quantities by the chemical industry this is a serious handicap of the proposed regime of verification. It became clear that the chemical industry would have to be involved in the various verification regimes.

The verification regime for the chemical industry as provided aims at monitoring Schedule 2 chemicals in order to secure non-diversion for purposes prohibited by the Convention; but again only declared facilities are covered. The production of Schedule 2 chemicals in many standard plants of the chemical industry is possible from a technological point of view. So to be effective, Schedule 3 chemicals will have to be included in the verification regime; as these chemicals are used for the production of a very larger number of chemicals by industry, this would mean an almost impossible effort in controlling them.

It was concluded that this regime would involve a very high administrative and financial burden for the future Technical Secretariat.

In 1988, a new approach to the verification problem was suggested: all chemical production facility capable to produce chemicals on the Schedules of the Convention should be declared in national registers and be subject to ad-hoc visits under a quota system. Ad hoc visits could be requested by State parties or by the Technical Secretariat of the Convention.

In the original proposal a very broad definition for the term "capable facilities" was included. It was intended to mean



- a plant-site, i.e. a local integration of one or more production facilities, at which chemical reactions are performed and where the total annual amount of production exceeds 10 tons.

As this definition would include almost every chemical production site, in a later proposal the plant sites to be included in the national registers were limited to sites at which certain specially identified chemical conversion processes are performed with an output exceeding a given threshold for each type of conversion.

An analysis of the reactions involved in the production of the chemical weapons included in Schedule 1 of the Convention showed that about 15 different reactions were involved and would thus have to be covered. It was further suggested that the threshold of the output of the plant sites should be set at a quantity corresponding to 10<sup>9</sup> times the lethal dose for the substance to be produced.

In other proposals other criteria and other thresholds of production have been suggested ( e.g. CW/FCTM/PC/6 of 24 June 1991). Aim of all these proposals is to limit the plant sites to be included in the national registers to a manageable number, but not to exclude facilities capable of producing chemicals included in the Schedules of the Convention. But none of the suggestions made up to now was really convincing.

In a Swedish paper (CD/1053 dated 4 February 1991) the processes required for the production of chemicals listed in Schedules 1, 2 and 3 of the Convention are classified in terms of the chemical conversion processes required. One or more of the following conversion processes are considered necessary for the production of Schedule 1, 2 or 3 chemicals:

- alkylation
- condensation
- dehydrogenation
- esterification
- halogenation
- hydrogenation
- isomerisation
- oxidation
- substitution.

Plants that perform one or more of the processes listed in their standard production programme would be considered as capable of producing Schedule 1, 2 or 3 chemicals.

Although this is an interesting approach it must be recognised that the processes listed above can be performed in a wide variety of equipment not used for these processes normally. It is possible, for example, to perform a conversion, or a chlorination, or an esterification, in a vessel normally used for dissolving a solid in a liquid, i.e. for a physical rather than a chemical process, or, as a matter of fact, for many other completely different processes.

*So the fact that a particular facility does not normally perform any of the processes listed above provides no criterium that these*



processes cannot be performed in the plant. For this reason a compilation of "capable facilities" cannot be based on the principle suggested.

In a recent proposal by the United States of America additional facilities to be covered are defined by the type of the chemicals produced by synthesis in the facility:

"Additional facilities to be covered under Article VI shall include facilities that produced by synthesis in the past year, or plan to produce by synthesis in the next year, more than an aggregate of thirty metric tonnes of an organic chemical in any one or more of the following four categories (b - e) that:

- (b) (1) has one or more carbon-phosphorus (C-P) bonds; or
- (2) has one or more nitrogen-phosphorus (N-P) bonds; or
- (3) has one or more phosphorus-oxygen-carbon (P-O-C) bonds except where phosphorus exists solely as a phosphate or phosphite; or
- (4) has one or more phosphorus-sulfur-carbon (P-S-C) bonds; or
- (5) contains both phosphorus and halogen; or

(c) contains both sulfur and halogen, except where the halogen exists solely as a hydrochloride or the sulfur exists solely as sulfonyl (SO<sub>2</sub>) or sulfate (SO<sub>4</sub>); or

(d) contains both nitrogen and a halogen, except where the nitrogen exists solely as a nitrite (NO<sub>2</sub>), nitrate (NO<sub>3</sub>) or ammonium (NH<sub>4</sub>) radical or the halogen exists solely as a hydrochloride; or

(e) has one or more of the heavy metals tin, lead, or arsenic and halogen in the same compound, such as a halogenated triethyl-lead or trialkyl-tin.

(f) the term "synthesis" is defined as "the formation of a chemical through chemical reaction, including rearrangement, to form covalent bonds".

*The difficulties with this definition are same as with the Swedish proposal mentioned above: the fact that a particular facility does not normally synthesize any of the chemicals included in the definitions is no criterium that these chemicals cannot be produced in the plant.*

In another paper (CW/FCTM/PC/6 dated 24 June 1991) other ways for the delimitation of "capable facilities" are suggested. In this connection a number of technical characteristics are mentioned:

- unit producing chemicals with toxicity above a given threshold
- very specialised production equipment
- availability of precursors
- other capability elements.



Following this suggestion this paper tries to define detailed technical criteria for the definition of "capable facilities".

## 2 General considerations on capable facilities

### 2.1 Definition of the term "Capable facility"

A "capable facility is a production facility which can be used for the production of a chemical listed in Schedules 1, 2 or 3 of the Convention in militarily significant quantities regardless if it has been used for this purpose in the past.

### 2.2 Technological considerations

The production of a chemical compound requires

- a plant site with an appropriate infrastructure, i.e. the availability of:

- raw materials required
- energies required
- disposal facilities for waste water
- disposal facilities for vent and purge gases
- disposal facilities for solid wastes and by-products
- storage facilities for raw materials
- storage facilities for products
- safety equipment required
- medical care required
- analytical support required
- technical support required
- monitoring system for the detection of toxic organic compounds in the atmosphere

- an appropriate production facility, i.e. a technical concept as described by

- single-product / multiple purpose facility
- lay-out
- unit operations that can be performed
- unit processes that can be performed
- safety standards
- connections with other facilities on the site
- storage/warehouse facilities for intermediate products
- instrumentation
- automation
- monitoring system for the detection of toxic organic compounds in air inside the buildings

- appropriate equipment for the reactions and the conditions and characteristics of the reactions to be performed

- type of equipment
- size of equipment
- temperature

pressure  
 by-products  
 yields  
 waste streams  
 heating/cooling requirements  
 materials of construction

under due consideration of the special properties of the substances that must be handled

corrosivity  
 vapor pressure  
 phase conditions (solid, liquid, gaseous)  
 viscosity  
 toxicity  
 inflammability  
 explosivity

and the production capacity required, i.e. the quantity of material to be produced.

### 2.3 Militarily significant quantities

Obviously, a capable facility is to have a production capacity that is militarily significant. As there are marked differences between the potencies of different chemicals, and consequently the weights which could constitute militarily significant capabilities, thresholds should reflect these differences. Following a suggestion put forward in a paper presented by the United Kingdom recently (CD/CW/WP.358 of 13 August 1991) toxicity of a compound is taken as the criterium for the threshold.

Calculations based on simulated battlefield models indicate that regardless of the delivery system and the potency of the agent a quantity of about a billion ( $10^9$ ) times the effective dose of a substance is required for one attack under average meteorological conditions to cover an area within which a typical military unit might operate (0.5 to 2 km<sup>2</sup>).

Chemicals are assigned to one of several agreed toxicity categories:

	lower limit of toxicity		threshold	
Category 1	0		1	kg/year
2	0.5	milligrams/man	500	kg/year
3	10	milligrams/man	10	tonnes/year
4	100	milligrams/man	100	tonnes/year
5	500	milligrams/man	500	tonnes/year

Precursors should not be assigned according to their own toxicity but rather according to the toxicity of the chemical agent for the production of which they are used.



The toxins included in the Schedules, at present ricin and saxitoxin, require special considerations as their toxicity is extremely high. For ricin the lethal dose is reported to be in the range of 0.01 mg/man; for botulism toxins even lower values are mentioned in literature. This would correspond to a threshold of less than 1 kg/year which is not realistic.

Toxins would be applied as aerosols, i.e. in very finely divided state suspended in the atmosphere. Depending on his activity level a man breathes about 0.5 to 1 m<sup>3</sup> air per hour. Stable aerosol concentrations are in the range of 1 to 10 mg/m<sup>3</sup>. So the intake of suspended aerosol particles would be in the order of magnitude of 0.5 to 10 mg/h. If the lethal dose of 0.01 mg of toxin should be contained in this quantity, the toxin concentration in the aerosol particles will have to be between 0.1 and 2 % by weight. Considerations of the difficulties of distributing very small quantities of an agent over a large area point into the same direction. This means that the limit of toxicity of the actual agent will be in the same range as that of nerve agents, i.e. between 0.5 and 5 mg/man. The corresponding thresholds will be between 0.5 and 10 tonnes/a, again the same range as that of other chemical weapons.

#### 2.4 Appropriate equipment

As mentioned in paragraph 2.2 certain equipment of special design is needed for the production of chemical warfare agents. This equipment must be determined by careful consideration of the production processes of each of the agents and its precursors.

A list of equipment used by the Australia group of countries for export control purposes can be used for our purpose as well as it contains all special equipment necessary for the production of chemical warfare agents.

This list contains the following items:

- 1.1 Reaction vessels with or without agitator having a design capacity in excess of 50 litres;
- 1.2 Storage tanks and receivers having a design capacity in excess of 100 litres;
- 1.3 Distillation and absorption columns with or without internals having an internal diameter in excess of 80 millimetres;
- 1.4 Heat exchangers and condensators having a heat exchange surface in excess of 0.1 square metres;
- 1.5 Filtration equipment having a filter area in excess of 0.1 square metres;
- 1.6 Pumps having a design capacity in excess of 0.5 cubic metres per hour;

1.7 Vacuum pumps having a design capacity in excess of 85 cubic metres per hour (standard pressure);

1.8 Stop and control valves;

1.9 Process control instruments;

provided

those parts which come into contact with the chemical media are made from or are lined with any of the following special corrosion resistant materials of construction:

- special stainless steels containing more than 40% by weight alloy components other than iron;
- nickel or its alloys containing more than 40% by weight nickel;
- tantalum and its alloys;
- titanium and its alloys;
- zirconium alloys;
- ferrosilicon;
- materials on the basis of graphite;
- ceramics;
- glass and enamel;
- corrosion resistant plastic materials like fluoropolymers;

or

they are designed to prevent any leakage, i.e. any contamination of the surroundings (e.g. agitator and pump shafts with double mechanical seals, canned or magnetic drives, valve shafts with special seals, flanges).

2.1 Bioreactors or fermenters having a design capacity in excess of 20 litres

2.2 Pumps

2.3 Valves with the exception of diaphragm valves

2.4 Class S high-efficiency particulate air filters (DIN 24184) having a design rate in excess of 1000 cubic meters per hour unless used in connection with the production of electronic equipment

2.5 In-line separators (centrifuges)

2.6 Spray driers, fluid-bed driers and freeze-drying systems

2.7 Micro-encapsulation systems

2.8 Aerosol generators

if suitable for use at biological containment levels P3 or P4.



## 2.5 Regime for identifying "capable facilities"

If a chemical is to be produced in an existing production facility the requirements of its production process will have to be met by the facility in every respect mentioned above.

In order to check if a certain facility is suitable for the production of a certain chemical it is necessary to analyse both the production process required for the chemical and the production facility available. If both have the same characteristics the facility is capable to produce chemical weapons.

So in order to identify "capable facilities" the production requirements for the chemicals to be produced i.e. for all chemicals listed in the three Schedules of the Convention have to be defined. Then all existing production sites and facilities will have to be analysed if they meet these requirements. If any facility meets the production requirements it is classified as a "capable facility".











# CONFERENCE ON DISARMAMENT

CD/CW/WP.424

4 August 1992

ENGLISH ONLY

Ad Hoc Committee on Chemical Weapons

ISLAMIC REPUBLIC OF IRAN

## Ethanolamines

### INTRODUCTION:

The addition of Ethanolamines to Schedule 3 chemicals, as now appears on page 57 of CD/CW/WP.400/Rev.1 (chemicals 15, 16 and 17), is indeed a surprise move in the course of negotiations at the Ad Hoc Committee on Chemical Weapons.

In the latest Rolling Text (CD/1116) on page 62 there are 14 chemicals under schedule 3. On the same page in a footnote it had been mentioned:

"1/It was proposed that the three compounds Triethanolamine, Ethyldiethanolamine and Methyldiethanolamine should be discussed in this context for possible inclusion in schedule 3 as being precursors for nitrogen mustards".

This working paper attempts to show that such an addition not only will not enhance the efficiency of the verification system but on the contrary will unnecessarily overburden it, administratively and operationally.

### The Role of Ethanolamines in the Industry

Ethanolamines due to their multiple character, take part in other important reactions in addition to ordinary reactions of amines and alcohols. This fact increases their potential use in industries many times over.

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Ethanolamines have special role in the various field of industry such as:

- a. detergents
- b. cement and concrete
- c. textile/fluorescent paints
- d. gas refinery/purification
- e. rubber industry
- f. polyurthanes
- g. corrosion inhibition/metal cutting oils
- h. electro plantening
- i. cosmetics
- j. pharmaceutical production K. antifreeze

The largest market for ethanolamines is in soap and detergent productions which constitute almost 40% of ethanolamine consumption.

In surfactants industry, ethanolamines act as neutralizers of fatty acids or as intermediates to form fatty alkanolamides. Both products function as emulsifiers, foam boosters, and foam stabilizers in cleaning formulations. The largest end-use markets are detergents, personal care products, and wax formulations. Approximately 50% of the total consumption for surfactants is for household and commercial detergents: the remainder is used for other markets.

During the last 5 years, the detergent market has experienced the highest growth of all for ethanolamines. Growth in this market is largely a result of their use in hand dishwashing liquid and the increasingly popular liquid laundry detergents. From 1985 through 1987, the ethanolamine market (including exports) for detergents grew an average of at least 10% per year. Consumption of ethanolamines in the combined domestic and export detergent market will grow at about 5% to 6% per year over the next 5 years. Domestic consumption for detergents in most of the developing world, will probably grow at roughly 3% to 4% per year.

Personal care products have been a stable market for ethanolamines. Domestic ethanolamine consumption for this use has grown at about 2% to 3% per year during the last 5 years and is expected to continue at that rate for the next 5 years. In addition, personal care products are presently the strongest area for the growth in the ethanolamine export markets.

Shampoos typically use amides such as coconut diethanolamide, lauric diethanolamide, and, to a lesser extent, coconut monoethanolamide and lauric monoethanolamide. These non-ionic surfactants are used in conjunction with anionic surfactants such as Triethanolamine lauryl sulfate and Triethanolamine lauryl ether sulfates to act as foam stabilizers and foam boosters; they exhibit viscosity control along with mildness to the skin and impart pearlescence. Bubble bath formulations typically incorporate Triethanolamine lauryl sulfate with Ethyldiethanolamine (EDEA) lauramide for their foaming properties and mildness to the skin. Products such as cold



creams, shaving creams, mild bar soaps, and gel-type hand cleaners contain mainly the amine soaps, TEA stearate, and Methyldiethanolamine (MDEA) stearate. They provide low alkalinity, low volatility, low skin irritation, and excellent detergency. Hand lotions contain similar constituents except in lower concentrations.

Water-based wax emulsions, such as cream waxes and polishes used for furniture and floors, contain ethanolamine soaps as emulsifiers. Ethanolamines, mainly TEA, are sometimes used with morpholine in these products. Morpholine adds efficiency for these applications because of its emulsifying power, the ease with which its derived emulsifier degrades, and the volatility of the regenerated morpholine. Ethanolamine soaps tend to be used in wax emulsions where water spotting is not a primary concern and easy removal of the dried wax film with water and detergent is needed. Stearic acid is the most commonly used fatty acid for the formation of the amine soaps. Wax strippers typically contain MEA oleate and MEA tall oil as the emulsifying soaps. The amine soaps also impart foam stability and increase rinsability in these formulations.

Waterless hand cleaners are used for the removal of water-insoluble soils such as grease, tar, and paint. Ethanolamine soaps made with tall oil and oleic fatty acids are the most common types found in these formulations. Other fatty acids such as stearic, coconut, palmitic, and myristic are also used.

Growth in ethanolamines consumption for gas purification has been fairly constant during the last 5 years, with an average annual rate of about 1% to 2%, and will continue to grow at that rate for the next 5 years. Although gas purification is a relatively flat market for ethanolamines, it continues to be a stable and significant one.

Ethanolamines in aqueous solutions are used for acid gas scrubbing or gas "sweetening" in refinery gas, natural gas, and synthesis gas systems. The primary contaminants are carbon dioxide and hydrogen sulphide, which when reacted with the organic bases, MEA, DEA, or TEA, give water-soluble salts. The compounds formed can be stripped by exposure to highest temperatures, which releases the acid gas to regenerate the amines for reuse. Industry opinions differ as to the amounts of each ethanolamine consumed in the three types of gas purification, particularly as to whether MEA or DEA is more commonly used for refinery gas purification.

Methyldiethanolamine (MDEA) competes with both MEA and DEA in purification of the three types of gas systems. Total 1988 consumption of MDEA for gas purification in the United States was as high as 20 million lb, of which up to 60% was used for refinery gas, 30% for natural gas, and 10% for ammonia (synthesis) gas.

By forming complexes with metal ions, TEA improves stability and coating thickness and gives smooth, bright, and corrosion-resistant surfaces; yet its use avoids the need for cyanide in electrolytic and chemical plating. Ethanolamines can be used in cadmium, chromium, cobalt, nickel, palladium and



silver plating. Other uses with metals include the coating of steel with TEA corrosion inhibitor fluids after acid pickling. TEA can be combined with sodium gluconate for removing scale on titanium and its alloys. Ethanolamines, mainly MDEA and TEA, also function as neutralizing amines to inhibit corrosion in metalworking fluids. They react with oleic, tall oil, and dodecyl benzene sulfonic acids (DDBS) acids to form ethanolamine soaps and salts that provide an alkaline environment in cutting, cement grinding, and metal-forming fluids. The amine salts perform better and are more stable than amine soaps. Little growth in this area has occurred during recent years.

TEA salts are used in oil well production to prevent corrosion of drilling equipment caused mainly by the presence of hydrogen sulphide. (In 1986, the United States consumed approximately 6 million lb of neutralizing amines for oil field applications).

Ethanolamines are used in the formation of textile finishes and cationic softening agents. Textile finishes that employ ethanolamines are most commonly formed from MDEA and MEA and are known as triazone finishing agents. They are cellulose reactants used to cross-link polymeric cellulose chains in cellulosic fibres, such as cotton and rayon. Cross-linking increases wrinkle recovery and durable press characteristics but reduces tear strength and abrasion resistance. Ethanolamines are used as intermediates to make ethanolamides also used in cationic softening agents, which when applied to anionic fibres, such as wool and polyamide, improve the tear strength and abrasion resistance. TEA salts are used on cotton fibres for these purposes; in addition they serve as antistatic agents.

EDEA and DEA fatty acid soaps and salts, when combined with alkyl phosphates, sulfonates, and sulfates, function as antistatic agents and yarn lubricants; they also add anticorrosion properties. Sulphite salts of MEA give a permanent finish and crease in wool fabrics (the SIROSET process). Nonionic ethanolamine soaps are used as scouring agents for wool and silk. Ethanolamides also act as dyeing assistants in textile dyeing systems using anionic and cationic dyes. TEA soaps and salts of oleic and stearic acids are used as emulsifiers in spooling and lubricating oils while also incorporating corrosion inhibition properties.

TEA is used alone or as an intermediate in the production of its salts to be added to cement grinding mills to increase their efficiency while also preventing corrosion. TEA also controls the water evaporation rate of drying cement.

Ethanolamines are used in polyurethane foams, resins, elastomers and coatings as cross-linking agents. DEA and TEA act as catalysts to provide stability in the production of flexible and rigid urethane foams. Ethanolamines are also used in the rubber industry to improve cure rates and physical properties; TEA also improves elastomer tensile strength and elongation.



Additional ethanolamine uses include the following: They are used as emulsifiers in pesticides and herbicides, in the manufacture of morpholine, for pH control in packaging and printing inks, and TEA soaps are used in grease emulsions for pharmaceutical applications. They are also used to cure urea-formaldehyde adhesives at room temperature for furniture assembly. TEA is often added to these adhesives to neutralize excess catalyst, such as ammonium chloride, that might otherwise damage wooden furniture. Ethanolamines are also used as fuel additives and in aqueous or mixed solvent systems used for glycol antifreeze, water treatment, leather processing/tanning, and photographic emulsions and sensitizers.

#### Production and consumption of ethanolamines in the world

The global production of ethanolamines at the end of 1989 was about 749000 tons of which 55% was produced by the United States, 29% by the Western Europe and 9% by Japan. Additional production volume of 73.000 tons and 20.000 for the United States and Western Europe respectively in 1988 and 1989 showed a 15% increase in production of this chemical.

Mexico, China and South Korea have commenced production since the beginning of 1990. Table 1 of the Annex shows the principle producers of ethanolamines. Table 2, 3 and 4 of the Annex provide some information on consumption volume of this chemical in some countries.

4. The presence of nitrogenous substances (chemical number 3) in Schedule 3 chemicals along with a mechanism envisaged in the Verification Annex will act as an adequate deterrence system.

5. A careful evaluation of the role of ethanolamines in the world and their potential in enhancing the welfare and health of the States Parties takes us to this conclusion that there is no need to add ethyldiethanolamine, methyldiethanolamine and triethanolamine into Schedule 3 chemicals.

The future production and consumption of ethanolamines

The production of ethanolamines will undoubtedly increase in the future with rising the industrial level and health standards in the developing countries. The production capacity of a number of countries will be as follows:

COUNTRY	Production capacity in thousand MT	
	1995	2000
BRAZIL	26	52
CANADA	12	18
FRANCE	28	38
GERMANY	112	140
IRAQ	15	15
SAUDI ARABIA	15	20
SWEDEN	50	70
UK	25	25
MEXICO	24	44
US	445	510
JAPAN	66	89

Source: International export data



CONCLUSION:

1. As it was discussed earlier throughout this paper, the volume of production of these chemicals is extremely high with wide range of application in upper, intermediate and consumer industries.
2. Many developing countries are dependent on these chemicals daily and this dependence will increase by increasing attention to the welfare and health of their citizens.
3. The only reason for advocates of including ethanolamines in Schedule 3 chemicals is that they are precursors for production of nitrogen mustard. While this is true, there are a number of facts which should be taken into account:
  - a. The only reported incident of nitrogen mustard use as chemical weapon is on 23 October 1982 against the Iranian forces (CD/827. 12 April 1988). The use of nitrogen mustard was never repeated to the end of the war.
  - b. Due to its physical and chemical properties, the employment of this weapon in the battlefield faces a number of operational problems emanating from its storage difficulties (it should be stored as salt until its employment).
4. The presence of nitrogen mustard (chemical number 6) in Schedule 1 chemicals along with a mechanism envisaged in Verification Annex will act as an adequate deterrence system.
5. A careful evaluation of the role of ethanolamines in the world and their position in enhancing the welfare and health of the States Parties takes us to this conclusion that there is no need to add ethyldiethanolamine, methyldiethanolamine and triethanolamine into Schedule 3 chemicals.

Table 1

WORLD PRODUCERS OF ETHANOLAMINES

Company	Plant Location	Annual Capacity as of January 1, 1990 (million lb/yr)
<b>United States</b>		
Dow Chemical U.S.A.	Midland, MI Plaquemine, LA	25 <sup>a</sup> 160
Occidental Petroleum Corporation Oxy Petrochemicals Inc., subsidiary Petrochemical Division	Bayport, TX	40 <sup>b</sup>
Texaco Inc. Texaco Chemical Company, subsidiary	Port Neches, TX	360
Union Carbide Corporation Industrial Chemicals Division	Saadrift, TX	330 <sup>c</sup>
Total, United States		915
<b>Canada</b>		
Dow Chemical Canada Inc.	Fort Saskatchewan, Alberta	9
Union Carbide Canada Limited	Montreal East, Quebec	15
Total, Canada		24
<b>Mexico</b>		
Cananex, S.A.	Cholula, Puebla	1.3
Christianson, S.A. de C.V.	Cuernavaca, Morelos	1.3
Industrias Derivados del Etileno, S.A.	Puebla, Puebla	19.8 <sup>d</sup>
Industrias Parmal, S.A.	Cosoleacaque, Veracruz	1.6
Ingsam, S.A.	Lerma, Mexico State	2.0
Nalcomex, S.A. de C.V.	Lerma, Mexico State	1.0
Total, Mexico		27.1
<b>Brazil</b>		
Oxiteno SA—Industria e Comercio	Maua, Sao Paulo	56
<b>Western Europe</b>		
<b>France</b>		
BP Chimie SA	Lavéra	62 <sup>e</sup>
<b>Germany, Western</b>		
BASF Aktiengesellschaft	Ludwigshafen	187
Hüls Aktiengesellschaft	Marl	60
<b>Sweden</b>		
Barol Nobel AB Amines Division	Stenungsund	110
<b>United Kingdom</b>		
Imperial Chemical Industries PLC—ICI ICI Chemicals & Polymers Group	Wilton	55
Total, Western Europe		474



Table 1 (continued)

## WORLD PRODUCERS OF ETHANOLAMINES

Company	Plant Location	Annual Capacity as of January 1, 1990 (million lb/yr)
Japan		
Mitsui Toatsu Chemicals, Inc.	Takatsuki, Osaka Prefecture	79
Nippon Shokubai Kagaku Kogyo Co., Ltd.	Kawasaki, Kanagawa Prefecture	56 <sup>f</sup>
Total, Japan		145

Sources: *Chemical Economics Handbook, Director of Chemical Producers, SRI International, and communication with industry.*

Note: Korea Polyol Co., South Korea, is planning to build a 44 million lb/yr (19,900 t/yr) ethanolamines plant. Completion is scheduled for the end of 1991. Capacity also exists in India, Eastern Germany, Romania, and the USSR, but is not listed.

- <sup>a</sup> Used to produce isopropanolamines and ethanolamines on a campaign basis at an annual capacity of 25 million lb. However, over the long term Dow expects to continue to use the Midland plant for isopropanolamine production.
- <sup>b</sup> Plant was formerly owned by Cain Chemical, Inc., which was acquired by Occidental Petroleum during 1988. Produces both glycol ethers and ethanolamines on a campaign or block basis, using the same reactor.
- <sup>c</sup> Capacity was expanded to 330 million lb/yr by the middle of 1989. Capacity will be expanded to 400 million lb/yr by July 1990.
- <sup>d</sup> Plant may be expanding by 11-18 million lb/yr.
- <sup>e</sup> Capacity was expanded to 62 million lb/yr by year-end 1989. The expansion increased TEA capacity, for use in liquid household detergents.
- <sup>f</sup> Capacity will be expanded to 90 million lb/yr by end of 1990.

Table 2

WORLD SUPPLY/DEMAND OF ETHANOLAMINES - 1987  
(millions of pounds)

	<u>Production</u>	<u>Imports</u>	<u>Exports</u>	<u>Apparent Consumption<sup>a</sup></u>
United States	627	2	211	418
Canada	22	11	neg	33
Mexico	24	5	neg	29
Brazil	37	neg	11	26
Western Europe	353	66	na	419
Japan	84	15	22	77

(THOUSANDS OF METRIC TONS)

	<u>Production</u>	<u>Imports</u>	<u>Exports</u>	<u>Apparent Consumption<sup>a</sup></u>
United States	284	1	96	189
Canada	10	5	neg	15
Mexico	11	2	neg	13
Brazil	17	neg	5	12
Western Europe	160	30	na	190
Japan	38	7	10	35

Source: *Chemical Economics Handbook*, SRI International.

Note: Excludes other regions that import and consume significant quantities of ethanol-amines such as the People's Republic of China, Taiwan, the Republic of Korea, and Eastern Europe.

<sup>a</sup> Net trade balance (production plus imports minus exports).



Table 3

PRODUCTION OF ETHANOLAMINES - UNITED STATES  
(millions of pounds)

	<u>Monoethanolamine</u>	<u>Diethanolamine</u>	<u>Triethanolamine</u>	<u>Total</u>
1983	167	163	138	468
1984	193	166	140	504
1985	215	167	156	537
1986	209	177	157	543
1987	232	194	201	627
1988	217	191	201	608
1989p				631
1993	275-289	199-209	244-256	728-744

Source: Chemical Economics Handbook, SRI International.

Table 4

## U.S. CONSUMPTION OF ETHANOLAMINES - 1988

	Millions of Pounds	Percent
Surfactants	120	29
Detergent formulations <sup>a</sup>	55-65	
Personal care products	} 55-65	
Wax formulations <sup>b</sup>		
Waterless hand cleaners		
All-purpose cleaners		
Gas purification <sup>b</sup>	75	18
Metals	40-50	10-12
Textiles	25-35	6-8
Other <sup>c</sup>	40-60	10-14
Captive <sup>d</sup>	100	24
<b>Total</b>	<b>420</b>	<b>100%</b>

Source: *Chemical Economics Handbook*, SRI International.

<sup>a</sup> Excludes 30-40 million lb captively consumed for surfactant production.

<sup>b</sup> Excludes 10-20 million lb captively consumed for gas purification and approximately 20 million lb of methyldiethanolamine (MDEA) used in refinery, natural, and synthesis gas purification systems.

<sup>c</sup> Excludes 30-50 million lb captively consumed for production of ethylenediamine and 1-10 million lb captively consumed for other uses.

<sup>d</sup> Captive consumption is estimated to have been 30-50 million lb in the production of ethylenediamine, mainly monoethanolamine; 30-40 million lb for surfactant production; 10-20 million lb for gas purification; and 1-10 million lb for other uses.



Table 5

WESTERN EUROPEAN CONSUMPTION OF ETHANOLAMINES - 1987

	<u>Thousands of Metric Tons</u>	<u>Percent</u>
By Application		
Surfactants	60	32
Gas Purification <sup>a</sup>	35	18
Synthesis of Organic Compounds	65	34
Cement Additives	10	5
Miscellaneous <sup>b</sup>	<u>20</u>	11
Total	190	100%
By Ethanolamine		
Monoethanolamine		45
Captive <sup>c</sup>	60	
Market	25	
Diethanolamine		24
Captive <sup>c</sup>	8	
Market	38	
Triethanolamine		31
Captive <sup>d</sup>	5	
Market	<u>54</u>	
Total	190	100%

Source: *Chemical Economics Handbook*, SRI International.

<sup>a</sup> Includes desulfurization of liquefied petroleum gas and gas oils in refineries.

<sup>b</sup> Includes cutting and lubricating oils, which could represent as much as 9% of the total amount consumed for all uses.

<sup>c</sup> Includes consumption for production of imines and surfactants.

<sup>d</sup> Includes consumption for production of morpholine and surfactants.

<sup>e</sup> May include consumption for production of surfactants.

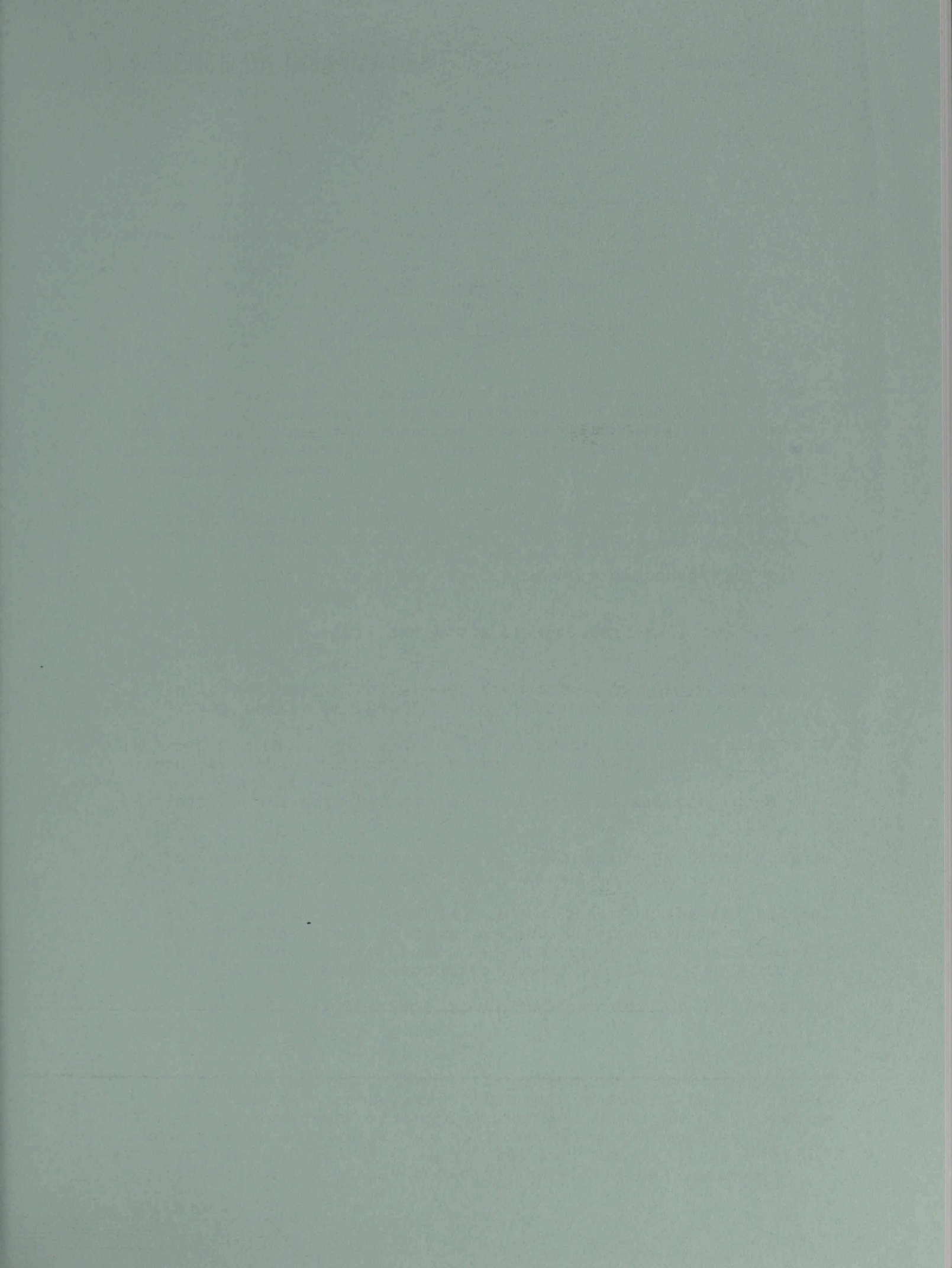
Table 6

JAPANESE CONSUMPTION OF ETHANOLAMINES - 1988

By Application	Thousands of Metric Tons	Percent
Surfactants	16.9	42.3
Cutting Oils and Antifreeze	8.6	21.5
Gas Purification	0.8	2.0
Pesticides and Pharmaceuticals	3.8	9.5
Other	9.9	24.8
<b>Total</b>	<b>40.0</b>	<b>100%</b>

Source: Chemical Economics Handbook, SRI International.









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Ad Hoc Committee on Chemical Weapons

ISLAMIC REPUBLIC OF IRAN

Definition of Chemical Weapons

The discussion on the definition of chemical weapons and their scope took a more scientific mode with the presentation of CD/500 dated 18 April 1984. Since then, questions, such as the following, have been at the centre of some delegations' concern and attention, but have not received any satisfactory answer.

1. Is it necessary to have a wide and unlimited definition for CW or a narrow and limited one?
2. Is it necessary to refer in (a) to "key components of binary and multicomponent"?
3. What is the meaning and scope of application in definition (b)?
4. In operational aspect, what does the terminology such as "specifically designed" in (b) imply and cover?
5. Does (b) in its present form complements the definition of CW or contribute to further ambiguity and perplexity?
6. What is the real and operational meaning and the scope of (c)?
7. How can one define in practice, definition of terms such as "specifically designated " or "use directly"?
8. If the scope of (b) and (c) is not clear in the definition, how can one expect to have unified interpretation of obligations, declarations, verification system (particularly Art. IX and its corresponding Annex) by the States Parties?

There are a number of other questions that can add to the above list.

- on the question no. 2 namely the subject of "key components of binary and multicomponent", fortunately during the last week of the second round of negotiations this question was addressed and now we have an agreed solution which is embodied in CD/CW/WP. 400/Rev. 1 page 9 paras 1, 3 and 4. It is however unfortunate that other questions have remained unanswered.

The root of the problem:

There is no doubt that clear and unambiguous definitions and obligations constitute the very foundations of any multilateral treaty and are key elements for their success. This becomes particularly important when we are negotiating a treaty which is unprecedented in the history of disarmament and arms control and which will set a precedence and will serve as a model for the future.

In most parts of the Draft Convention direct or indirect references have been made to definition of CW (see table 1 for abstracted index of references to "chemical weapons" according to CD/CW/WP.400/Rev.1).

Some of the major points of discussion in the Draft Convention which beg clear definition of CW and the implementation of CWC depend directly on such definition and can be summarized as follow:

## 1. General obligations in:

## Group 1:

- non development
- non production
- " acquisition
- " stockpiling
- " transfer
- " use
- " preparation for use
- " assistance for "

## Group 2: obligations to full destruction of:

- chemical weapons
- CW production facilities
- abandoned CW

## 2. Declarations:

- chemical weapons
- CW Production Facilities
- abandoned CW
- other centres which have been set up since January 1946 in relation with CW particularly laboratories, test and evaluation sites.

## 3. Clear cut dimensions of destruction of CW and CWPFF.

## 4. Dimensions and scope of challenge inspection.



5. The scope and practical implications of legal provisions in this respect.

We have to bear in mind that the existence of ambiguities in definition of CW will put the states eager to sign the CWC in an awkward position in that they do not know exactly what will be the dimensions of obligations that they are going to undertake. This situation will undoubtedly lead to different interpretations among the States Parties and even between the State Parties and the Organization.

- The effect of removing ambiguities on the security of the States Parties:

The State Parties according to the provisions of CWC will undertake obligations. One of these obligations is unifying and making in conformity their national laws, their defense, industrial and technological programs with such undertakings. This will have effects on their national planning whether macro or micro. In case of ambiguity which leads to different interpretations or even contradictory ones, the responsables of various national organs will be extremely perplex.

- Tentative proposals:

These problems which were deeply discussed by the sponsors of CD/CW/WP.418 and communicated to other delegations as well as to the Chairman of the Ad Hoc Committee are important and require proper responses. These issues have not been addressed recently due to the understandably hectic and formidable amount of work. However, this highly important subject was discussed in previous years particularly in 1986 and 1987. In the meantime further discussions were postponed in order to clarify some other provisions of the text. Now that a number of points have been addressed and clarified, we can touch on this point in a more open-minded fashion.

With respect to (b) of para 1, Article II, the available information and data as well as the academic literature point to the fact that there are specific standards and technology employed for production of munitions and devices which make them different from TNT contained munitions. Determination of criteria to distinguish chemical munitions from TNT contained munitions may become facilitated for the Ad Hoc Committee by the information that the delegations of the United States and Russian Federation can provide.

On the subject of (c); the existing definitions, information, data and academic studies have found no discernable division between the delivery system of CW and that of explosives. In other words the same delivery systems which are used to deliver artillery, grenade, aerial bomb, rocket as well as short, medium-

and long-range missiles are also used to deliver chemical weapons. Therefore, no particular system has been envisaged for this purpose. Consequently subpara (c) has no relevance to what we are discussing here and should not be included in the text. Of course, at least those 2 countries which have declared possessing CW can help us to understand this question better. Are there particular systems for delivery of CW agents which they are going to declare and then destroy accordingly?



Table 1. Abstract Index of references to "CHEMICAL WEAPONS" according to CD/CW/WP.400/Rev.1

ORDER	TITLE	REF. PAGE	DESCRIPTION
1.	Title of Draft Convention	1, 2	"Determined for the sake ..."
2.	Preamble	7	Paragraphs 1, 2, 3 & 4.
3.	General obligation	8	Para. 1, 5, 5(a).
4.	Definitions and criteria	9	Para. 5(b), 6, 8, 8(2), 8(ii).
5.	"	10	Para. 9(b), 9(c), 11.
6.	"	11	Para. 1(a), 1(i), 1(ii), 1(iii), 1(iv), 1(v), 1(b), 1(i), 1(ii), 1(iii).
7.	Declaration	12	Para. (c), (i), (ii), (iii), (iv), (v), (vi), (vii).
8.	"	13	Para. (d), 2.
9.	"	14	Para. 1, 3, 4, 5, 6, 7.
10.	Chemical Weapons	15	Para. 8(a),(b),(c), 9, 10, 11, 12, 13.
11.	"	16	Para. 14, 17, 18.
12.	"	17	Para. 1, 3, 4, 5, 6, 7(a),(b), 8.
13.	Chemical Weapons Production Facilities	18	Para. 9(a),(b),(c), 10, 11, 12, 13, 14.
14.	"	19	Para. 16, 19.
15.	"	20	Para. 1.
16.	The Organization A. General Provisions	25	Para. 1, 2, 3, 4.
17.	Assistance and protection against Chemical Weapons	40	

18.	Assistance and protection against Chemical Weapons	41	Para. 7, 7(a), 10.
19.	Annex 1, A. Guidelines for Schedules of chemicals	52	Para. 1(a), 1(ii), 2(a).
	" " "	53	Para. 3(a), 3(b).
20.	Annex 1, B. Schedules of chemicals	54	Para. B.
21.	Annex 2, Definitions	66	Para. 2, 5.
22.	" " "	67	Para. (ii), (III).
23.	Annex 2, General Provisions for Verification Measures. A.	83	Para. 4, 5, 6.
24.	" " B.	84	Para. 11.
25.	Destruction of Chemical Weapons	86	Para. 1, (b), (c), (i), (ii).
26.	" " "	87	Para. (d), (e), (f).
27.	" " "	88	Para. 4, 5.
28.	" " "	89	Para. 6, (a), (b), (c), (ii), (f), (g), 7, 8.
29.	" " "	90	Para. 9, 12, 13, 14, 15.
30.	" " "	91	Para. 16, 17(a), (i), (ii), (iii), (iv), (b), (c).
31	" " "	92	Para. 19, 20, 21.



32.	Destruction of Chemical Weapons	93	Para. 22 , 24 , 26.
33.	Annex 2, Destruction of Chemical Weapons	94	Para. 28, 29(a) ,(b), (c) ,30.
34.	"	95	Para. (f), (i) , 32.
35.	"	96	Para. 35 , 36 , 37, 39, 41.
36.	"	97	Para. 42 , 43, 47, 47(c).
37.	"	98	Para. 48(i) (ii) (iii), 49(b) , 50, 50(a), 51.
38.	"	99	Para. 51, 52, 53, 54, 55.
39.	"	100	Para. 59, 60 , 61 .
40.	"	101	Para. 62 , 63 , 64 , 65 , 66 , (a),(b) , (c).
41.	"	102	Para. 67, 69, 70(a) .
42.	Old Chemical Weapons and Abandoned Chemical Weapons	103	Title
		"	Para. 1.
		"	Para. 2.
		"	B. Title.
		"	Para. 3 .
		"	Para. 4 .
		"	Para. 5 .
		"	Para. 6 .
		"	Para. 7 .
		104	C. Title.
		"	Para. 8 .

43.	Destruction of CWPF	105	Para. 9 . Para. 10 . Para. 11 . Para. 12 . Para. 13 . Para. 15 . Para. 16 . Para. 17 . Para. 18 .
		106	Title, para.1, little(c), little(e), little(i), little(ii).
		107	Little(f), little(i), little(ii) , Little(g), little(h,i), little(h,iii) , little(k).
44.	Destruction of CWPF	109	Title, para. 2, para. 3, para. 4, little(b), para. 5, little(a).
45.	Submission of general plans for destruction	110	Para. 6, para. 7 , little(b), little(e).
		111	Para. 10, title, para. 11, title, para. 12, para. 13, little(b), little(c),(d).
		112	Little(e), para. 14.
46.	Technical maintenance of CWPF	"	Title, para. 15.
47.	Principles and methods for temporary conversion of CWPF	"	Title , para. 18 , para. 19 .
		113	Para. 20, para. 21 , para. 22 , para. 23 , para. 24, para. 25 .



48.	Principles and methods related to destruction of CWPf	113	Title, para. 26.
49.	Detailed plans for destruction	114	Para. 27, little(a), para. 28, para. 29, para. 30.
		115	Little(b), little(d), little(e), para. 31, para. 32.
		116	Para. 33, para. 34, little(b), little(c), little(e).
		117	Para. 35.
50.	International verification of declaration of CWPf	118	Title, para. 34, little(a), little(b), para. 45, para. 46.
		119	Title, para. 48, para. 49, para. 50.
		"	Para. 51, para. 52.
51.	International verification of destruction of CWPf	120	Para. 53.
		"	Title, para. 55, para. 56.
		"	Title, para. 59.
52.	International verification of conversion of CWPf	121	Para. 61, para. 62, para. 63.
		"	Title, para. 64, para. 65.
53.	Conversion of CWPf	122	Little(c), para. 66.

54.	Activities not prohibited Part VII	123	Little(c).
	"	124	Para. 72.
	"	125	Para. 77, para. 78.
	Part VIII	137	Para. 9.
	"	138	Para. (d), (i).
	Challenge inspections...	145	Para. 9, (d), (i).
	"	162	Para. 46, 48.
	"	165	Para. 60.
	Investigations in cases of alleged use...	166	Para. 1, 2, 3, (a),(c),(d),(e).
	"	167	Para. 7, 10.
	"	168	Para. 15.
	"	169	Para. 21.
	"	170	Para. 26, 27.
	Annex 3 on the confidential information	175	Para. 14.
	Text on the establishment of a preparatory commission	177	Para. 1, footnote 1.
	"	181	Para. 1er









USA

CD/CW/WP.426

Letter dated 3 August 1992 from the Representative of the United States of America addressed to the President of the Conference on Disarmament transmitting the Agreement between the Department of Defense of the United States of America and the President's Committee on Conventional Problems of Chemical and Biological Weapons of the Russian Federation of the Russian Federation concerning the Safe, Secure and Ecologically Sound Destruction of Chemical Weapons

Also issued as CD/1161  
5.8.92

NOT REPRODUCED  
(see WP volume)

\* \* \*











# CONFERENCE ON DISARMAMENT

CD/CW/WP.427

7 August 1992

ENGLISH ONLY

Chairman of the Ad Hoc Committee on Chemical Weapons

## AMENDMENTS TO CD/CW/WP.400/Rev.1

### Cluster 1: Herbicides and riot control agents

#### PREAMBLE

WP.400/Rev.1, page 7

Recognizing the prohibition, embodied in the pertinent agreements and relevant principles of international law, of the use of herbicides as a method of warfare, \* (Oral declaration)

#### ARTICLE X

WP.400/Rev.1, page 41

WP.417, page 7

7. Each State Party has the right to request and, subject to the procedures set forth in paragraphs 8, 9 and 10, to receive assistance and protection against the use or threat of use of chemical weapons if it considers that:

- (a) Chemical weapons have been used against it;
- (b) Riot control agents have been used against it as a method of warfare; or

(c) It is threatened by actions or activities of any State that are prohibited for States Parties by Article I.

VERIFICATION ANNEX

PART XI

WP.400/Rev.1, page 166

WP.417, page 19

1. Investigations of alleged use of chemical weapons, or of alleged use of riot control agents as a method of warfare, initiated pursuant to Articles IX or X, shall be conducted in accordance with this Annex and detailed procedures to be established by the Director-General.



Cluster 2: Destruction matters

WP.400/Rev.1, page 17

WP.419 (Russia), page 3, argument in second paragraph

14. In carrying out verification activities pursuant to this Article and Part IV (A) of the Verification Annex, the Organization shall consider measures to avoid unnecessary duplication of bilateral or multilateral agreements on verification of chemical weapons storage and their destruction among States Parties.

To this end, the Executive Council may shall decide to limit verification to measures complementary to those undertaken pursuant to such a bilateral or multilateral agreement, if it considers that:

... (unchanged)

ARTICLE V

WP.400/Rev.1, page 19

WP.417, page 3

13. A State Party may request, in exceptional cases of compelling need, permission to use a chemical weapons production facility specified in paragraph 1 for purposes not prohibited under this Convention. Upon the recommendation of the Executive Council, the Conference shall decide whether or not to approve the request and shall establish the conditions upon which approval is contingent, in accordance with Part V, Section D, of the Verification Annex.

WP.400/Rev.1, page 20

WP.419 (Russia), page 3, argument in second paragraph

16. In carrying out verification activities pursuant to this Article and Part V of the Verification Annex, the Organization shall consider measures to avoid unnecessary duplication of bilateral or multilateral agreements on verification of chemical weapons production facilities and their destruction among States Parties.

To this end, the Executive Council may shall decide to limit the verification to measures complementary to those undertaken pursuant to such a bilateral or multilateral agreement, if it considers that:

... (unchanged)



VERIFICATION ANNEX

PART IV (A)

WP.400/Rev.1, page 92  
WP.417, page 12

21. If a State Party, due to exceptional circumstances beyond its control, believes that it cannot achieve the level of destruction specified for Phase 1, Phase 2 or Phase 3 of the order of destruction of Category 1 chemical weapons, it may propose changes in those levels. Such a proposal must be made not later than 120 days after the entry into force of this Convention and shall contain a detailed explanation of the reasons for the proposal. ~~If the proposed changes are approved by the Executive Council, the other States Parties that have submitted general plans for destruction of chemical weapons shall not be obliged to destroy chemical weapons at a faster rate than the State Party that proposed the changes.~~

WP.400/Rev.1, page 93  
WP.417, page 12

22. Each State Party shall take all necessary measures to ensure destruction of Category 1 chemical weapons in accordance with the destruction deadlines set forth in paragraph 17 (a) as changed pursuant to paragraph 21. However, if a State Party believes that it will be unable to ensure the destruction of the percentage of Category 1 chemical weapons required by an intermediate destruction deadline, it may request the Executive Council to **recommend to the Conference to grant an extension of its obligation to meet that deadline.** Such a request must be made not less than 180 days before the intermediate destruction deadline and shall contain a detailed explanation of the reasons for the request and the plans of the State Party for ensuring that it will be able to fulfil its obligation to meet the next intermediate destruction deadline.

WP.400/Rev.1, page 93  
WP.417, page 12

26. A decision on the request shall be taken by the Conference at its next session, on the recommendation of the Executive Council. Any extension shall be the minimum necessary, but in no case shall the deadline for a State Party to complete its destruction of all chemical weapons be extended beyond 15 years after the entry into force of this Convention. The Executive Council shall set conditions for the granting of the extension, including the specific verification measures deemed necessary ~~and the provisions for meeting the costs, if needed,~~ as well as specific actions to be taken by the State Party to overcome problems in its destruction programme. **Costs of verification during the extension period shall be allocated in accordance with Article IV, paragraph 17.**



## PART V

WP.400/Rev.1, page 123

WP.417, page 13

68. Pending a decision of the ~~Executive-Council~~ Conference, a State Party may continue to use for purposes not prohibited under this Convention a facility that was being used for such purposes before this Convention enters into force for it, but only if the State Party certifies in its request that no specialized equipment and no specialized buildings are being used and that the specialized equipment and specialized buildings have been rendered inactive using methods specified in paragraph 13.

WP.400/Rev.1, page 124

WP.417, page 13

Decisions by the Executive Council and the Conference

73. Not later than 90 days after receipt of the request by the Director General, an initial inspection of the facility shall be conducted by the Technical Secretariat. The purpose of this inspection shall be to determine the accuracy of the information provided in the request, to obtain information on the technical characteristics of the proposed converted facility, and to assess the conditions under which use for purposes not prohibited under this Convention may be permitted. The Director-General shall promptly submit a report to the Executive Council, the Conference, and to all States Parties containing his recommendations on the measures necessary to convert the facility to purposes not prohibited under this Convention and to provide assurance that the converted facility will be used only for purposes not prohibited under this Convention.

WP.400/Rev.1, page 124

WP.417, page 13

75. ~~Not-later-than-90-days~~ As soon as possible after receiving the report of the Director-General, the ~~Executive-Council~~ Conference, upon recommendation of the Executive Council, shall decide, taking into account the report and any views expressed by States Parties, whether to approve the request, and shall establish the conditions upon which approval is contingent. If any ~~member-of-the-Executive Council~~ State Party objects to approval of the request and the associated conditions, consultations shall be undertaken among interested States Parties for up to 90 days to seek a mutually acceptable solution. A decision on the request and associated conditions along with any proposed modifications thereto, shall be taken, as a matter of substance, promptly as soon as possible after the end of the consultation period.



WP.400/Rev.1, page 126

WP.417, page 13,14

85. For the 10 years after the Director-General certifies that conversion is complete, the State Party shall provide to inspectors unimpeded access to the facility at any time. The inspectors shall have the right to observe all areas, all activities, and all items of equipment at the facility. The inspectors shall have the right to verify that the activities at the facility are consistent with any conditions established under this Section and by the Executive Council and the Conference. The inspectors shall also have the right, in accordance with provisions of Part II, Section E, of this Annex to receive samples from any area of the facility and to analyse them to verify the absence of Schedule 1 chemicals, their stable by-products and decomposition products and of Schedule 2 chemicals and to verify that the activities at the facility are consistent with any other conditions on chemical activities established by this Section, and the Executive Council and the Conference. The inspectors shall also have the right to managed access, in accordance with Part X, Section C, of this Annex, to the plant site at which the facility is located. During the 10-year period, the State Party shall report annually on the activities at the converted facility. Upon completion of the 10-year period, the Executive Council, taking into account recommendations of the Technical Secretariat, shall decide on the nature of continued verification measures.

86. Costs of verification of the converted facility shall be allocated in accordance with Article V, paragraph 19.



Cluster 3: Executive Council - composition

## ARTICLE VIII

WP 400/Rev.1, pp.28-29

WP 417, pp.4-5

WP.419 (Russia), p.5

23. The Executive Council shall consist of ~~40~~ 41 members. Each member shall have the right, in accordance with the principle of rotation, to serve on the Executive Council. The members of the Executive Council shall be elected by the Conference for a term of two years. In order to ensure the effective functioning of this Convention, due regard being specially paid to equitable geographical distribution, to the importance of chemical industry, as well as to political and security interests, the Executive Council shall be composed as follows:

(a) ~~Eight~~ Nine States Parties from Africa to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these ~~eight~~ nine States Parties, three members shall, as a rule, be the States Parties with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group shall agree also to take into account other regional factors in designating these three members;

(b) Nine States Parties from Asia to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these nine States Parties, four members shall, as a rule, be the States Parties with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group shall agree also to take into account other regional factors in designating these four members;

(c) Five States Parties from Eastern Europe to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these five States Parties, one member shall, as a rule, be the State Party with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group shall agree also to take into account other regional factors in designating this one member;

(d) Seven States Parties from Latin America to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these seven States Parties, three members shall, as a rule, be the States Parties with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group shall agree also to take into account other regional factors in designating these three members;



(e) Ten States Parties from among Western European and Other States to be designated by States Parties located in this region. As a basis for this designation it is understood that, out of these ten States Parties, five members shall, as a rule, be the States Parties with the most significant national chemical industry in the region as determined by internationally reported and published data; in addition, the regional group shall agree also to take into account other regional factors in designating these five members;

(f) One further State Party to be designated consecutively by States Parties located in the regions of Africa, Asia and Latin America. As a basis for this designation it is understood that this State Party shall be a rotating member from these regions.



Cluster 4: Designation of inspectors and inspection assistants

## ANNEX ON IMPLEMENTATION AND VERIFICATION

## Part II

WP 400/Rev.1, p.71  
WP.420 (Cuba)

2. Each State Party shall immediately acknowledge receipt of the list of inspectors and inspection assistants, proposed for designation communicated to it. The State party shall inform the Technical Secretariat in writing of its acceptance of each inspector and inspection assistant, not later than 30 days after acknowledgement of receipt of the list. Any inspector and inspection assistant included in this list shall be regarded as designated unless a State Party, not later than 30 days after acknowledgement of receipt of the list, declares its non-acceptance, in writing. The State party may include the reason for the objection.

In the case of non-acceptance, the proposed inspector or inspection assistant shall not undertake or participate in verification activities on the territory or in any other place under the jurisdiction or control of the State Party which has declared its non-acceptance. The Technical Secretariat shall, as necessary, submit further proposals in addition to the original list.

4. Subject to the provisions of paragraph 5, a State Party has the right at any time to object to an inspector or inspection assistant who has already been designated. It shall notify the Technical Secretariat of its objection in writing and may include the reason for the objection. Such objection shall come into effect 30 days after receipt by the Technical Secretariat. The Technical Secretariat shall immediately inform the State Party concerned of the withdrawal of the designation of the inspector or inspection assistant.



Cluster 5: Assistance and Protection

WP.400/Rev.1, page 32

WP.417, page 5

ARTICLE VIII

39. The Technical Secretariat shall:

(a) Negotiate agreements or arrangements relating to the implementation of verification activities with States Parties, subject to approval by the Executive Council;

(b) Not later than 180 days after the entry into force of this Convention, coordinate the establishment and maintenance of permanent stockpiles of emergency and humanitarian assistance by States Parties in accordance with Article X, paragraphs 6(b) and (c). The Technical Secretariat may inspect the items maintained for serviceability. Lists of items to be stockpiled will be developed by the Preparatory Commission.

(c) Administer the voluntary fund referred to in Article X, compile declarations made by the States Parties and register, when requested, bilateral agreements concluded between States Parties or between a State Party and the Organization for the purposes of Article X.

WP.400/Rev.1, page 40

WP.417, page 4

ARTICLE X

ASSISTANCE AND PROTECTION AGAINST CHEMICAL WEAPONS

3. Each State Party undertakes to facilitate, and shall have the right to participate in, the fullest possible exchange of equipment, material and scientific and technological information concerning means of protection against chemical weapons.

WP.400/Rev.1, page 22

WP.417, page 4

From ARTICLE VI, para 12:

3.bis For the purposes of increasing the transparency of national programmes related to protective purposes, each State Party shall provide annually to the Technical Secretariat information on its programme, in accordance with procedures to be developed by the Preparatory Commission.

(in turn, paragraph 12 of Article VI will be deleted)



WP.400/Rev.1, page 41  
WP.417, page 7-8

8. The request, substantiated by relevant information, shall be submitted to the Director-General, who shall transmit it immediately to the Executive Council and to all States Parties. The Director-General shall immediately forward the request to States Parties which have volunteered, in accordance with paragraphs 6 (b) and (c), to dispatch emergency assistance in case of use of chemical weapons or use of riot control agents as a method of warfare, or humanitarian assistance in case of serious threat of use of chemical weapons or serious threat of use of riot control agents as a method of warfare to the State Party concerned not later than 12 hours after receipt of the request. The Director-General shall initiate, not later than 24 hours after receipt of the request, an investigation in order to provide foundation for further action. He shall complete the investigation within 72 hours and forward a report to the Executive Council. If additional time is required for completion of the investigation, an interim report shall be submitted within the same time-frame. The additional time required for investigation shall not exceed 72 hours. It may, however, be further extended by similar periods. Reports at the end of each additional period shall be submitted to the Executive Council. The investigation shall, as appropriate and in conformity with the request and the information accompanying the request, establish relevant facts related to the request as well as the type and scope of supplementary assistance and protection needed.

9. The Executive Council shall meet not later than 24 hours after receiving an investigation report to consider the situation and shall take a decision by simple majority within the following 24 hours on whether to instruct the Technical Secretariat to provide supplementary assistance. The Technical Secretariat shall immediately transmit to all States Parties and relevant international organizations the investigation report and the decision taken by the Executive Council. When so decided by the Executive Council, the Director-General shall provide assistance immediately. For this purpose, the Director-General may cooperate with the requesting State Party, other States Parties and relevant international organizations. The States Parties shall make the fullest possible efforts to provide assistance.

10. If the information available from the ongoing investigation or other reliable sources would give sufficient proof that there are victims of use of chemical weapons and immediate action is indispensable, the Director-General shall notify all States Parties and shall take further emergency measures of assistance, using the resources the Conference has placed at his disposal for such contingencies. The Director-General shall keep the Executive Council informed of actions undertaken pursuant to this paragraph.



Cluster 6: Economic and technological development  
Transfers of scheduled chemicals

ARTICLE XI

WP.400/Rev.1, p.42

WP.417, pp 8-9

1. The provisions of this Convention shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.
2. Subject to the provisions of this Convention and without prejudice to the principles and applicable rules of international law, the States Parties shall:
  - (a) Have the right, individually or collectively, to conduct research with, to develop, produce, acquire, retain, transfer, and use chemicals;
  - (b) Undertake to facilitate, and have the right to participate in, the fullest possible exchange of chemicals, equipment and scientific and technical information relating to the development and application of chemistry for purposes not prohibited under this Convention;
  - (c) Not maintain among themselves any restrictions, including those in any international agreements, ~~inconsistent-with-the object-and-purpose-of-this-convention~~ incompatible with the obligations undertaken under this Convention, which would restrict or impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;
  - (d) Not use this Convention as grounds for applying any measures other than those provided for, or permitted under, this Convention nor use any other international agreement for pursuing an objective inconsistent with ~~the-object-and-purpose-of this~~ Convention;
  - (e) Undertake to review ~~its~~ their existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention.



ANNEX ON IMPLEMENTATION AND VERIFICATION

PART VII  
ACTIVITIES NOT PROHIBITED UNDER THIS CONVENTION  
IN ACCORDANCE WITH ARTICLE VI

REGIME FOR SCHEDULE 2 CHEMICALS AND FACILITIES RELATED  
TO SUCH CHEMICALS

WP 400/Rev.1, p. 142  
WP 421 (Peru), p.3

C. TRANSFERS

31. Chemicals listed in Schedule 2 shall only be transferred to or received from States Parties to this Convention. This obligation shall take effect 3 years after the Convention enters into force.

32. During this interim 3 year period, each State Party shall require an end use certificate, as specified below, for transfers of Schedule 2 chemicals to States not party to the Convention. For such transfers, each State party shall adopt the necessary measures to ensure that the transferred chemicals shall only be used for purposes not prohibited by the Convention. Inter alia, the State Party shall require from the recipient State a certificate stating, in relation to the transferred chemicals:

- a) that they will only be used for purposes not prohibited under the Convention;
- b) that they will not be retransferred;
- c) their types and quantities;
- d) their end use; and
- e) the name(s) and address(es) of the end user(s).

PART VIII  
ACTIVITIES NOT PROHIBITED UNDER THIS CONVENTION  
IN ACCORDANCE WITH ARTICLE VI

REGIME FOR CHEMICALS ON SCHEDULE 3 AND FACILITIES  
RELATED TO SUCH CHEMICALS

WP 400/Rev.1, p.148  
WP 421 (Peru), p.2

C. TRANSFERS

26. When transferring chemicals listed in Schedule 3 to States not party to the Convention each State Party shall adopt the necessary measures to ensure that transferred chemicals shall only be used for purposes not prohibited by the Convention. Inter alia, the State Party shall require from the recipient State a certificate stating, in relation to the transferred chemicals:

- a) that they will only be used for purposes not prohibited under the Convention;
- b) that they will not be retransferred;
- c) their types and quantities;
- d) their end use; and
- e) the name(s) and addresses(es) of the end user(s).

27. Five years after the entry into force of this Convention, the Conference shall consider the need to establish other measures regarding transfers of Schedule 3 chemicals to States not party to the Convention.









UK

CD/CW/WP.428

Letter dated 12 August 1992 from the Representative of the United Kingdom of Great Britain and Northern Ireland addressed to the Secretary-General of the Conference on Disarmament transmitting a paper which addressed the requirements for safety during the on-site inspections provided for under the Chemical Weapons Convention

Also issued as CD/1168 13.8.92

NOT REPRODUCED  
(see WP volume)

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## Ad Hoc Committee on Chemical Weapons

### THE NETHERLANDS

#### Workshop on Chemical Weapons for Potential Inspectors to the Organization for the Prohibition of Chemical Weapons (OPCW)

Rijswijk, the Netherlands  
16 - 24 June 1992

The comprehensive ban on chemical weapons negotiated at the Geneva Conference on Disarmament requires verification procedures to ensure that no chemical weapons are produced, that stockpiles and production facilities of these weapons are declared, identified and destroyed and that in cases of alleged use of chemical weapons the necessary proof can be obtained.

The success of these verification procedures will rely on hundreds of well-trained inspectors. In view of the near conclusion of the Chemical Weapons Convention (CWC), the training of candidate inspectors should start at the earliest possible date. In order to ensure a wide geographical distribution of potential future inspectors to the Organization for the Prohibition of Chemical Weapons (OPCW), a brief training course specially designed for chemists from developing countries was organized from 16 - 24 June 1992 by the TNO Prins Maurits Laboratory in collaboration with the Netherlands Ministry of Foreign Affairs.

The Director-General of the future Technical Secretariat of the OPCW will assign inspectors to conduct a particular inspection, taking into consideration their field of professional expertise (e.g. chemical engineering, medicine, infrastructure, ordnance). Although the inspectors are expected to be proficient in their own field, they should also have a basic knowledge about other aspects which are part of the inspection in order to be able to act as a team. Therefore, the aim of the training course was that at its conclusion the participants should have an overview of the various aspects of chemical weapons which may play a role in the task of the future inspector.

The motto of the training programme was expressed as 'What an inspector to the OPCW should know about chemical weapons'. According to this motto, a variety of subjects was treated during the seven-day course:

- the Convention and its requirements;
- properties of chemical warfare agents;
- dispersion of chemical warfare agents;

- respiratory and body protection;
- medical countermeasures;
- decontamination of protective means and equipment;
- detection, sampling and transportation;
- chemical analysis in the laboratory;
- destruction of chemical warfare agents and munitions;
- conventional and chemical munitions;
- performance of inspections.

It was clear from the beginning that the number of course days would be insufficient to treat all these subjects in-depth. Therefore, a course folder was produced containing more information that could be dealt with during the lessons and which might be used as a reference book by the participants after the course.

Representatives of all developing countries that are either member of or observer to the Conference on Disarmament were invited to propose candidates for the course. Applicants needed a demonstrable experience in either chemistry or chemical engineering, preferably at academic level, a basic knowledge of the draft text of the CWC and a good working knowledge of the English language. About 35 application forms were received for the 10 available places. In some cases countries presented more than one candidate. Course members were selected on the basis of the abovementioned criteria as well as the written explanation of their motives for applying. An equitable geographical distribution of participants was also taken into account. Thus applicants of Algeria, Indonesia, Kenya, Mexico, Mongolia, Pakistan, Peru, Republic of Korea, Thailand and Zimbabwe were invited.

The substance of the course was presented in the form of lectures, demonstrations, excursions and a so-called case study. Where possible and relevant, the lectures alternated with practical demonstrations. In a few cases the participants were given an active role, e.g. in the performance of a leak test of a gas mask.

The following demonstrations were performed:

- the determination of the activity of the enzyme cholinesterase in blood and the reactivation of the inhibited enzyme by means of a therapeutic oxime;
- a visualization of the aspect of respiratory protection by means of a review of gas masks under development, the breakthrough of a charcoal bed and the leak test of a gas mask;
- putting on protective clothing, followed by sampling of a liquid from a drum and the execution of a decontamination procedure;
- the analysis of chemical warfare agents in various matrices by means of the analytical methods: gas chromatography, liquid chromatography, nuclear magnetic resonance and mass spectrometry.



We tried to do justice to the actual performance of inspections - an aspect which is of prime importance to the inspector - by means of two excursions.

A familiarization visit was paid to a multi-purpose facility producing agricultural chemicals belonging to Shell Nederland Chemie in Rotterdam. There it was emphasized that during a real inspection the inspector may learn a lot about the ongoing production processes by studying the documentation which will be provided before and during the inspection. A variety of points of recognition was indicated during the actual visit.

Bearing in mind that a storage facility of munitions may be a verification target for an inspection team, a second visit was paid to an exhibition of conventional and (dummy) chemical weapons at the Ministry of Defence.

At the end of the course a case study was made on paper, in which a challenge inspection was simulated. This exercise was also intended to verify what the applicants had learned during the course.

Although the course was not meant to train future inspectors to an all-round level of proficiency, it constituted a good starting-point for more comprehensive training courses to be organized for other candidate inspectors in the future.

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Ad Hoc Committee on Chemical Weapons

## THE NETHERLANDS

### Verification of Non-Production of Chemical Warfare Agents

#### Working Paper

#### I. Determination of Organophosphorus Compounds by Microcolumn Liquid Chromatography with Flame Photometric or Thermionic Detection

##### *Summary*

Microcolumn liquid chromatography (micro-LC) with on-line flame photometric (FPD) or thermionic detection (TID) has been used for the determination of a series of organophosphoric and organophosphonic acids isolated from various sample matrices. Silica-based ion-exchange materials and polymer packings have been used as stationary phases. In order to improve the sensitivity (expressed in concentration units) of the technique, trace enrichment via a miniaturized precolumn (4 mm x 1 mm i.d.) and direct large-volume injections (1-10  $\mu$ l) of aqueous samples have been studied. As an application, the verification of non-production of chemical warfare agents and their of alleged use have been investigated by analysing their hydrolysis products in spiked surface water and soil samples. The application of both the precolumn technique and large-volume injections permit the detection of organophosphorus acids in water and soil at the low ppm level.



## Introduction

In 1974 investigations were started at the Prins Maurits Laboratory TNO which mainly concentrated on elaborating analytical methods for near-site inspection of chemical production plants by comparing the concentration of certain compounds in aqueous samples taken upstream and downstream of the waste outlet. The method used was based on the complete hydrolysis of the nerve agent or its decomposition product into methylphosphonic acid, concentrating it and converting it into the volatile dimethyl derivative [1]. Subsequently, gas chromatography (GC) using a phosphorus-selective detector was carried out to separate the derivative from trimethyl phosphate, which is the final esterified breakdown product from insecticides. However, this method has serious drawbacks such as an analysis time of 4-5 days and the relatively large sample volume of one liter per sample which is required. Besides, the hydrolytic sample treatment causes the conversion of the various compounds originally present into a single product, methylphosphonic acid, thereby destroying much relevant information. It should be clear that it is especially the lengthy analysis which is difficult to accept in cases of on-site inspection.

Recently the analytical procedure was considerably improved by introducing micro-LC combination with phosphorus-selective GC detectors [2, 3]. This method opens the possibility to analyse a mixture of organophosphorus acids, amongst which are the alkyl methylphosphonic acids and, thus, provides more relevant source information concerning the compounds originally present, without requiring the laborious sample treatment involving clean-up and methylation. However, the method showed a low concentration sensitivity which is inherent to micro-LC and is a direct result of the small injection volume of 60 nl only. Recent results on the use of on-line trace enrichment of organophosphorus compounds from aqueous standard solutions showed the applicability of injection volumes of 500  $\mu$ l of sample which ensures a considerable increase in sensitivity [4]. In the present paper this method is further studied and applied to environmental and simulated industrial samples which are supposed to contain a large number of interfering ionic and other contaminants. Several degradation products of chemical warfare agents were selected as test compounds, *viz.*



**Table 1 Structures of organophosphorus nerve agents and related insecticides**

Nerve agents		Insecticides
$\begin{array}{c} \text{RO} \quad \text{O} \\ \diagdown \quad // \\ \text{P} \\ \diagup \quad \diagdown \\ \text{H}_3\text{C} \quad \text{X} \end{array}$		$\begin{array}{c} \text{RO} \quad \text{O} \\ \diagdown \quad // \\ \text{P} \\ \diagup \quad \diagdown \\ \text{RO} \quad \text{X} \end{array}$
Nerve agents		
Common name	R	X
Sarin	i-C <sub>3</sub> H <sub>7</sub>	F
Soman	(CH <sub>3</sub> ) <sub>3</sub> CCH(CH <sub>3</sub> )	F
VX	C <sub>2</sub> H <sub>5</sub>	SCH <sub>2</sub> CH <sub>2</sub> N(i-CH <sub>3</sub> H <sub>7</sub> ) <sub>2</sub>
OMPF	C <sub>8</sub> H <sub>17</sub>	F
Insecticides		
Dichlorvos	CH <sub>3</sub>	OCH=CCl <sub>2</sub>
Monochlorvos	CH <sub>3</sub>	OCH=CHCl
Trichlorfon	CH <sub>3</sub>	CHOH-CCl <sub>3</sub>
Amiton	C <sub>2</sub> H <sub>5</sub>	SCH <sub>2</sub> CH <sub>2</sub> N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>

methylphosphonic acid, which is the final hydrolysis product of the super-toxic lethal chemicals VX, soman and sarin (hydrolysis of groups R and X; see Table 1), ethyl methylphosphonic acid and ethyl methylthiophosphonic acid which are degradation products of VX (hydrolysis of X and cleavage of the S-CH<sub>2</sub> bond; see Table 1) and isopropyl methylphosphonic acid, a degradation product of sarin resulting from hydrolysis of the P-F bond. In order to test the validity of the method it was used in an international collaborative test of verification analysis.

## Experimental

### Materials

All solvents were of HPLC-grade quality; they were supplied by Merck (Darmstadt, F.R.G.). The 10- $\mu\text{m}$  packing materials used were the silica-based anion exchanger Partisil SAX (Whatman, Maidstone, U.K.) and the styrene-divinylbenzene copolymer-based materials PRP-1 and the ion exchangers PRP-X100 (Hamilton, Reno, NE, U.S.A.), MA-100 (Interaction Chemicals, Mountain View, CA, U.S.A.) and BA-X8 (Benson, Reno, NE, U.S.A.).

The degradation products of nerve agents, methylphosphonic acid (MPA), ethyl methylphosphonic acid (EMPA), isopropyl methylphosphonic acid (IMPA) and ethyl methylthiophosphonic acid (EMPSA), and of insecticides, dimethyl phosphoric acid (DMP) and diethyl phosphoric acid (DEP) were synthesized at the Prins Maurits Laboratory TNO.

### Chromatographic System

The chromatographic system consisted of a Phoenix model 20 CU pump (Carlo Erba Strumentazione, Milan, Italy) and a Valco sample injection valve (VICI, Schenkon, Switzerland) provided with a 60 nl internal volume. The flame photometric detector and the thermionic detector were from Carlo Erba Strumentazione. The various fused-silica connecting tubings (0.02 - 0.3 mm i.d.) were supplied by Chrompack (Middelburg, The Netherlands).

The 0.3 mm i.d. fused-silica microcolumns were packed according to the procedure of Gluckman *et al.* [5]. The column performance was tested using a Spectroflow 783 UV detector (Kratos ABI Analytical, Ramsey, NJ, U.S.A.) assembled with a laboratory-made 40 nl microflow UV-cell [6].

The set-up of the trace enrichment system was the same as used before [4] it consists of a six-port Valco injection valve provided with a 500  $\mu\text{l}$  sample loop connected to a modified Valco injection valve for on-line trace enrichment.



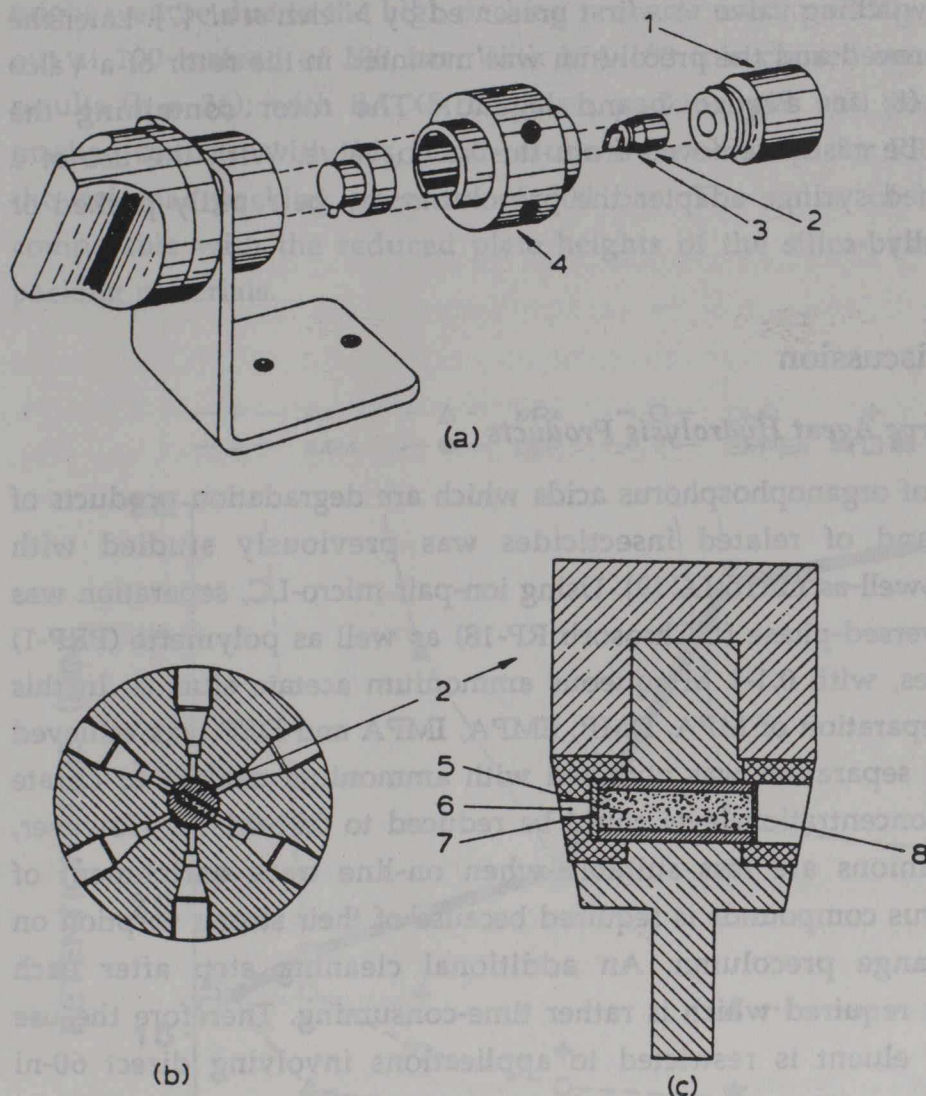


Fig. 1 Switching valve with internal precolumn [ref. 9]. (a) General view; (b) top view of cross-section of rotor with pre-column; (c) almost totally drilled through rotor to give 4 mm x 1.1 mm internal diameter. 1, Preload assembly; 2, rotor; 3, seal; 4, valve body; 5, precolumn; 6, outlet precolumn; 7 and 8, screens. The column packing material is held between two 36  $\mu$ m stainless-steel screens, one at the end and one at the front of the column. Both screens are held by PTFE ring inserts. The laboratory-made seal is permanently fitted around the rotor; it contains two opposite grooves on its surface instead of the three grooves for the standard Valco valve.

### *Design of Switching Valve with Internal Precolumn*

The assemblage of an internal microprecolum fixed in a modified standard Valco six-port switching valve was first presented by Nielen *et al.* [7]. Later the design was improved and the precolum was mounted in the rotor of a Valco six-port valve (8; see Figure 1 and legend). The rotor containing the precolum can be easily removed from the Valco valve. With the use of a specially designed syringe adapter the precolum can be rapidly packed or emptied manually.

## **Results and Discussion**

### *Micro-LC of Nerve Agent Hydrolysis Products*

The separation of organophosphorus acids which are degradation products of nerve agents and of related insecticides was previously studied with conventional as well as micro-LC [9]. Using ion-pair micro-LC, separation was achieved on reversed-phase (LiChrosorb RP-18) as well as polymeric (PRP-1) stationary phases, with 0.1-1 M aqueous ammonium acetate eluents. In this way, baseline separation of MPA, DMP, EMPA, IMPA and DEP was achieved [4]. Even better separation was obtained with ammonium oxalate or citrate while the salt concentration level could be reduced to 0.01-0.1 M. However, these organic anions are less suitable when on-line trace enrichment of organophosphorus compounds is required because of their strong sorption on the anion-exchange precolum. An additional cleaning step after each injection is now required which is rather time-consuming. Therefore the use of this type of eluent is restricted to applications involving direct 60-nl injections.

With the above LC systems the separation of the early eluting polar organophosphorus acids MPA ( $k' = 0.1$ ) and DMP ( $k' = 0.3$ ) from unretained inorganic phosphate (PA) was still insufficient. However, for the analysis of environmental, industrial or biomedical samples it is highly important to separate the methylphosphonic acids, *e.g.*, MPA and EMPA, from DMP and PA which may normally be present in large amounts. Since the use of ion-exchange LC seems to be a good solution to achieve resolution between ions of different charge, micro-LC columns were packed with various polymeric



anion-exchange materials, *viz.*, BA-X8, MA-100 and PRP-X100, using a 50 mg/ml acetonitrile slurry with a packing pressure of 300 bar. The results obtained for BA-X8 and MA-100 were highly unsatisfactory ( $h > 100$ ). Since this might well be due to the high packing pressure used, packing was also carried out at 100 instead of 300 bar. With MA-100 this caused considerably better results ( $h = 36$ ); with BA-X8, however, packing was still poor ( $h > 100$ ). In marked contrast with this, good results were obtained for PRP-X100, even at the original packing pressure of 300 bar. The value of  $h = 15$  is fully comparable with the reduced plate heights of the silica-based ion-exchange packing materials.

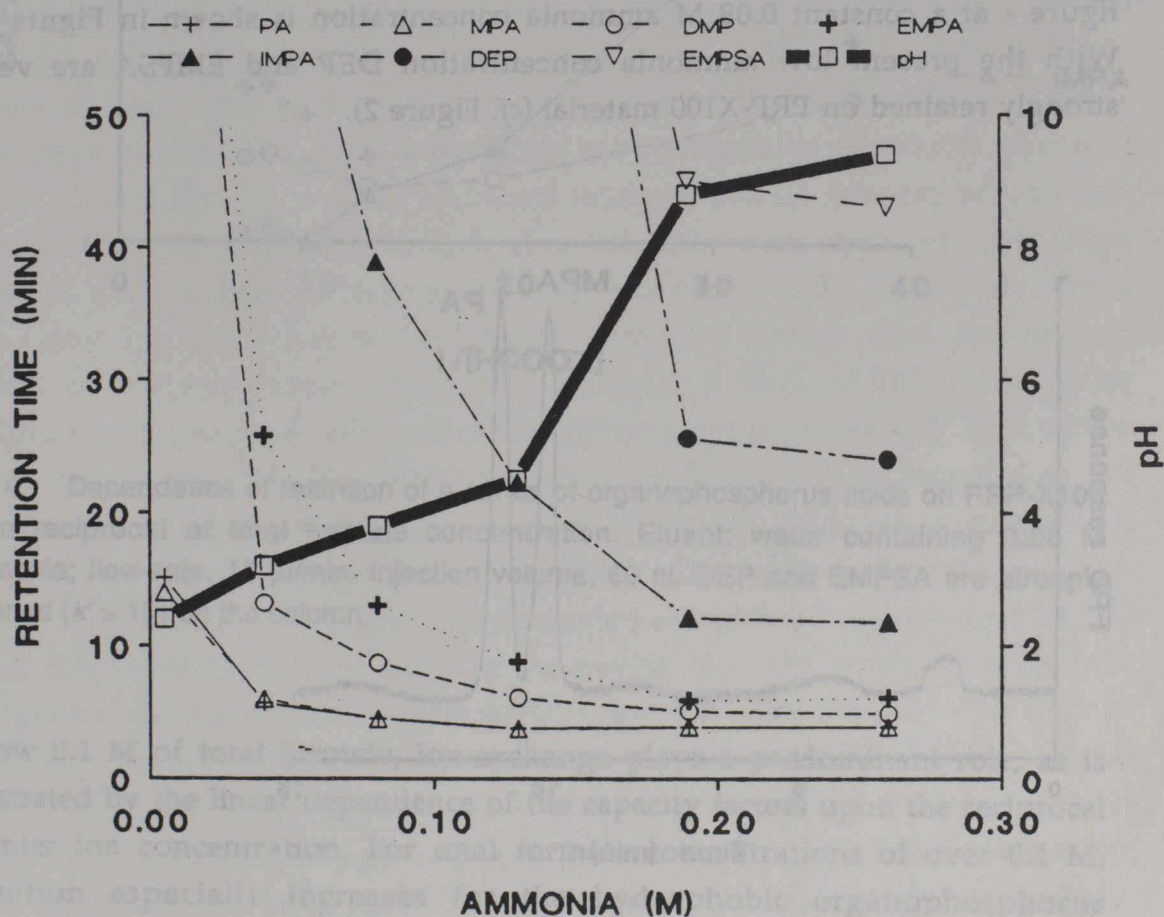


Fig. 2. Relationship between the retention characteristics of a series of organophosphorus acids on PRP-X100 and the ammonia concentration of the eluent. Eluent: water containing 0.16 M formic acid; flow-rate, 10  $\mu$ l/min; the pH of the eluent is indicated in the figure. Injection volume 60 nl.

Besides, PRP-X100 possesses the advantage of combining ion-exchange and hydrophobic properties so that sufficient separation can be created for the monovalent organophosphorus acids, as is shown in Figure 2. Figure 2 shows that at a constant 0.16 M formic acid concentration and low ammonia concentrations ( $< 0.15$  M), *i.e.* at rather low pH values ( $< 4$ ), the more hydrophobic monovalent organophosphorus acids - *i.e.*, EMPSA, DEP and, to a lesser extent, IMPA - are strongly retained. Polar hydrolysis products such as MPA and DMP are nicely separated up to 0.20 M ammonia. MPA and PA, however, are only separated completely in the absence of ammonia as shown in Figure 3. The dependence of the capacity factors of PA, MPA, DMP, EMPA and IMPA on the total formate concentration - expressed as  $1/[\text{HCOO}^-]$  in the figure - at a constant 0.08 M ammonia concentration is shown in Figure 4. With the present low ammonia concentration DEP and EMPSA are very strongly retained on PRP-X100 material (*cf.* Figure 2).

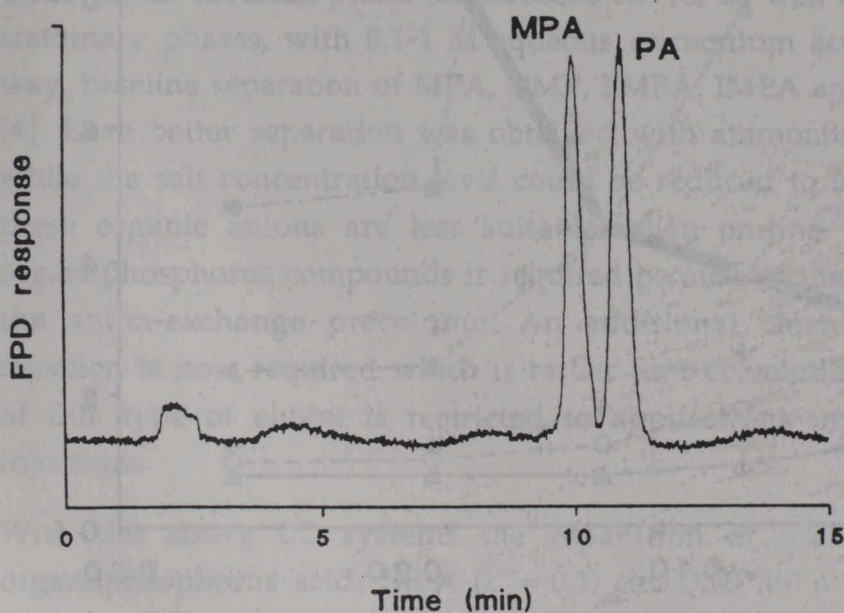


Fig. 3. Micro-LC-FPD of MPA and PA ( $5 \mu\text{g/ml}$  each) on 450 mm x 0.32 mm i.d. PRP-X100 column. Eluent, 0.5% formic acid in water; flow-rate,  $15 \mu\text{l/min}$ . Injection volume,  $2 \mu\text{l}$ .



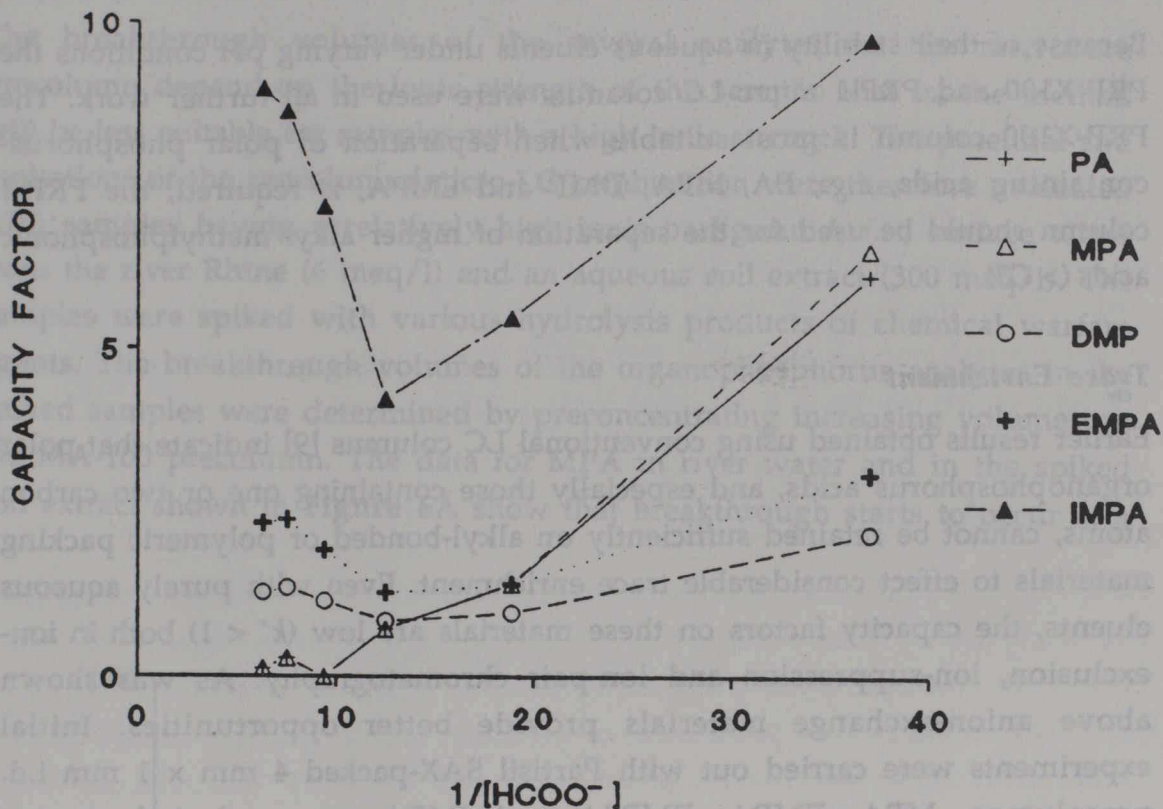


Fig. 4. Dependence of retention of a series of organophosphorus acids on PRP-X100 upon reciprocal of total formate concentration. Eluent: water containing 0.08 M ammonia; flow-rate, 10  $\mu\text{l}/\text{min}$ . Injection volume, 60 nl. DEP and EMPSA are strongly retained ( $k' > 10$ ) on the column.

Below 0.1 M of total formate, ion-exchange plays a predominant role, as is illustrated by the linear dependence of the capacity factors upon the reciprocal counter ion concentration. For total formate concentrations of over 0.1 M, retention especially increases for the hydrophobic organophosphorus compounds, while the polar PA and MPA remain unretained. All the above hydrophobic organophosphorus compounds have  $\text{pK}_a < 2$  while at the maximum formate concentration of 0.12 M (with 0.08 M ammonia) the pH of the eluent is *ca.* 4. Therefore, when using a total formate concentration of over

0.1 M, retention due to ion-pair formation is more likely than ion-suppression.

Because of their stability in aqueous eluents under varying pH conditions the PRP-X100 and PRP-1 micro-LC columns were used in all further work. The PRP-X100 column is most suitable when separation of polar phosphorus-containing acids, *e.g.*, PA, MPA, DMP and EMPA, is required; the PRP-1 column should be used for the separation of higher alkyl methylphosphonic acids (> C3).

### *Trace Enrichment*

Earlier results obtained using conventional LC columns [9] indicate that polar organophosphorus acids, and especially those containing one or two carbon atoms, cannot be retained sufficiently on alkyl-bonded or polymeric packing materials to effect considerable trace enrichment. Even with purely aqueous eluents, the capacity factors on these materials are low ( $k' < 1$ ) both in ion-exclusion, ion-suppression and ion-pair chromatography. As was shown above anion-exchange materials provide better opportunities. Initial experiments were carried out with Partisil SAX-packed 4 mm x 1 mm i.d. precolumns. MPA, EMPA, EMPSA and IMPA were selected as test compounds. The results of the experiments showed that the test solutes can be preconcentrated on the microbore precolumn from 500  $\mu$ l of a 1-10 ppb test mixture in water with over 95% recovery. In a later stage, in order to completely eliminate the partly dissolvable silica material from the system, Partisil SAX was replaced by the polymer-based anion-exchange material MA-100. Figure 5 shows that - in agreement with the results obtained with the Partisil SAX precolumn - the organophosphorus compounds are strongly retained on MA-100 from volumes of up to at least 500  $\mu$ l of aqueous solution (recovery > 99% compared with peak area of direct 60-nl injection). The chromatographic performance of the analytical system remained constant within the range of injection volumes studied (from 60 nl direct injection to 500  $\mu$ l trace enrichment). In other words, under the present conditions, no adverse effect of the *ca.* 10  $\mu$ l dead volume of the microbore precolumn system is observed. Probably, focusing on the top of the analytical column is helped by the fact that the effluent zone containing the desorbed analytes when they



leave the precolumn, is mixed with the (almost) purely aqueous zone moving ahead of it.

The breakthrough volumes of the several analytes on the microbore precolumn depend on the ionic strength of the sample; that is, the method will be less suitable for samples with a high ionic strength. The potential and limitations of the precolumn/micro-LC combination were therefore evaluated with samples having a relatively high ionic background, *i.e.*, surface water from the river Rhine (6 meq/l) and an aqueous soil extract (300 meq/l). The samples were spiked with various hydrolysis products of chemical warfare agents. The breakthrough volumes of the organophosphorus analytes in the spiked samples were determined by preconcentrating increasing volumes on the MA-100 precolumn. The data for MPA in river water and in the spiked soil extract shown in Figure 6A show that breakthrough starts to occur at a

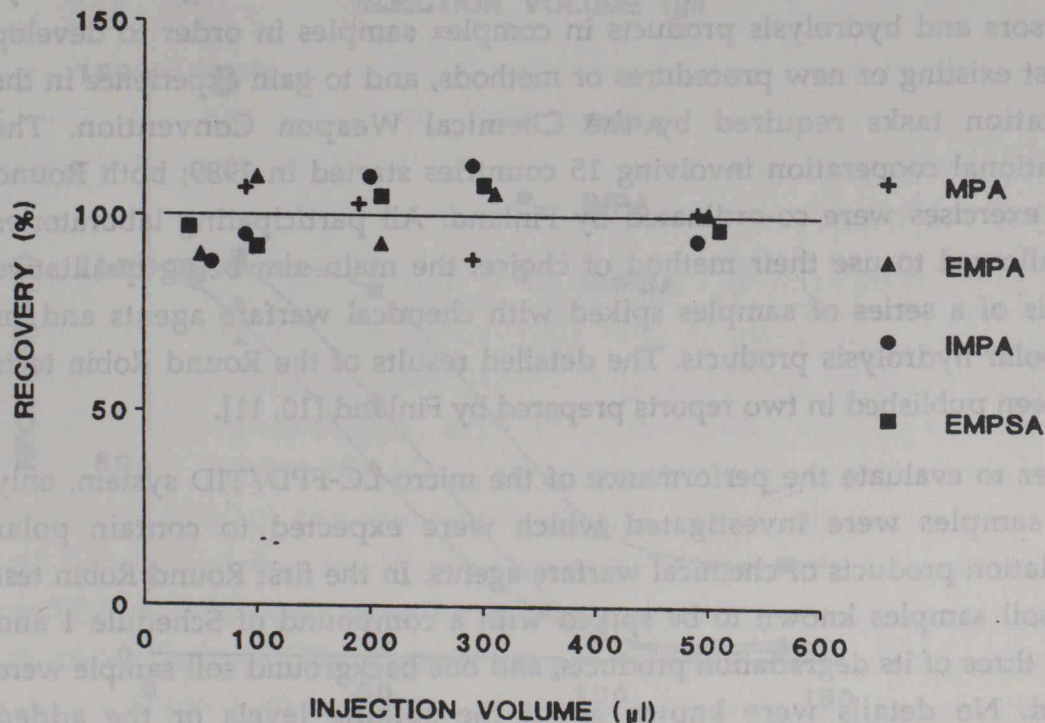


Fig. 5. Dependence of recovery of four alkyl methylphosphonic acids on injection volume after trace enrichment on MA-100 from pure water.

loaded volume of about 120  $\mu\text{l}$  and 50  $\mu\text{l}$ , respectively. The results for EMPA, IMPA and EMPSA obtained with the spiked soil extract are shown in Figure 6B. Above about 20  $\mu\text{l}$ , the recoveries for EMPA and IMPA start to decrease rapidly, again indicating displacement by relatively high concentrations of other ions present in the sample. The behaviour of EMPSA is about the same as that of MPA. In summary, even with the above samples of high ionic strength, compared with 60 nl direct injections, a 800-2000 fold trace enrichment can be obtained for MPA resulting in a detection limit of 50-100 ppb. The maximum trace enrichment for the monovalent alkyl methylphosphonic acids EMPA, IMPA and EMPSA in the soil sample, is 300-800 fold which results in a detection limit of 0.1-0.5 ppm.

## Applications

Micro-LC-FPD/TID was used in two Round Robin tests. The objective of the exercises was to verify the presence of chemical warfare agents or key-precursors and hydrolysis products in complex samples in order to develop and test existing or new procedures or methods, and to gain experience in the verification tasks required by the Chemical Weapon Convention. The international cooperation involving 15 countries started in 1989; both Round Robin exercises were co-ordinated by Finland. All participating laboratories were allowed to use their method of choice, the main aim being qualitative analysis of a series of samples spiked with chemical warfare agents and/or their polar hydrolysis products. The detailed results of the Round Robin tests have been published in two reports prepared by Finland [10, 11].

In order to evaluate the performance of the micro-LC-FPD/TID system, only those samples were investigated which were expected to contain polar degradation products of chemical warfare agents. In the first Round Robin test three soil samples known to be spiked with a compound of Schedule 1 and two or three of its degradation products, and one background soil sample were studied. No details were known about the spiking levels or the added compounds. In the second Round Robin test an alkaline (5% NaOH)



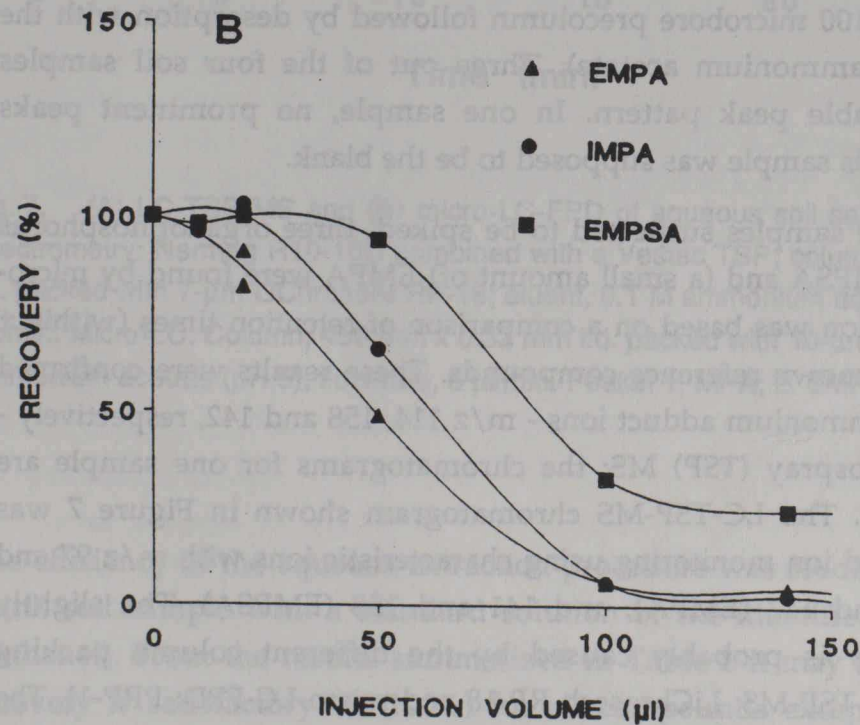
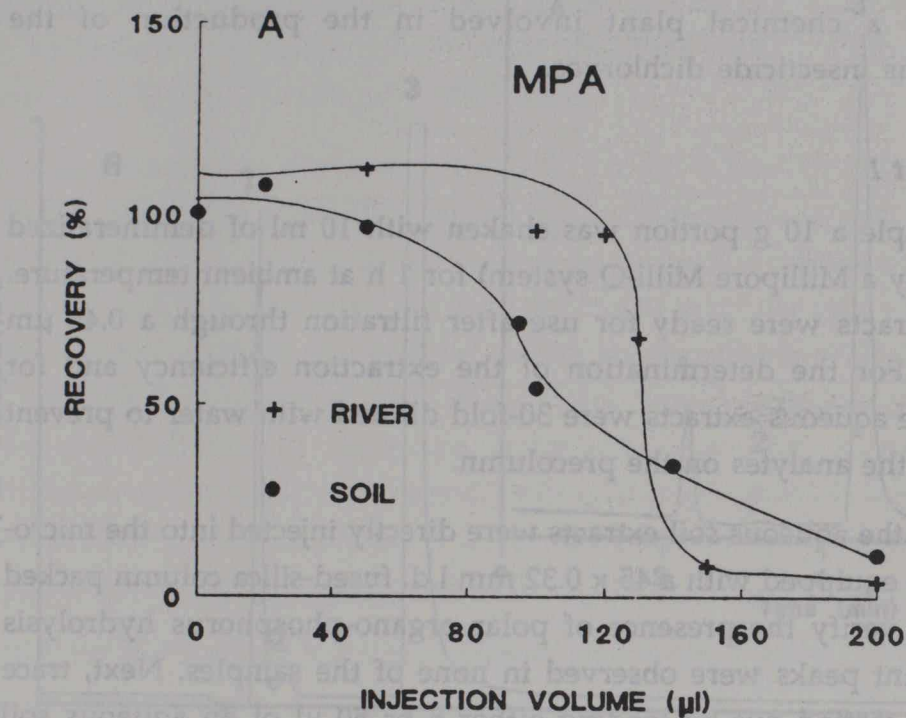


Fig. 6. Dependence of recovery of (A) MPA and (B) EMPA, IMPA and EMPSA after trace enrichment on MA-100 from river water and aqueous soil sample extract.

aqueous sample was investigated, reported to have been obtained from a waste storage tank at a chemical plant involved in the production of the organophosphorus insecticide dichlorvos.

### *Round Robin Test I*

Of each soil sample a 10 g portion was shaken with 10 ml of demineralized water (purified by a Millipore Milli-Q system) for 1 h at ambient temperature. The aqueous extracts were ready for use after filtration through a 0.45  $\mu\text{m}$  Millipore filter. For the determination of the extraction efficiency and for quantification the aqueous extracts were 30-fold diluted with water to prevent breakthrough of the analytes on the precolumn.

Initially, 60 nl of the aqueous soil extracts were directly injected into the micro-LC-FPD system - equipped with a 45 x 0.32 mm i.d. fused-silica column packed with PRP-1 - to verify the presence of polar organo-phosphorus hydrolysis products. Relevant peaks were observed in none of the samples. Next, trace enrichment was carried out by loading either 5 or 50  $\mu\text{l}$  of an aqueous soil extract on the MA-100 microbore precolumn followed by desorption with the LC eluent (0.1 M ammonium acetate). Three out of the four soil samples showed a comparable peak pattern. In one sample, no prominent peaks showed up at all; this sample was supposed to be the blank.

In each of the three samples suspected to be spiked, three organophosphorus acids, *viz.* MPA, EMPSA and (a small amount of) EMPA were found by micro-LC-FPD; identification was based on a comparison of retention times (within  $\pm 1\%$ ) with those of known reference compounds. These results were confirmed by the molecular ammonium adduct ions -  $m/z$  114, 158 and 142, respectively - observed in thermospray (TSP) MS; the chromatograms for one sample are shown in **Figure 7**. The LC-TSP-MS chromatogram shown in **Figure 7** was recorded by selected ion monitoring using characteristic ions with  $m/z$  97 and 114 (MPA), 125 and 142 (EMPA), and 141 and 158 (EMPSA). The slightly changed selectivity is probably caused by the different column packing materials used (LC-TSP-MS: LiChrosorb RP-18 and micro-LC-FPD: PRP-1). The acids found are characteristic hydrolysis products of the nerve agent VX.



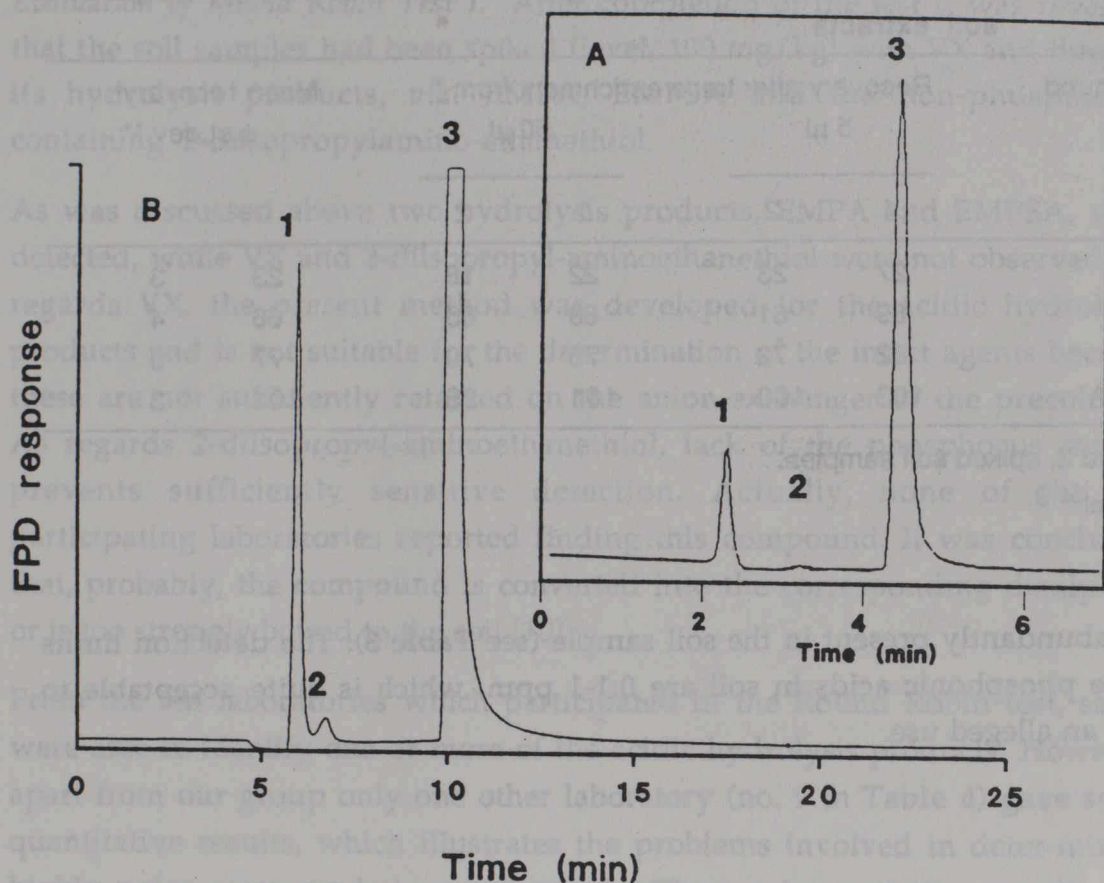


Fig. 7. (A) LC-TSP-MS and (B) micro-LC-FPD of aqueous soil sample extract. Mass spectrometry: Nermag R10-10C combined with a Vestec TSP; column, 250 mm x 5 mm i.d. packed with 7- $\mu$ m LiChrosorb RP-18; eluent, 0.1 M ammonium acetate; flow-rate, 1.5 ml/min. Micro-LC: Column, 450 mm x 0.32 mm i.d. packed with 10- $\mu$ m PRP-1; eluent, 0.5 ammonium acetate (pH 5); flow-rate, 6  $\mu$ l/min. Peaks: 1, MPA; 2, EMPA; 3, EMPSA.

The efficiency of the aqueous extraction procedure was studied by spiking the blank soil sample with a standard solution of the identified compounds (in methanol). From the results summarized in Table 2 it may be concluded that recovery is satisfactory (60-100%) for all compounds except MPA. The low extraction efficiency of MPA - which is not acceptable for quantitative work - may well be due to strong interaction with, e.g., clay particles which

**Table 2 Per cent recovery of methylphosphonic acids from aqueous soil extracts**

Compound	Recovery after trace enrichment from *				Mean recovery ± st.dev.**	
	5 µl		50 µl			
	1	2	1	2		
MPA	27	23	22	18	23	3
EMPA	69	61	68	65	66	4
IMPA	82	72	75	70	77	3
EMPSA	103	100	101	95	101	3

\* 1 and 2, spiked soil samples.

\*\*  $n_{\text{total}} = 9$ .

were abundantly present in the soil sample (see Table 3). The detection limits for the phosphonic acids in soil are 0.1-1 ppm, which is quite acceptable to detect an alleged use.

**Table 3 Physical and chemical characteristics of Round Robin test I soil sample \***

Particle size (µm)	0-2	2-20	20-50	50-200	200-2000
Clay (%)	49.2				
Silt (%)		11.6	4.9		
Sand (%)				5.8	28.5
Organic material (%)	3.2				
Carbon (%)	1.9				
Nitrogen (%)	18.3				
Silicium (%)	31.9				
Calcium (%)	traces				
Cation capacity	29.3 meq/100 g soil				
pH	6.8				

\* Data from the Centre d'Etudes du Bouchet (Paris, France)



*Evaluation of Round Robin Test I.* After completion of the test it was revealed that the soil samples had been spiked (level, 100 mg/kg) with VX and three of its hydrolysis products, viz. EMPA, EMPSA and the non-phosphorus-containing 2-diisopropylamino-ethanethiol.

As was discussed above two hydrolysis products, EMPA and EMPSA, were detected, while VX and 2-diisopropyl-aminoethanethiol were not observed. As regards VX, the present method was developed for the acidic hydrolysis products and is not suitable for the determination of the intact agents because these are not sufficiently retained on the anion-exchanger in the precolumn. As regards 2-diisopropyl-aminoethanethiol, lack of the phosphorus moiety prevents sufficiently sensitive detection. Actually, none of the ten participating laboratories reported finding this compound. It was concluded that, probably, the compound is converted into the corresponding disulphide or is too strongly bound to the soil [10].

From the ten laboratories which participated in the Round Robin test, seven were able to identify one or more of the acidic hydrolysis products. However, apart from our group only one other laboratory (no. 9 in Table 4) gave semi-quantitative results, which illustrates the problems involved in determining highly polar compounds in a soil matrix. The semi-quantitative results and analytical methods used are summarized in Table 4. Next to micro-LC-FPD more sophisticated techniques such as  $^1\text{H}$ - and  $^{31}\text{P}$ -NMR and high-resolution MS were used. With micro-LC-FPD, 80-100% of the added EMPSA was found in the soil sample which compares favourably with the results obtained by means of LC-MS and NMR. EMPA was found at a very low level of 0.2-3 ppm which agrees rather well with the LC-MS (0.2-0.5 ppm) and NMR (2.4-2.8 ppm) data. Probably, EMPA is degraded in the soil to MPA which was also found in the samples although it had not been added as a spike. Because EMPSA was recovered essentially quantitatively (80-100%), the MPA found in the soil must result from conversion of the spiked EMPA. In other words, with micro-LC-FPD 50-100% of the EMPA spiked to the soil was found indirectly, as was calculated from the MPA recovery (see Table 4) after correction for its molecular weight and low extraction efficiency. From results obtained with, e.g., GC-MS [10], it can be concluded that the major part of the spiked VX was still present intact in the soil.



**Table 4** Semi-quantitative results of aqueous soil sample extracts  
(Round Robin test I)

Compound	Technique	Lab.No.**	Concentration (mg/kg) *		
			I	II	III
EMPSA	$\mu$ -LC/FPD	8	80	100	83
EMPSA	TSP-LC-MS	8	50	74	40
EMPSA	$^1\text{H}$ NMR	8	-	130	-
EMPSA	$^{31}\text{P}$ NMR	9	28	24	24
EMPA	$\mu$ -LC/FPD	8	1.3	0.2	3
EMPA	TSP-LC-MS	8	0.4	0.5	0.2
EMPA	$^{31}\text{P}$ NMR	9	2.8	2.4	2.4
MPA	$\mu$ -LC/FPD	8	12	18	10
MPA	TSP-LC-MS	8	24	29	18

\* Not corrected for extraction recovery: -, not analysed.

\*\* See ref. 11; No. 8: data from our laboratory.

### Round Robin Test II

Initial experiments with micro-LC-FPD using direct 60-nl injections under the same conditions as described above, indicated the presence of a large quantity of DMP in the strongly alkaline aqueous sample; this is a known hydrolysis product of dichlorvos. Next, the sample was screened by LC on a PRP-1 column. To detect hydrophobic decomposition products, using methanol-water (80:20, 60:40 or and 40:60, v/v) containing 0.7% of glacial acetic acid and 0.5% of 25% ammonia as eluent. Because the FPD cannot be used due to quenching of the analyte signal by methanol [4], the TID in the P mode was used as detector. Under these conditions the large amount of sodium ions present in the sample seriously disturbed the shape of the DMP peak which showed negligible retention on the PRP-1 column.

Off-line pretreatment carried out by passing 100  $\mu$ l of sample through a cation-exchange SCX cartridge (Bond Elut, Analytichem, Harbor City, CA, U.S.A.) to remove the ions considerably improved the DMP peak shape. Both the untreated sample and the sample flushed over the SCX cartridge were



injected. Two unidentified broad peaks ( $k'$ , 0.3 and 2, at 80% methanol) were found in the untreated sample. The peaks showed more retention than a hydroxysoman standard ( $k'$ , 0.1) indicating both compounds to be more hydrophobic and probably, therefore, to contain more than seven carbon

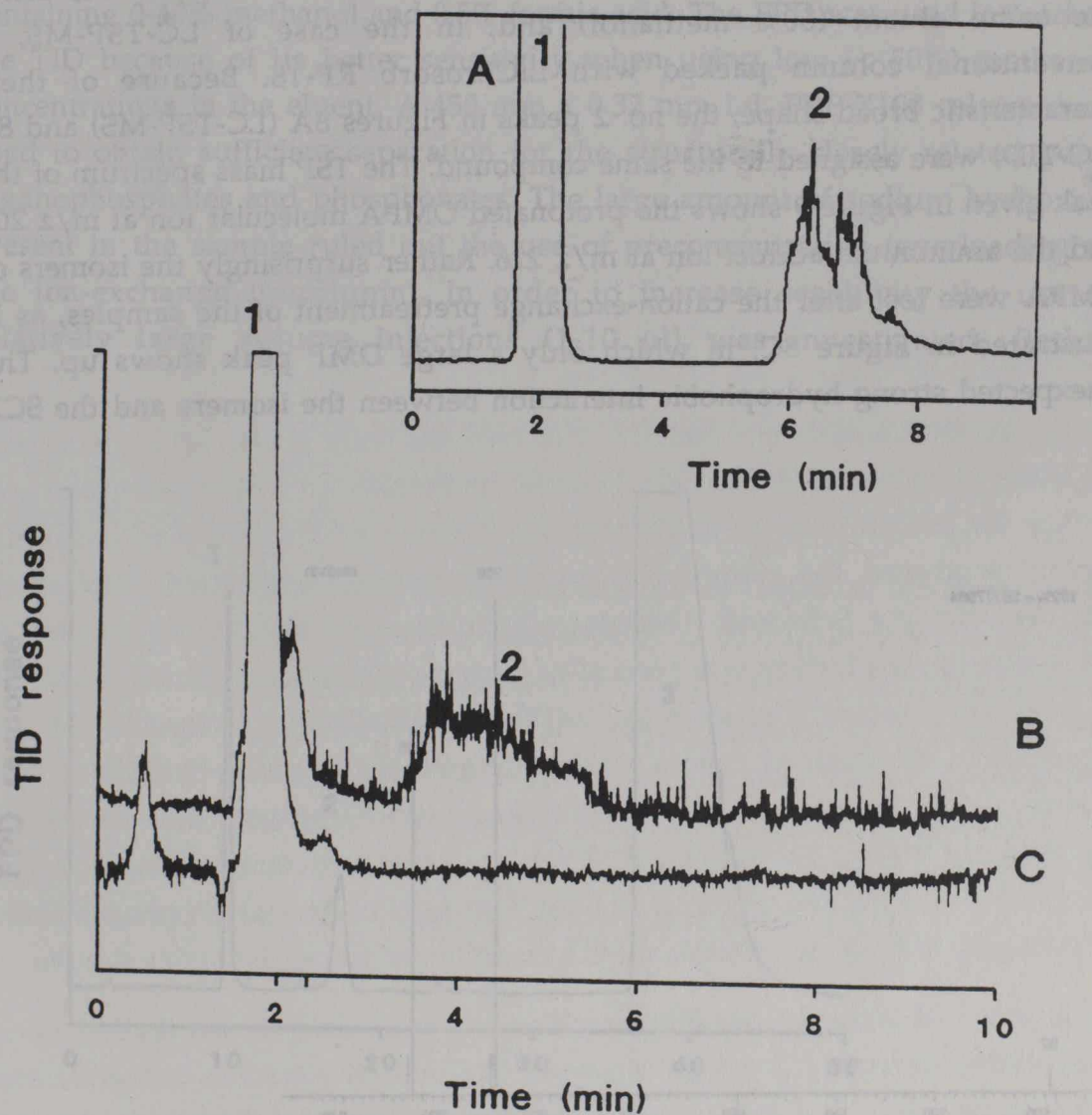


Fig. 8. (A) LC-TSP-MS and (B, C) micro-LC-TID of aqueous Round Robin II sample. A, Direct 10- $\mu$ l injection; B, direct 60-nl injection; C, as B but with SCX treatment. For further details, see text. Peaks: 1, DMP; 2, OMPA.

atoms. In agreement with these results, LC-TSP-MS showed the presence of isomers of octyl methylphosphonic acid (OMPA) and the ester dioctyl methylphosphonate which contain nine and seventeen carbon atoms, respectively. Since no reference compounds were available, no further confirmation of the identity of the compounds was possible.

Figure 8 shows the results obtained with micro-LC-TID and LC-TSP-MS using the same eluent (60% methanol) and, in the case of LC-TSP-MS, a conventional column packed with LiChrosorb RP-18. Because of their characteristic broad shape, the no. 2 peaks in Figures 8A (LC-TSP-MS) and 8B (LC-TID) were assigned to the same compound. The TSP mass spectrum of the peak given in Figure 9 shows the protonated OMPA molecular ion at  $m/z$  209 and the ammonium adduct ion at  $m/z$  226. Rather surprisingly the isomers of OMPA were lost after the cation-exchange pretreatment of the samples, as is illustrated in Figure 8C, in which only a large DMP peak shows up. The unexpected strong hydrophobic interaction between the isomers and the SCX

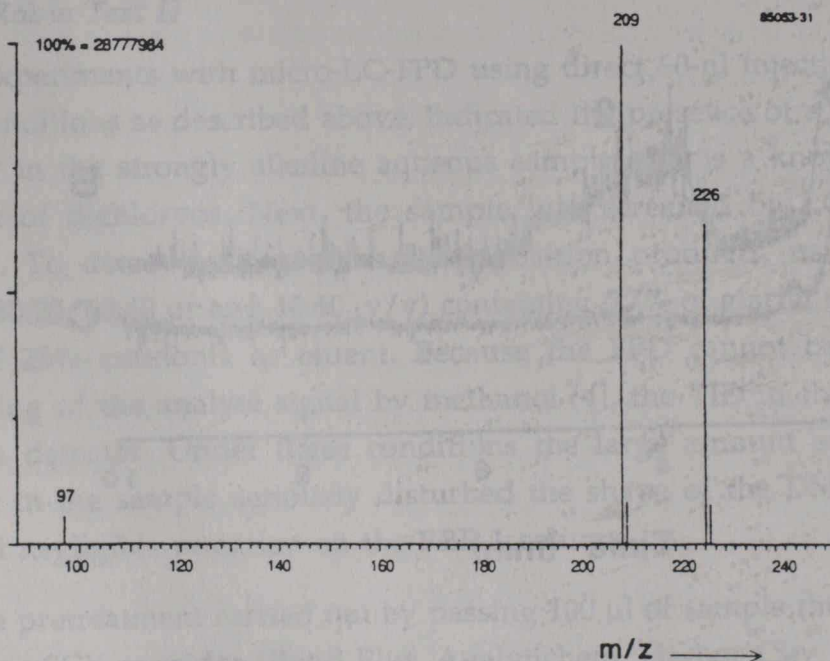


Fig. 9. Thermospray mass spectrum of OMPA:  $m/z$  209, protonated OMPA;  $m/z$  226, ammonium adduct ion. For further details, see text.



cartridge material emphasizes the need to use a direct methodology. Finally, using micro-LC-TID on a PRP-1 column with methanol-water (40 : 60, v/v) as eluent, IMPA was detected (60-nl injection; data not shown) and quantitated at the 10 ppm level by means of standard addition.

Next the sample was screened for the presence of polar hydrolysis products by means of micro-LC-FPD, using the PRP-X100 column and aqueous eluents containing 0-40% methanol and 0.5% formic acid. The FPD was used instead of the TID because of its better sensitivity when using low (< 50%) methanol concentrations in the eluent. A 450 mm x 0.32 mm i.d. PRP-X100 column was used to obtain sufficient separation for the structurally closely related polar organophosphates and phosphonates. The large amount of sodium hydroxide present in the sample ruled out the use of preconcentration (overloading of the ion-exchange precolumn). In order to increase sensitivity the use of relatively large volume injections (1-10  $\mu$ l) was investigated. Rather

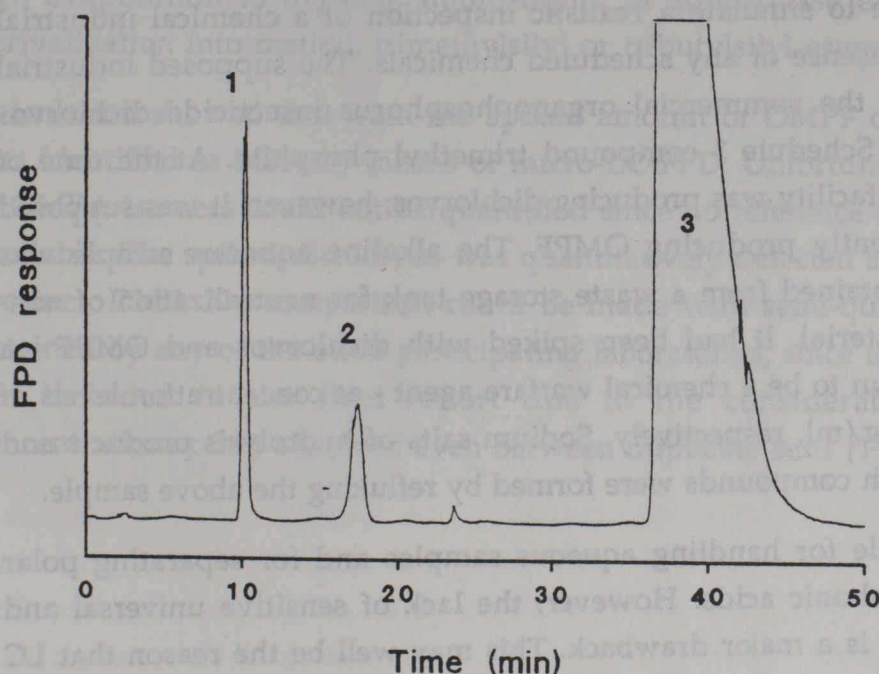


Fig. 10. Micro-LC-FPD of aqueous Round Robin II sample. Column, 450 mm x 0.32 mm i.d. packed with 10- $\mu$ m PRP-X100. Eluent, 0.5% formic acid in water; flow-rate, 15  $\mu$ l/min. Injection volume, 2  $\mu$ l. Peaks: 1, MPA; 2, MMP; 3, DMP.



unexpectedly 1-10  $\mu$ l sample injections directly on the analytical column were possible without any peak shape disturbances (for further discussion, see Part II). In this instance, next to DMP, MPA was found, as is shown in Figure 10. The peak at a retention time of *ca.* 17 min was also detected as an impurity in DMP standard solutions (ppm levels); separate LC-TSP-MS experiments using a conventional-size PRP-X100 column under the above eluent conditions proved it to be monomethyl phosphoric acid (MMP). The micro-LC chromatogram clearly shows the separation power of PRP-X100 for the closely related MPA, MMP and DMP.

From the above data it was concluded that the presence of the Schedule 2 compounds MPA, IMPA and OMPA indicates probable production of a Schedule 1 chemical. Other workers participating in the Round Robin test procedure unambiguously identified this chemical by means of GC-MS to be the hydrolysis product of a sarin analogue, *viz.* octyl methylphosphonofluoridate (OMPF).

*Evaluation of Round Robin Test II.* The samples were prepared by Australia with the objective to simulate a realistic inspection of a chemical industrial facility for the presence of any scheduled chemicals. The supposed industrial facility produced the commercial organophosphorus insecticide dichlorvos starting from the Schedule 3 compound trimethyl phosphite. At the time of the inspection the facility was producing dichlorvos; however, it was supposed to have been recently producing OMPF. The alkaline aqueous sample was supposed to be obtained from a waste storage tank for neutralization of non-volatile waste material. It had been spiked with dichlorvos and OMPF - a chemical not known to be a chemical warfare agent - at concentration levels of 8 mg/ml and 2 mg/ml, respectively. Sodium salts of hydrolysis products and by-products of both compounds were formed by refluxing the above sample.

LC is most suitable for handling aqueous samples and for separating polar alkyl methylphosphonic acids. However, the lack of sensitive universal and selective detectors is a major drawback. This may well be the reason that LC was only used by six out of the fifteen participating laboratories; UV, enzymatic, conductometric and, in our case, FPD and MS detection were used. As discussed in the final report on the test, most of the interesting phosphorus-containing compounds could be detected only with MS or FPD



[11]. Traditional UV detection applied by three laboratories was not useful because of the poor absorption characteristics of the compounds of interest; sensitive enzymatic detection selectively reveals the presence of enzyme inhibitors such as nerve agents, but not the non-toxic hydrolysis products of nerve agents. With respect to the other LC results the report stated: "the most important detectors were the mass spectrometer and the FPD. The UV and enzymatic detectors did not support the analysis of the scheduled chemicals, except that the latter proved the absence of the known nerve agents".

The above result is very promising for micro-LC because without excessive sample pretreatment, both the degradation products of the spiked OMPF - MPA, OMPA and a related impurity, IMPA - were found and sufficiently separated from the large quantity of DMP present in the sample. The results on the relevant hydrolytic degradation products as obtained by the participating laboratories are summarized in Table 5. Next to micro-LC-FPD-TID, GC-TID/FPD, GC-MS, GC-FTIR and NMR were used as analytical techniques. These methods required more complicated sample pretreatment, e.g., evaporation to dryness, liquid-liquid or solid-phase extraction and/or derivatization into methyl, trimethylsilyl or tributylsilyl esters.

Calculation showed that from the spiked amount of OMPF of 2 mg/ml, 40% was identified as MPA by means of micro-LC-FPD. Unfortunately the amount of OMPA isomers could not be quantified since no reference compounds were available. The spiked dichlorvos was quantitatively detected as its degradation product, DMP. No comparison could be made with semi-quantitative results obtained by any of the other participating laboratories, since these results were not included in the final report due to the considerable variation in concentrations often observed even between duplicate runs [11].

**Table 5** Results of all laboratories participating in Round Robin test II (alkaline aqueous sample)

Compound	$\mu$ -LC	2	3	4	5	6	7	8	9	10	11	12	13	14	C <sup>A</sup>	C <sup>B</sup>
MPA	x		x	x	x	x	x				x			x	x	x
IMPA	x			x		x								x		
OMPA	x*		x		x	x				x				x	x	x
DMP	x		x	x	x	x	x				x			x	x	x
MMP	x*				x	x					x			x	x	x

$\mu$ -LC: data from our laboratory. x, compound detected; x\*, as confirmed by MS.

C<sup>A</sup> and C<sup>B</sup>, results of Australian laboratory, immediately after sample preparation and after 3 months, respectively.

## Conclusions

The use of micro-LC in combination with phosphorus-selective GC detectors such as the FPD and TID is a promising approach in investigations concerning verification of hydrolysis products of chemical warfare agents. Trace enrichment by means of either on-line preconcentration or large-volume injections improves the detectability of such analytes to the 0.1-1 ppm concentration level in soil and water samples. The methods described in Round Robin tests I and II are included in the recommended operation procedures of the final reports on methodology and instrumentation for sampling and analysis in the verification of chemical disarmament [10,11].

The anion-exchange material that has to be used in the preconcentration column does not trap intact chemical warfare agents. When aiming at this particular aspect the present results on increased sensitivity obtained by using direct 1-10- $\mu$ l injections are more promising. It is expected that, in the near future, the use of direct injections will enable the determination of both the intact chemical warfare agents and their degradation products, with detection limits at the low-ppm to low-ppb level. Current research is directed at that goal.

As discussed in the final report on the test part of the international phosphorus-containing compounds could be detected only with FPD or TID



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## II. Large-Volume Injections in Microcolumn Liquid Chromatography using Flame Photometric Detection

### *Summary*

The sensitivity and separation performance of an earlier system using microcolumn liquid chromatography coupled with a flame photometric detector are considerably improved by the direct injection of large sample volumes (about 10  $\mu$ l) and peak compression. Extremely narrow peaks are obtained by adding displacers such as hydrochloric acid (ion-exchange mode) or n-butanol (reversed-phase mode) to the sample.

The system is used for the determination of ethyl methylphosphonic acid, isopropyl methylphosphonic acid and pinacolyl methylphosphonic acid which are the hydrolysis products of the super-lethal nerve agents VX, sarin and soman, respectively, and of the final degradation product, methylphosphonic acid. The detection limits for the alkyl methyl-phosphonic acids and sarin in water are 1-20 ppb.

Two examples are used to demonstrate the practicality of the present procedure. Sarin and the much more polar isopropyl methylphosphonic acid are simultaneously determined in a spiked surface water sample used for verification studies. Low-ppb levels of phosphorous acid are identified in mustard gas.



## Introduction

Since the early negotiations in the Committee on Chemical Weapons of the Conference on Disarmament, several countries study the effectiveness of various analytical procedures for the verification of the future Chemical Weapons Convention. Future verification inspections may well take place at an industrial complex with sampling of aqueous and organic samples being arranged as follows: (i) near-site verification at the point where process water leaves the industrial complex, (ii) on-site verification of effluent water from the production facility or before it enters the purification plant, (iii) on-site verification of precursors and end-products [1]. It is evident that strongly diluted aqueous samples obtained from wastewater streams will play an important role in the verification procedures. Therefore, next to analysis by means of gas chromatography (GC), mass spectrometry (MS) and nuclear magnetic resonance spectrometry (NMR), we devote attention to the direct determination of the non-volatile organophosphorus hydrolysis products of nerve agents in aqueous samples by means of liquid chromatography-thermospray-MS (LC-TSP-MS) [2, 3] and micro-LC coupled with phosphorus-selective flame photometric (FPD) [4-6] or thermionic [7] detection.

In 1989, international Round Robin verification exercises were started [8, 9]. The objective was to verify the presence of chemicals relevant to the Chemical Weapons Convention - chemical warfare agents, their analogues, precursors, by-products and degradation products - in, *e.g.*, aqueous samples. Each participating laboratory was allowed to use its own procedures. We used micro-LC-FPD to study the presence of degradation products of chemical warfare agents in aqueous samples or aqueous extracts. To enhance the sensitivity of the technique, trace enrichment on an ion-exchanger was carried out via a small precolumn mounted in a six-port Valco valve. A serious limitation of this on-line trace enrichment procedure (see Part I, ref. 10) was the dependence of breakthrough volumes on the charge and amount of matrix ions. Rather surprisingly, however, 1-10  $\mu\text{l}$  direct injections were possible in the presence of 5% sodium hydroxide.

In the present study the use of large-volume injections and peak compression, are further investigated to enhance the sensitivity and versatility of the micro-LC-FPD method.



## Experimental

### *Materials*

All solvents were of HPLC-grade quality; they were supplied by Merck (Darmstadt, FRG). The 10  $\mu\text{m}$  styrene-divinylbenzene copolymer PRP-1 and copolymer anion-exchanger PRP-X100 (Hamilton, Reno, NE, USA) were used as packing material for LC. Phosphorous acid was obtained from Merck.

The degradation products of nerve agents - methylphosphonic acid (MPA), ethyl methylphosphonic acid (EMPA), isopropyl methylphosphonic acid (IMPA) and pinacolyl methylphosphonic acid (PMPA), - the nerve agent sarin, the insecticide degradation products dimethyl phosphoric acid (DMP), monomethyl phosphoric acid (MMP) and diethyl phosphoric acid (DEP) as well as mustard (also known as mustard gas) and sesquimustard were synthesized in our laboratory and gave satisfactory elemental analyses and infrared, NMR, and MS data.

The various fused silica connection tubings (0.02-0.3 mm i.d.) were supplied by Chrompack (Middelburg, The Netherlands).

### *Set-up of the System*

The set-up of the micro-LC-FPD system is shown in **Figure 1**. The eluent pump (I) is connected to a six-port Valco valve (A) which is provided with a 10  $\mu\text{l}$  sample loop, and is connected to a second Valco valve (B) which contains an internal 60 nl sample loop and which is connected to the micro-LC column. With this set-up, it is possible to inject 1-10  $\mu\text{l}$  of samples containing low ( $\mu\text{g}/\text{ml}$ ) analyte concentrations (Valve A) and also - without changing the system - 60 nl of more concentrated ( $\text{mg}/\text{ml}$ ) solutions used to study column focusing effects (Valve B).

A second micro pump (II) is directly connected to the interface (C) to deliver a make-up flow of water. The use of a make-up flow is essential to reduce the extra-column peak broadening of extremely narrow (compressed) peaks in the connective capillary tubing between the micro-LC column and the detector. Because the FPD is a mass-sensitive detector, its response is proportional to the



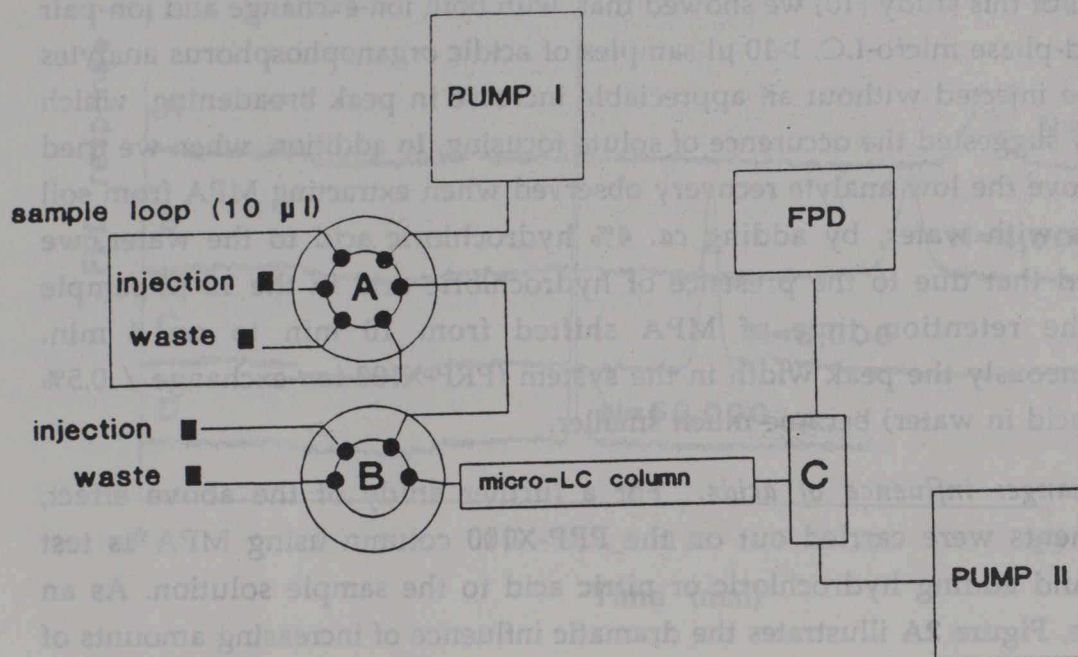


Fig. 1. Experimental set-up of the total analytical system: A, injection valve with 10  $\mu$ l sample loop; B, injection valve with internal 60 nl loop; C, interface.

mass-flux of an analyte. That is, the use of a make-up flow does not reduce sensitivity.

## Results and Discussion

### *Large-Volume Injections and Peak Compression*

The inherently low injection volumes of micro-LC (ca. 60 nl) often make the sensitivity of the system expressed in terms of injected concentrations unacceptably low. In this context, as an alternative to on-line preconcentration via a precolumn [6, 10], direct injection of relatively large volumes under column focusing conditions should be considered. The well-known principle of column focusing - *i.e.* trapping analytes dissolved in a non-eluting solvent on the top of the analytical column - to enhance the concentration sensitivity in micro-LC has recently been recommended in several papers [11-14].

In Part I of this study [10] we showed that, with both ion-exchange and ion-pair reversed-phase micro-LC, 1-10  $\mu\text{l}$  samples of acidic organophosphorus analytes could be injected without an appreciable increase in peak broadening, which strongly suggested the occurrence of solute focusing. In addition, when we tried to improve the low analyte recovery observed when extracting MPA from soil samples with water, by adding *ca.* 4% hydrochloric acid to the water, we observed that due to the presence of hydrochloric acid in the 10  $\mu\text{l}$  sample only, the retention time of MPA shifted from 10 min to *ca.* 4 min. Simultaneously the peak width in the system (PRP-X100 ion-exchange / 0.5% formic acid in water) became much smaller.

*Ion-exchange: influence of acids.* For a further study of the above effect, experiments were carried out on the PRP-X100 column using MPA as test solute and adding hydrochloric or nitric acid to the sample solution. As an example, Figure 2A illustrates the dramatic influence of increasing amounts of hydrochloric acid in the sample solution on the retention time and peak shape of MPA. The effect of the addition of acid is shown in more detail in Figure 2B. Whereas the decrease in retention is directly proportional with the concentration of the acid, efficient peak compression obviously requires the presence of, at least, about 1.5 mg/ml of acid in the sample solution (15  $\mu\text{g}$  injected on the micro-LC column).

When the sample contains several analytes of interest, their resolution is expected to be readily lost due to the great retention shifts. However, a 2- $\mu\text{l}$  injection of a sample containing 70 mg/ml of hydrochloric acid (140  $\mu\text{g}$  injected on the micro-LC column) with MPA and MMP as test solutes still yields sufficient resolution of these analytes, despite the large decrease in retention (Figure 3). For DMP, which has a high capacity factor of  $k' = 20$  ( $t_R = 40$  min) in the absence of hydrochloric acid, retention time and plate number remained unchanged upon the addition of acid.

The influence of the (retention) characteristics of the acid anion on peak compression was demonstrated by adding nitric acid (4 mg/ml) instead of



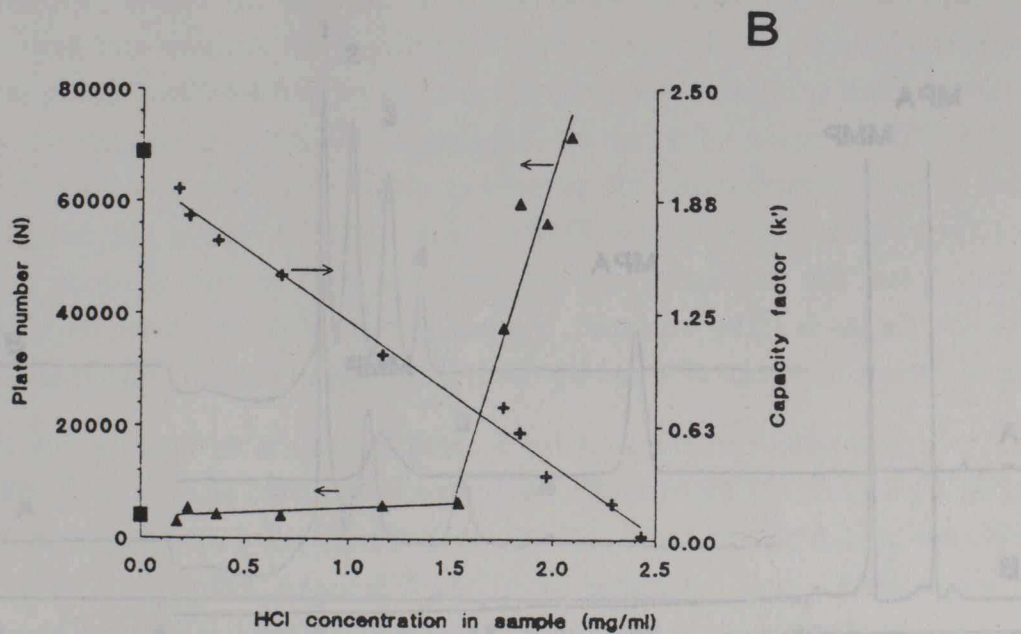
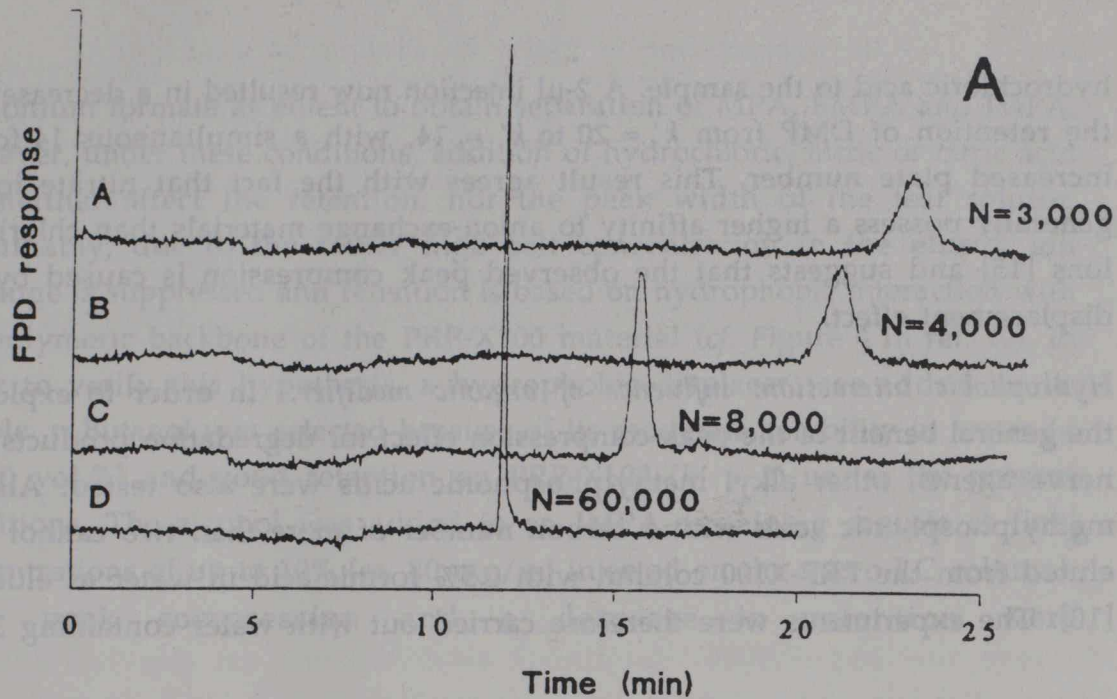


Fig. 2. Influence of hydrochloric acid added to the sample on the peak shape of methylphosphonic acid (A) and on efficiency ( $N$ ,  $s$ ) and retention ( $k'$ ,  $t_r$ ) (B). Column, 400 mm x 0.32 mm i.d. PRP-X100; flow rate, 4  $\mu$ l/min; eluent, 0.5% formic acid in water; injection volume, 10  $\mu$ l. HCl concentration (mg/ml) in the sample: A, 0.2; B, 0.4; C, 1.5; D, 2.0.  $n$ , Reference points ( $N$ ) and ( $k'$ ) obtained by 60-nl injection.

hydrochloric acid to the sample. A 2- $\mu$ l injection now resulted in a decrease of the retention of DMP from  $k' = 20$  to  $k' = 14$ , with a simultaneous 14-fold increased plate number. This result agrees with the fact that nitrate ions generally possess a higher affinity to anion-exchange materials than chloride ions [15] and suggests that the observed peak compression is caused by a displacement effect.

*Hydrophobic interaction: influence of organic modifier.* In order to explore the general benefit of the peak-compression effect for degradation products of nerve agents, other alkyl methylphosphonic acids were also tested. Alkyl methylphosphonic acids with a carbon number of more than two cannot be eluted from the PRP-X100 column with 0.5% formic acid in water as eluent [10]. The experiments were therefore carried out with water containing 3%

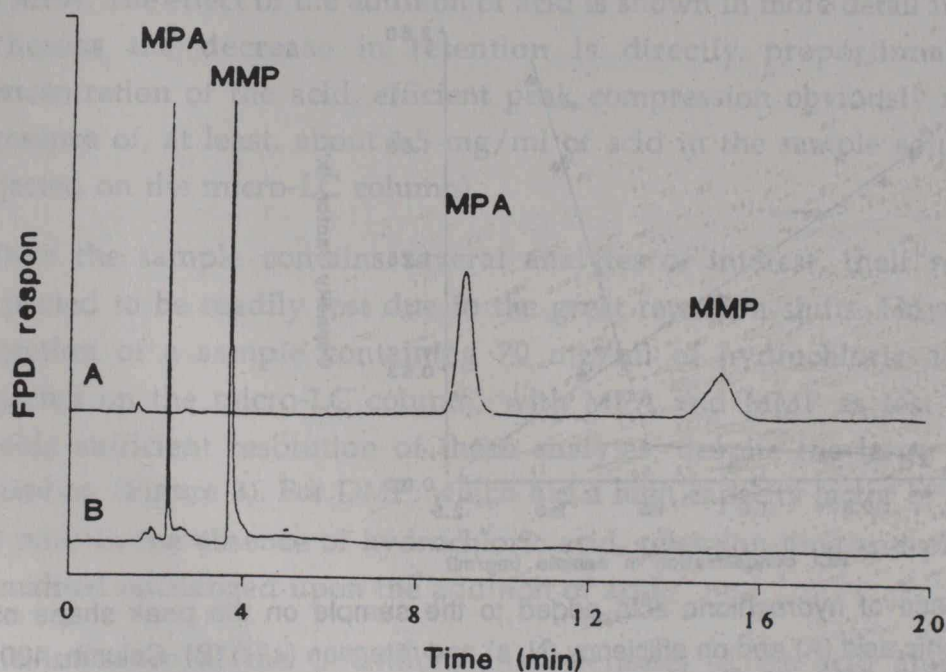


Fig. 3. Micro-LC-FPD chromatogram of methylphosphonic acid (MPA) and monomethyl phosphoric acid (MMP); (A) without and (B) with 70 mg/ml of hydrochloric acid added to the sample. Column, 300 mm x 0.32 mm i.d. PRP-X100; injection, 2  $\mu$ l; eluent, 0.5% formic acid in water; flow rate, 15  $\mu$ l/min.



ammonium formate as eluent to obtain separation of MPA, EMPA and IMPA. However, under these conditions, addition of hydrochloric, nitric or citric acid did neither affect the retention, nor the peak width of the test solutes. Presumably, due to the rather high salt concentration in the eluent, ion exchange is suppressed and retention is based on hydrophobic interaction with the polymeric backbone of the PRP-X100 material (*cf.* Figure 4 in ref. 10). In order to verify this hypothesis, a hydrophobic displacer was added to the sample. n-Butanol was selected because of its moderate solubility in water (< *ca.* 10 vol.%) and good retention on PRP-X100 ( $k' > 2$ ) under the present conditions. The alcohol was added to an IMPA-containing sample at final concentrations of up to 10% (*ca.* 80 mg/ml injected on the micro-LC column). Both peak compression and a decrease in retention were

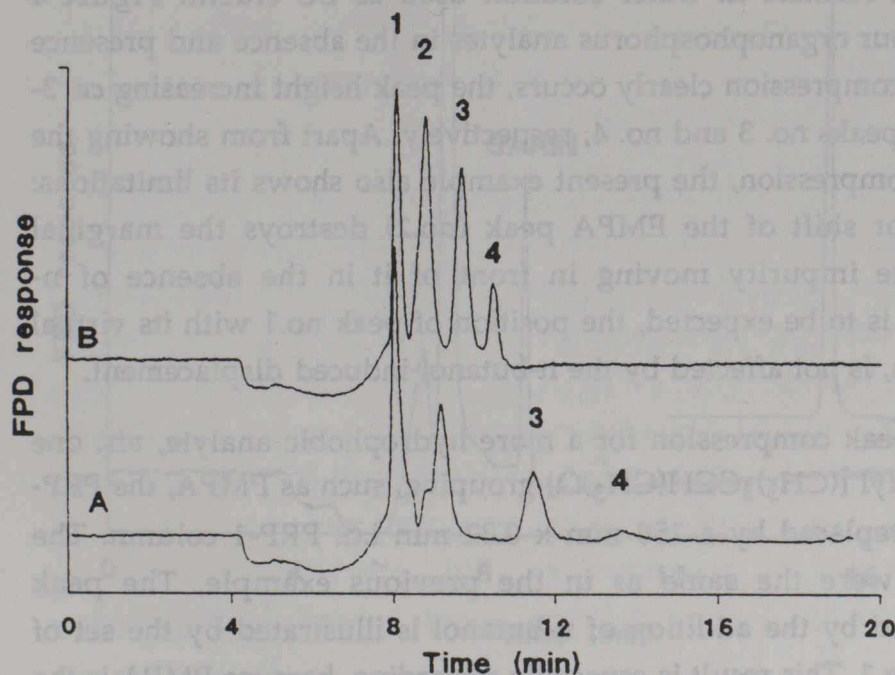


Fig. 4. Micro-LC-FPD chromatogram of several organophosphorus acids. A, without and B, with 9% n-butanol in sample; Column, 300 mm x 0.32 mm i.d. PRP-X100; eluent, 1% formic acid, 2% ammonia and 20% methanol in water; flow rate, 5  $\mu$ l/min. 1, Methylphosphonic acid; 2, ethyl methylphosphonic acid; 3, isopropyl methylphosphonic acid; 4, diethyl phosphoric acid. Concentrations, 1  $\mu$ g/ml.

**Table 1** Peak compression of PMPA on addition of n-butanol \*

Vol.% n-butanol	Capacity factor (k')	Efficiency (N)
0	3.3	500
5	0.5	10,000
9	0.3	20,000

\* System: column, 150 mm x 0.32 mm i.d. PRP-1; eluent, 20 vol.% methanol / 3% ammonium formate in water.

observed. For n-butanol concentrations exceeding 5% the plate number reached a plateau of 45,000 as against 400 in the absence of the alcohol. The capacity factor of IMPA decreased from  $k' = 2.4$  to  $k' = 0.5$ .

Because the retention of n-butanol also depends on the LC eluent composition, in a subsequent experiment 20 vol.% of methanol were added to the 3% ammonium formate in water solution used as LC eluent. **Figure 4** shows results for four organophosphorus analytes in the absence and presence of n-butanol. Peak compression clearly occurs, the peak height increasing *ca.* 3-fold and 5-fold for peaks no. 3 and no. 4, respectively. Apart from showing the potential of peak compression, the present example also shows its limitations: the relatively minor shift of the EMPA peak (no.2) destroys the marginal resolution from the impurity moving in front of it in the absence of n-butanol. Finally, as is to be expected, the position of peak no.1 with its virtual absence of retention, is not affected by the n-butanol-induced displacement.

In order to study peak compression for a more hydrophobic analyte, *viz.* one containing a pinacolyl  $[(CH_3)_3CCH(CH_3)O]$  grouping, such as PMPA, the PRP-X100 column was replaced by a 150 mm x 0.32 mm i.d. PRP-1 column. The eluent conditions were the same as in the previous example. The peak compression effected by the addition of n-butanol is illustrated by the set of data shown in **Table 1**. This result is especially rewarding, because PMPA is the hydrolysis product of the super-lethal nerve agent soman. Its low-level determination is therefore distinctly useful.



## Applications

*Verification procedure.* River Rhine water was used as a model for substantially diluted waste water downstream of a chemical production plant. In aqueous solution nerve agents such as sarin and soman will decompose to the acidic degradation products IMPA and PMPA, respectively [16]. The stability to hydrolysis in pure water is highest at pH 4-7 [21].

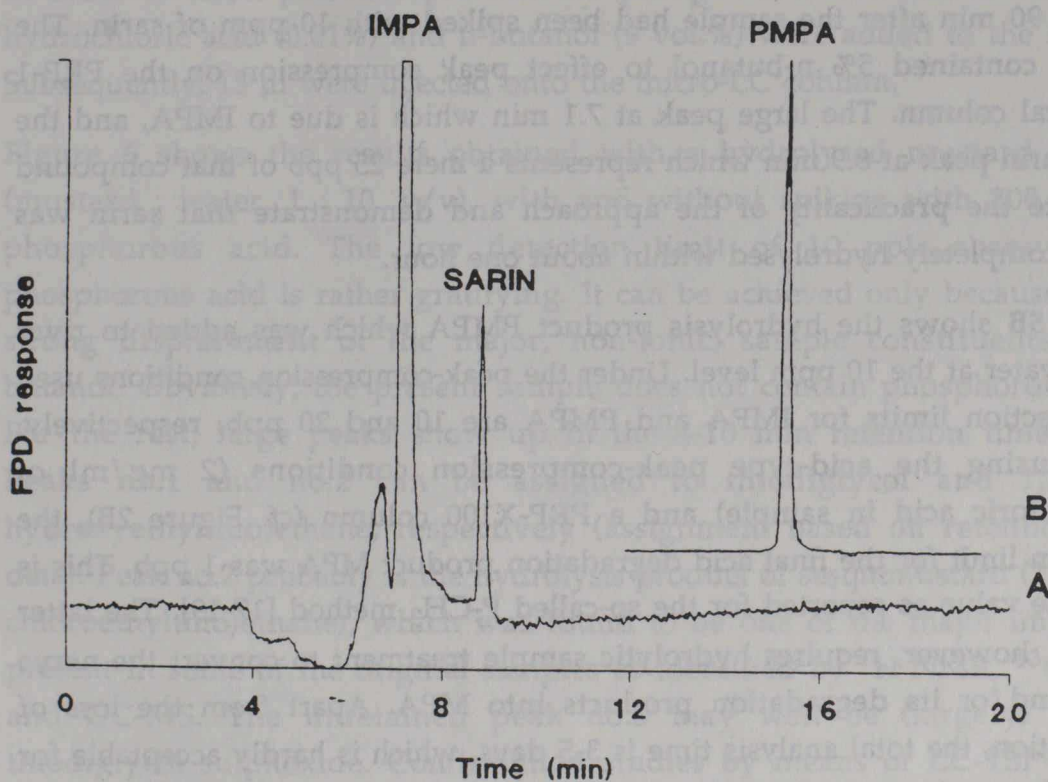


Fig. 5. Micro-LC-FPD chromatogram of river Rhine water spiked with 10 ppm of (A) sarin, analysed 90 min after sampling and spiking and (B) pinacolyl methylphosphonic acid (PMPA). IMPA, isopropyl methylphosphonic acid. Column, 300 mm x 0.32 mm i.d. PRP-1; injection volume, 10  $\mu$ l (with 5% n-butanol); eluent, 0.1 M aqueous ammonium oxalate (pH 3.7) containing 25% methanol. Flow rate: pump A (eluent), 5  $\mu$ l/min; pump B (water), 3  $\mu$ l/min.

However, the half-life of hydrolysis of the nerve agents does not only depend on pH, but also on the presence of ionic compounds such as chromate and molybdate, or metal chelates [16]. This implies that for, e.g., sarin the half-life may vary from 200 hours to a few minutes. Because of the rather unpredictable hydrolytic processes, simultaneous determination of a nerve agent and its degradation products will be highly useful during verification procedures. In an earlier study, micro-LC-FPD was used to determine such products. The parent compounds were, however, not retained on the precolumn used and were therefore not detected [10].

The above problem can now be solved, *viz.* by using large-volume injections under peak-compression conditions. As an example, Figure 5A shows a LC-FPD chromatogram obtained upon a 10- $\mu$ l injection of a river Rhine water sample 90 min after the sample had been spiked with 10 ppm of sarin. The sample contained 5% n-butanol to effect peak compression on the PRP-1 analytical column. The large peak at 7.1 min which is due to IMPA, and the small sarin peak at 8.9 min which represents a mere 25 ppb of that compound illustrate the practicality of the approach and demonstrate that sarin was nearly completely hydrolysed within about one hour.

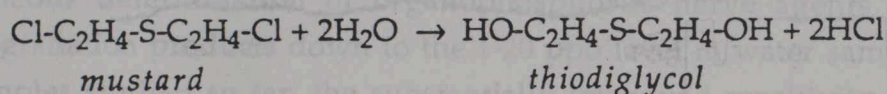
Figure 5B shows the hydrolysis product PMPA which was added to river Rhine water at the 10 ppm level. Under the peak-compression conditions used the detection limits for IMPA and PMPA are 10 and 20 ppb, respectively. When using the acid-type peak-compression conditions (2 mg/ml of hydrochloric acid in sample) and a PRP-X100 column (*cf.* Figure 2B), the detection limit for the final acid degradation product MPA was 1 ppb. This is the same value as reported for the so-called P-CH<sub>3</sub> method [17-19]. The latter method, however, requires hydrolytic sample treatment to convert the nerve agent and/or its degradation products into MPA. Apart from the loss of information, the total analysis time is 3-5 days, which is hardly acceptable for on-site inspection.

*Determination of phosphorous acid in mustard.* Peak-compression micro-LC has also been used for the detection of phosphorous acid in samples of the blistering warfare agent mustard. Mustard, bis(2-chloroethyl)sulphide, may contain small amounts of phosphorous acid if the production process is based



on the use of phosphorous trichloride. Detection of the presence of phosphorous acid can therefore give a clue regarding the origin of the sample.

Micro-LC-FPD was carried out on a PRP-X100 column using 0.5% formic acid in water as eluent. When diluted in water, independent of the pH of the sample, mustard hydrolyses relatively fast (half-life *ca.* 5 min, ref. 20). In the present instance, the samples were dissolved in water-acetonitrile (97.5 : 2.5, v/v), sonificated for one hour and centrifuged to obtain a concentration of 1-2 mg/ml of the basic hydrolysis product of mustard, thiodiglycol:



In order to effect peak compression for phosphorous acid and thiodiglycol, hydrochloric acid (0.01%) and n-butanol (9 vol.%) were added to the sample. Subsequently, 15 µl were injected onto the micro-LC column.

Figure 6 shows the results obtained with a hydrolysed mustard sample (mustard : water, 1 : 10, v/v), with and without spiking with 200 ppb of phosphorous acid. The low detection limit of 10 ppb observed for phosphorous acid is rather gratifying. It can be achieved only because of the strong displacement of the major, non-ionic, sample constituents by n-butanol. Obviously, the present sample does not contain phosphorous acid. For the rest, large peaks show up in the 4-10 min retention time range. Peaks no.1 and no.2 can be assigned to thiodiglycol and 1,2-bis(2-hydroxyethylthio)ethane, respectively (assignment based on retention time data). Peak no.2 probably is the hydrolysis product of sesquimustard (1,2-bis(2-chloroethylthio)ethane), which was found to be one of the major impurities present in some of the original samples as identified by <sup>1</sup>H NMR, <sup>13</sup>C NMR and GC-MS. The unretained peak no.3 may well be (largely) due to thiodiglycol sulphoxide. Confirmation studies by means of LC-TSP-MS are presently in progress.

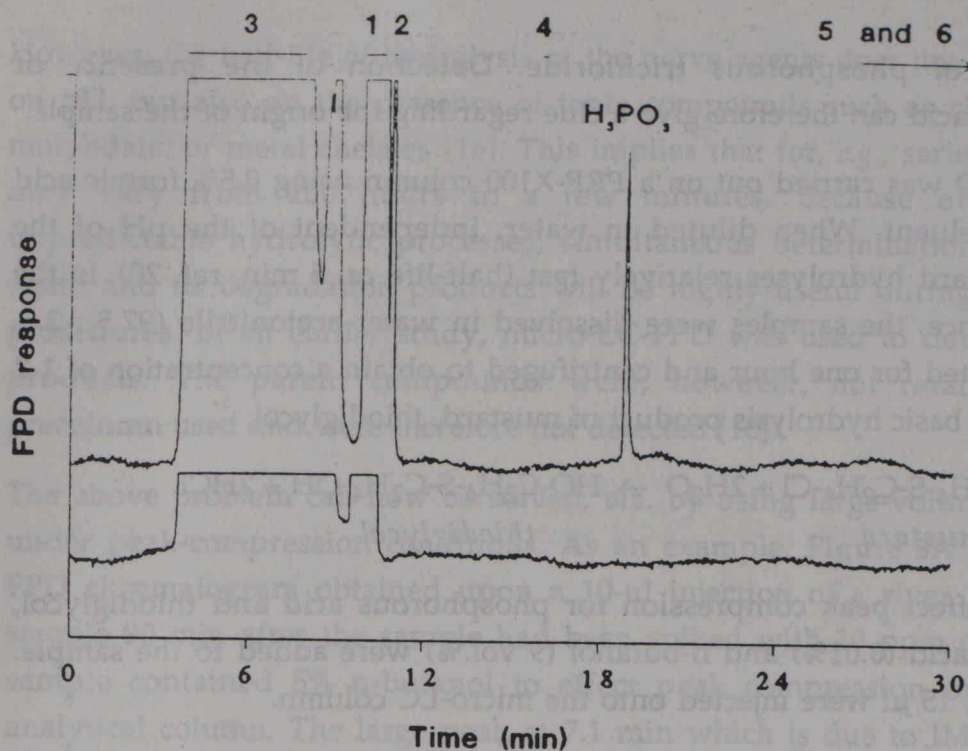


Fig. 6. Micro-LC-FPD chromatogram of an aqueous sample of mustard with and without spiking with 200 ppb of phosphorous acid. The elution of reference compounds is marked: 1, thiodiglycol; 2, 1,2-bis(2-hydroxyethylthio)ethane; 3, thiodiglycol sulphoxide; 4, phosphoric acid; 5, sulphurous acid; 6, sulphuric acid. Column, 270 mm x 0.32 mm i.d. PRP-X100; injection volume, 15  $\mu$ l (containing 9% n-butanol and 0.01% hydrochloric acid); eluent, water containing 5% methanol and 0.5% formic acid. Flow rate: pump A (eluent), 4  $\mu$ l/min; pump B (water), 6  $\mu$ l/min.

## Conclusions

The present study illustrates the beneficial effects of peak compression in micro-LC, observed upon addition of a sufficient amount of a displacer such as hydrochloric acid or nitric acid in ion-exchange and n-butanol in reversed-phase chromatography. A peak-compression phenomenon itself has been introduced and extensively studied in conventional-size LC by Nilsson and Westerlund [21-26]. They found that, in their system, peak compression was most effective when the analyte co-eluted with a deficiency peak caused by an amine modifier deficit. The effect on other, non-coeluting, analytes is very small. In our work displacement effects may play a major role. In the presence



of n-butanol the retention of analytes is reduced and their peaks are compressed, because they elute in front of the n-butanol peak, as was confirmed in LC-TSP-MS experiments not discussed in the present paper. These results suggest displacement effects as discussed by Guiochon *et al.* [27]. However, full elucidation of the processes involved is outside the scope of the present study and will be the subject of further studies.

Large injection volumes of 1-10  $\mu\text{l}$  can now be handled easily. The approach has been used in micro-LC with flame photometric detection and allows the simultaneous determination of organophosphorus nerve agents and their polar degradation products down to the 1-20 ppb level in water samples. With the examples studied so far, the substantially improved sensitivity compared with that of the earlier on-line trace-enrichment procedure [10] easily outweighs the loss of resolution which is sometimes observed.

The peak-compression micro-LC-FPD procedure is considerably more user-friendly than the conventional P-CH<sub>3</sub> method [17], with which it takes several days to complete an analysis. Besides, the absence of hydrolytic sample treatment and the possibility to detect simultaneously both the parent nerve agent and its degradation product(s) substantially increases the information content of the procedure. The trace-level applications shown indicate that the present methods are sufficiently sensitive to be used to verify the alleged use or prohibited production of chemical warfare agents.

A brief consideration may help to illustrate the potential of our method to indicate a violation of the prohibition to use nerve agents. The background concentration of industrially polluted water such as that from the river Rhine was found to be 1 ppb of MPA originating from P-CH<sub>3</sub>-containing compounds; this equals the detection limit of the present method. On the basis of an insecticide plant case study, Verweij *et al.* [19] calculated that notwithstanding stringent limitations placed on the waste discharge of the production facility, it may carry off 120 g of sarin - or, more probably an equivalent amount of its degradation products - per day. This will result in a MPA and/or IMPA concentration of about 200 ppb which far exceeds the detection limit of the present procedure. In other words, detection of MPA and/or a characteristic nerve agent degradation product directly in the waste stream or close to the waste outlet, giving a strong indication of an illegal use appears to be possible.



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# CONFERENCE ON DISARMAMENT

CD/CW/WP.431  
21 August 1992

ENGLISH  
Original: SPANISH

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Ad Hoc Committee on Chemical Weapons

MEXICO

Working paper containing a statement made by the Mexican delegation  
in the Ad Hoc Committee on Chemical Weapons during consideration of  
document CD/CW/WP.400/Rev.2

In connection with the draft convention on the elimination of chemical weapons, which appears in document CD/CW/WP.400/Rev.2, the Mexican delegation wishes to make the following observations.

The Government of Mexico welcomes the fact that the Conference on Disarmament at last has a draft convention on the elimination of chemical weapons. After two decades of negotiations we have before us a draft which has secured extensive support among the members of the Conference. This is, of course, a compromise text, and hence some of its provisions are far from being wholly satisfactory. Nevertheless, the Government of Mexico has reached the conclusion that the draft should be approved by the Conference and subsequently by the General Assembly in the course of this year. Delaying its approval could lead to unforeseen consequences which would jeopardize what has already been achieved. And indeed a great deal has been achieved, since the international community is on the point of agreeing to the complete, supervised elimination of a category of weapons of mass destruction which, despite the restrictions on their use that we and other States parties agreed to in the Geneva Protocol of 1925, have been used in a number of international and domestic armed conflicts.

There is no doubt that any multilateral negotiating process has its ups and downs, especially when it is as long as this one has been. However, the wish to conclude the negotiations by an arbitrarily fixed date placed us in unusual situations. Starting with the second version of working paper 400, the real negotiations were broken off and the Committee began to mark time in order to fit in with its timetable.

As far as riot control agents are concerned, it is to be regretted that the proposed amendment concerning the definition of activities not prohibited under the convention was not freely considered in the Ad Hoc Committee, since we consider it important that all the Committee's members should be aware of the reasons for its rejection. Such an open discussion of the matter would have pointed to the source of opposition to the proposal, which we are convinced enjoyed extensive support.

On 7 August there was no opposition to the Chairman's decision linking a proposal concerning the decision-making process in the executive council with matters completely irrelevant to the subject. We all know the history of the negotiations on challenge inspections. We also know how difficult it was for some delegations to accept even the smallest change in the text of article IX or the corresponding part of the verification annex. Nevertheless, it did not seem very logical that deletion of the words "be under the obligation" should be tied to the retention, unchanged, of the provision concerning the decision-making process in the executive council.

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# CONFERENCE ON DISARMAMENT

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21 August 1992

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Original: SPANISH

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Ad Hoc Committee on Chemical Weapons

CUBA

WORKING PAPER

COMMENTS ON THE DRAFT CONVENTION ON THE PROHIBITION OF  
THE DEVELOPMENT, PRODUCTION, STOCKPILING AND USE OF  
CHEMICAL WEAPONS AND ON THEIR DESTRUCTION CONTAINED  
IN DOCUMENT CD/CW/WP/400/REV.2

## Introduction

Cuba, which has been involved from the beginning in the negotiation of a Convention on the Prohibition of the Development, Production, Stockpiling and use of Chemical Weapons and on their Destruction, recognizes that document CD/CW/WP/400/Rev.2 is the result of many years of efforts to negotiate an agreement on the elimination of this category of weapons from the arsenals of a number of States and on the destruction of their production facilities. Cuba also considers it important that the above-mentioned draft Convention should provide for a multilateral inspection and verification system to prevent the production of such weapons by those possessing the necessary industrial and economic capability.

Cuba regrets that it was not possible to deal more fully in the draft Convention with another set of questions of great importance to the developing countries, namely, the prohibition of the use of herbicides as a method of warfare, particularly in view of the shared aspiration to have the Convention acceded to by all States. Furthermore, the draft deals with matters which are not necessarily connected with the central objectives of the future Convention.

The comments below refer in greater detail to some of the points raised above.

## Specific observations:

## ARTICLE IV: CHEMICAL WEAPONS

It is not essential for the attainment of the fundamental objectives set forth in article I of the draft Convention to provide for the possible extension of the time-limit for the destruction of chemical weapons, which would prolong unnecessarily the difference between chemical-weapons-possessing and non-chemical-weapons-possessing States, with the attendant negative consequences for the security of the latter.

This comment aside, it is understood that, during the process of destruction of chemical weapons and production facilities, problems may arise which ultimately call for consultations with the States parties or other bodies of the future Organization designated by them.

## ARTICLE V: CHEMICAL WEAPONS PRODUCTION FACILITIES

This article includes a number of paragraphs providing for the conversion of chemical weapons production facilities for purposes not prohibited by the Convention, under certain conditions. While we do not reject the reasons given by a number of countries for requesting the inclusion of such a provision in the text of the draft Convention, the provision in question is undeniably at odds with the provision in article I concerning the destruction of all chemical weapons production facilities and breaks with the long-standing consensus on this point.

## ARTICLE VIII: THE ORGANIZATION

The compromise arrived at on the structure and composition of the Executive Council represents a delicate balance achieved after arduous negotiations. Nevertheless, Cuba remains convinced that the Executive Council of the future Organization should not include permanent posts, which would run counter to the democratic practice of equitable access of all States parties to this important organ of the future Organization.

The decision regarding the representation of countries on the Council should have been left to geographical groups. Such a procedure would have in no way upset the delicate balance achieved in negotiations on the structure of the Executive Council.

## ARTICLE XI: ECONOMIC AND TECHNOLOGICAL DEVELOPMENT

The text of this article should reflect clearly the understanding that existing machinery for the control of trade in chemicals should be eliminated immediately upon the entry into force of the future Convention.

In addition to the comments on the articles referred to above, Cuba wishes to state that it would have preferred a clearer and more precise wording of article II (Definitions and Criteria), paragraphs 1 and 9 (d), and the deletion of paragraph 3 of Part X of the verification annex, which distorts the importance and repercussions which a challenge inspection must have in the context of the future Convention.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.433

21 August 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

STATEMENT BY AMBASSADOR AHMAD KAMAL, PERMANENT REPRESENTATIVE  
OF PAKISTAN, BEFORE THE AD HOC COMMITTEE ON CHEMICAL WEAPONS  
21 AUGUST 1992

Mr. Chairman,

1. I have been instructed by my Government to express our serious reservations on certain provisions of your draft of a Chemical Weapons Convention as contained in document CD/CW/WP.400/Rev.2 which was tabled by you on 19 August 1992.
2. Pakistan neither possesses chemical weapons nor desires to acquire them. Consequently, we have a deep and abiding interest in a comprehensive, effective and equitable treaty, which would prohibit the development, stockpiling, acquisition and use of chemical weapons, and ensure the total destruction of their existing stockpiles, facilities and delivery systems. At the same time we would not favour any partial or discriminatory approach in a treaty which has security implications. It is in this context that we have reiterated our interest in a Chemical Weapons Convention which meets our essential security interests, in the Joint Declaration signed between the Foreign Secretaries of India and Pakistan recently.
3. Pakistan has, therefore, participated actively and constructively in the negotiations so as to successfully conclude a comprehensive, effective and equitable treaty. We have made concrete and constructive proposals in an effort to finalize a truly global Convention which would generate trust in its provisions and thus lead to universal adherence. Our efforts, however, have not been entirely successful as the text that is being offered for adoption carries within it the germs of much misuse and abuse, which if left unremedied have the potential of grossly undermining confidence in the Convention. Our particular concerns on the question of misuse and abuse relate to articles II, VI and IX.



4. The definition of "chemical weapons" as contained in article II is extremely wide and clearly open to interpretation, thus providing a potential abuser ample opportunity to use the verification procedures under the Convention to the detriment of another State party. This shortcoming could have been remedied had the proposal of the delegations of 12 developing countries, suggesting that the Preparatory Commission develop definitions for the terms in question, been duly incorporated in the text itself.

5. The verification procedures which constitute the backbone of the Convention are, of course, essential to provide the assurance that the obligations assumed by a State party are being complied with. At the same time, it is obvious that the type and intrusiveness of verification to which an activity would be subjected should be determined by the element of risk which that particular activity poses for the Convention. While the importance of the verification regime for activities not prohibited under the Convention is undeniable, some provisions of the system that has finally been developed in article VI place an unnecessary burden on the civilian chemical industry, and at the same time take on the disguise of the challenge inspection procedure. The inclusion of such concepts not only mars the intrinsic routine nature of the proposed verification activity, but also carries within it the possibility of misuse.

6. The provisions of article IX will have a central place in the proposed Convention, both as a means of providing confidence in its implementation, as well as in order to deter potential violators. However, the intrusive nature of the challenge inspection procedure is such that the possibility of misuse and abuse cannot be ruled out. It is regrettable that the system that has been developed does not contain adequate safeguards to prevent the abuse of challenge inspection procedures, and that it fails to ensure the legitimate right of States, particularly smaller States, to protect and safeguard sensitive information and installations which are not relevant to the Convention. The Executive Council's known potential to play a role in preventing misuse and abuse has not been recognized, and that body, which represents the conscience of the international community, has instead been relegated to watching the challenge inspection proceedings from the side lines.

7. In addition to the potential for abuse inherent in the draft Convention, there are serious imbalances in its provisions which impact adversely on the rights and obligations of States parties. While non-chemical weapons possessors are rightly required to give up the chemical weapons option right from the beginning, chemical weapons possessors are allowed to retain as much as 55 per cent of their chemical weapons stocks until the seventh year of the 10-year destruction period. Despite repeated efforts the qualitative aspects of chemical weapons have been totally ignored in the order of destruction. The imbalance is further compounded by the inclusion, through a totally non-transparent procedure, of a provision allowing for a possible extension of the destruction period by an additional five years.

8. Another imbalance exists in article X where the provision of emergency assistance in the case of use or threat of use of chemical weapons is not treated with the same degree of urgency and automaticity that is applied to



the launching of a challenge inspection. Much higher priority needed to be accorded to cases of use or threat of use, rather than to suspicions of possible violations of the Convention.

9. Finally, the balance between deterrence on the one hand and economic and technological development on the other, has not been established in a satisfactory manner. The language of article XI does not address the essential concern of developing countries that existing discriminatory export control mechanisms, such as the "Australia Group", should be dismantled once the Convention comes into force. This major flaw has been compounded by the inclusion of provisions relating to the transfer of Schedule 2 and Schedule 3 chemicals, which would have serious economic implications for developing countries.

10. For these reasons, my delegation cannot associate itself with any recommendation concerning your Draft Text. However, we would not stand in the way of its being forwarded to the Conference on Disarmament for the latter's consideration.

11. I would be grateful, Mr. Chairman, if these serious reservations of my delegation are fully and accurately reflected in the report of the Ad Hoc Committee to the Conference on Disarmament.

12. I would also request that the statement be circulated as a Working Paper of the Ad Hoc Committee.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.434  
21 August 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

Statement of H.E. Ambassador Dr. Mounir Zahran, Permanent Representative  
of Egypt before the Ad Hoc Committee on Chemical Weapons of the  
Conference on Disarmament on 21 August 1992

My delegation has already had the opportunity to express to you its heart-felt appreciation for all the efforts you and the German delegation did not spare in attempting to expedite the negotiations on the draft Convention on Chemical Weapons in view of its speedy completion. However, due to the fact that the negotiations on the draft Convention were long and complicated, the outcome understandably contains some imperfections and loopholes which lead to certain apprehensions on the part of various delegations. My delegation does not criticize you for that.

Egypt has always attached great importance to the inclusion in the draft Convention issues that it regards as vital to its national security and interests. We genuinely hoped that such concerns would have been included in the text of the draft Convention. Allow me, at this juncture, to elaborate briefly on some of these concerns that are momentous to us:

First, Article II is among the most important Articles of this Convention since it defines chemical weapons; the core of this Convention. The wide spectrum definition includes in its interpretation the entanglement of munitions and equipment, whether they are related or not to toxic chemicals, as long as the provision of Article II comprises the word "separately" in paragraph 1. Hence, we had hoped that the proposal to leave the definition of "Munitions and devices and any equipment specifically designed for use directly in connection with the employment of chemical weapons" be elaborated by the Preparatory Commission. This concern has a bearing on Article III, due to the fact that every State Party to the Convention should be fully aware, in advance, of what it has to declare in view of the eventual destruction of chemical weapons according to the relevant provisions of the Convention.

Second, Article VIII embodies the structure and functions of the Executive Council, its composition, procedure and decision-making. Our position has long been known to support the principle of equitable geographical distribution as the basis for a just composition of the Executive Council. We have always asked for a balance in the representation of regional



groupings and we noted that the previous imbalance in the distribution of seats was partially corrected. However, the largest regional group, namely Africa, was unfortunately deleted from the rotating seat between the regional groupings of Africa, Latin America and Asia in paragraph 23 (f). Thus, Africa was left again with less than fair treatment in comparison with all other regional groupings.

Third, Article IX is a vital instrument to the implementation of this Convention. There is general agreement that it entails high political value. Consequently, the verification mechanism provided for in Article IX should be equivalent to the legal context of that Article and the other provisions of the draft Convention. It is in the light of the importance of the verification mechanism that the Egyptian delegation has introduced a proposed safeguard against the possible abuse of this instrument. Unfortunately, it was not adequately reflected in document CD/CW/WP.400/Rev.2. It is worthwhile to note with misgivings that the powers of the Executive Council, in as far as the inspection is concerned, are less than adequate.

Fourth, Article XI is of great consequential importance and especially to the developing countries. Needless to say, developing countries are entitled to safeguard the promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes. They have the legitimate right to obtain assurances that the implementation of this Convention shall not hamper the economic and technological development of the developing States Parties to this Convention according to our proposals. The present wording of Article XI, paragraph 1, is not fully satisfactory to us as long as it leaves room for the States Parties to absorb eventual damage to their economic and technological development as a result of the implementation of the Convention. In short, we express apprehension at maintaining the term "shall avoid hampering" in the final draft.

We have to put several questions to you and the members of the Conference on Disarmament:

- (a) How to deal with these concerns and misgivings;
- (b) How to provide assurances to comfort our concerns and apprehensions;  
and
- (c) How to introduce full scope security assurances to face the case of the use or threat of use of chemical weapons against a State Party to the Convention by a State non-Party or by a State Party during the transitional period and until the complete destruction of chemical weapons, indeed until we free our planet from chemical weapons and all other weapons of mass destruction?

It is worthwhile to note that the reference to the right of a State Party to receive assistance as reflected in Article X is not enough to comfort such apprehension.



Egypt has participated actively in the negotiations on the Chemical Weapons Convention and we hope that it would achieve universal adherence by reflecting the legitimate rights and vital interests of all States in view of our need to live in peace and security and cooperate with other members of the international community in a world free from all weapons of mass destruction.

In conclusion, I would request that this statement be circulated as a Working Paper and be reflected in the report of this Ad Hoc Committee.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.435  
21 August 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

Statement made by H.E. Ambassador Sirous Nasseri on the position of  
the Islamic Republic of Iran on the Chemical Weapons Draft  
Convention at the Ad Hoc Committee on Chemical Weapons  
on 21 August 1992

We are approaching a critical and decisive juncture in our multilateral efforts for the elimination of a class of weapons which were used in the past and particularly in the 1980s. For the first time in the history of disarmament and arms control, a treaty with such far-reaching objectives is being worked out. Your task has been, therefore, of great value and of immense importance to bring such an objective to fruition. Our acts here will be judged by history and generations to come. Any failure to fulfil this weighty responsibility will adversely affect the security of all in the future.

Our people have been the latest and, hopefully, will remain the last victims of the use of chemical weapons. The anguish resulting from this use cannot escape the souls and hearts of the Iranians and, hopefully, the consciousness of the world. While people were being poisoned to death, we kept calling for decisive international reaction. Although the Geneva Protocol of 1925 was in place at that time, political expediency prevented measures warranted to stop such use. Nevertheless, the repeated use of these weapons deeply affected world public opinion and invigorated attempts to conclude a comprehensive ban on chemical weapons. We therefore may be right in the belief that no nation on this planet has been more enthusiastic than us to have such a ban through a multilateral Convention.

In this spirit, the delegation of the Islamic Republic of Iran has actively participated and contributed in the deliberations of the Ad Hoc Committee on Chemical Weapons and has made its utmost effort to facilitate the conclusion of a strong, verifiable, effective, solid and fool-proof Chemical Weapons Convention. We have always been and will remain a faithful proponent of such a Convention. Any view by my delegation should be evaluated in this context. We wholeheartedly support the conclusion of such a Convention which is backed not only by words but also by the sincere conviction for its universal adherence following its signature. It has always been our consistent determination to be an original signatory to such a Convention; a Convention not only agreed to, but enthusiastically embraced by all States of the world, thus giving a true meaning to its fundamental objective of universality.



Preparing such a Convention has been entrusted to you in this final year of negotiations. All of us have been witness to the restless efforts by you and your delegation to materialize this lofty goal. During these tense and intense periods of negotiations, you kept your strong resolve and with high spirit performed your formidable job.

We acknowledge with thanks and appreciation what you have done and what you attempted to do. However, since an evaluation of the present text was presented by the Chairman in our meeting on 19 August 1992, allow me also to offer our own assessment of CD/CW/WP.400/Rev.2.

(a) In Article I, balance may still be questioned since the commitment not to use herbicides as a method of warfare has been excluded from the General Obligations. Herbicides have been used in the past and, in high concentration, they can affect human beings and plants. Furthermore, law enforcement agents have been permitted to be employed outside national borders. These shortcomings have adversely affected what could be an all-encompassing treaty with no loophole in its scope of obligations.

(b) It is clear that the definition in Article II is the most fundamental part of the Convention, as the whole body of the Convention is built about, around and upon this definition. As far as the toxic chemicals and their precursors are concerned, they have been elaborated and described throughout the text and a system of verification has been envisaged to check any chemicals being used as weapons.

Munitions, submunitions, devices and equipment which have been tagged as being chemical weapons, however, suffer from a total lack of elaboration as well as the scope of application. Therefore, the extensive definition for toxic chemicals is not balanced by at least a minimum clarification of munitions, submunitions, devices and equipment, hence creating tremendous problems in implementation of the Convention, and more particularly, giving rise to serious difficulties in regard to challenge inspection which, in our view, is an essential component of the treaty.

(c) There exists unambiguous obligations in Article I for the destruction of chemical weapons and chemical weapons production facilities. However, such an obligation has been diluted in Articles IV and V by allowing the possible extension of duration of the destruction period and conversion of chemical weapons production facilities. I reiterate this position despite the fact that a member of our delegation, as the Co-chairman of the related Working Group has, in that independent capacity, and as a Friend of the Chair, contributed to finding a compromise. This new provision means that we will be living with the spectre of chemical weapons for the next two decades. This could have at least been somehow balanced by a qualitative order of destruction starting with the most lethal chemical weapons. This legitimate, significant and scientifically feasible proposal was not given necessary weight and attention in the negotiations and, as a result, States are to be left under a shadow of insecurity. The verification system for chemical weapons destruction, embodied in CD/1116, has therefore been significantly weakened.



In addition, the new insertions have, in practice, replaced the international verification system by a bilateral verification system. If the Organization seeks to inspect chemical weapons production facilities and chemical weapons stocks, the subject will be treated under complementary verification for which all States Parties are obliged to bear the cost. Unfortunately, the addition of paragraph 17 in Article IV with the present wording creates a loophole which, in practice, I should reiterate, weakens the verification system under Article IV and its relevant Annexes.

(d) It has been stated that a credible verification system has been balanced by guarantees against disclosure of national security information unrelated to the Convention. In the past, there was a well-defined and effective verification system based on risk assessment. The present mechanism, however, has been weakened by bringing into it almost every chemical facility which is even unrelated to the Chemical Weapons Convention; facilities which, even if diverted, will not pose a significant risk to the objectives of the Convention. This new approach will raise the costs of verification that would eventually be shouldered by the developing countries as the end-users and final consumers of such chemicals. By the time the Convention enters into force, the price of Schedule 3 chemicals will rise both for psychological reasons and the expectation of verification costs.

Here, balance meant stringent treatment of Schedule 2 chemicals which have extremely limited commercial utility and a cost-effective and feasible system of verification of Schedule 3 chemicals. It should also be recalled that three new chemicals, with vast commercial application for everyday life, have been added to the Schedule 3 chemicals at the latest stage with no justification.

Moreover, the verification system has not been properly balanced, as envisaged earlier, by the present provisions of Articles X and XI. Despite some encouraging statements by some countries and changes in the provisions of Article XI, it appears that, aside from the Convention, States Parties would have to rely on the faithful implementation of this Article by chemically developed countries and on their commitment to remove restrictions. Contrary to unambiguous obligations for verification, there is no equally binding and clear-cut commitment for financial contributions envisaged in Article X to render assistance in the case of use of chemical weapons. If there is no money in the so-called voluntary fund, Article X will be of no use.

(e) On the question of composition of the Executive Council, it has been stated that all regional groups are equally unhappy. I have strong doubts that those who are to be privileged by the provision of this Article will be equally unhappy. Furthermore, each European State has more than a 20 per cent chance of being elected to the Executive Council. This chance is reduced to less than 10 per cent for an Asian State. This is certainly not a balance.

My delegation still maintains a strong position on these points. Yet, our desire for the conclusion of the Chemical Weapons Convention, in the ultimate balance, will prevail. Discussions during the last week, which have led to a

unified common understanding on Articles II, VIII and XI have been helpful. This I say, while taking note that on Article II the final outcome is to be presented by the Chairman later. We also take note that persistent efforts are being continued in order to reach an understanding on the composition of the Executive Council within the Asian Group.

Due to this on-going effort, therefore, and at this stage, we are only prepared to agree that this text be transmitted to the Conference on Disarmament, along with the reservations we have just expressed, for its consideration. I must stress that our final position vis-à-vis the text at the Conference on Disarmament will be contingent upon the final outcome of the discussions related to Article VIII.









AHCCW      CD/CW/WP.436      Draft Report of the Ad Hoc      24.8.92  
Committee on Chemical  
Weapons to the Conference  
on Disarmament

NOT REPRODUCED

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Norway      CD/CW/WP.437      Letter dated 24 August      Also issued  
1992 from the Representa-      as CD/1169  
tive of Norway addressed      24.8.92  
to the Secretary-General  
of the Conference on Dis-  
armament, transmitting a  
report entitled 'Transport  
of samples containing  
chemical warfare agents by  
air'

NOT REPRODUCED  
(see WP volume)

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.438  
24 August 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

Statement made by Ambassador Stephen J. Ledogar of the  
United States of America at the Ad Hoc Committee  
on Chemical Weapons on 24 August 1992

As we have previously stated, the United States considers that, on balance, the draft Chemical Weapons Convention is acceptable. We have heard a number of delegations complain that the draft text still does not contain their preferred positions. The text also does not contain some preferred positions of the United States. Examples include certain provisions related to challenge inspection, assistance, verification of chemical industry, destruction of chemical weapons and chemical weapons production facilities, and the Executive Council. Nonetheless, we are prepared to go ahead and sign this text.

In this connection, we have also heard some statements containing national understandings of certain provisions of the draft text. Our understanding of these provisions is that the draft text clearly speaks for itself.

GE.92-62778











# CONFERENCE ON DISARMAMENT

CD/CW/WP.439  
26 August 1992

Original: ENGLISH

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Ad Hoc Committee on Chemical Weapons

Statement made by the representative of Ethiopia at the  
Ad Hoc Committee on Chemical Weapons on 26 August 1992

I would like to express the appreciation of my delegation for your commendable efforts and the skilful leadership you have demonstrated during these difficult negotiations on the draft Chemical Weapons Convention, the final text of which represents a delicate balance of the various interest groups. I sincerely hope this final version of the Convention will command a broad acceptance by delegations.

As regards the stand of my delegation, I am happy to communicate to you, Mr. Chairman, the decision of my authorities to go along with your final text of the Convention as contained in the document CD/CW/WP.400/Rev.2 which you could forward to the Conference on Disarmament and eventually to the United Nations General Assembly.

However, my delegation would like to put on record its serious regret that the States parties of the African region have been excluded at the last moment from the list of States to assume the rotating seat in the Executive Council as stipulated in article VIII, paragraph 23 (f). I hope that this imbalance will be rectified in the future if the occasion could arise.

Ethiopia strongly condemns chemical weapons, not only because it has been a victim of such weapons in the past, but also it is fully committed to defend the cause of peace and security in the world at large.

For understandable reasons, the development of developing countries, is a primary concern of my country. That is why my delegation had joined the Group of 14 countries which negotiated on the basis of documents CD/CW/WP.417 and CD/CW/WP.418. While my delegation does not insist on this stand, it is my hope that the concerns of each delegation will receive the understanding and sympathy of all delegations.

Finally, I request that this statement be retained as a working document of this Ad Hoc Committee.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.440  
26 August 1992

ENGLISH  
Original: SPANISH

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Ad Hoc Committee on Chemical Weapons

Statement made by the representative of Peru in the Ad Hoc Committee  
on Chemical Weapons on 26 August 1992

First of all, my delegation would like to associate itself with much of the statement just made by the Ambassador of France on behalf of his country and other delegations.

The draft convention on the prohibition of the development, production, stockpiling and use of chemical weapons and on their destruction constitutes a major contribution to the strengthening of international peace and security.

The convention, the first of its kind in its scope and complexity, negotiations on which have finally been concluded, constitutes an extensive exercise in cooperation and solidarity among the States parties for the purpose of achieving the elimination of these horrific weapons of mass destruction once and for all. It builds upon the precedent set by the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. And bright prospects are undoubtedly opening up for the realization of nuclear disarmament, including the complete prohibition of nuclear tests, in the not too distant future.

Although Peru's decision to be an original signatory of the convention is well known, I should like to take this opportunity to place on record my country's full support for the draft convention contained in document CD/CW/WP.400/Rev.2. It is no secret to anyone that the draft convention contains the minimum that is acceptable to the vast majority of delegations. But it is this very common denominator which made it possible for the Ad Hoc Committee to accomplish in full the task entrusted to it.

Peru's expectations were greater, as no doubt were those of other member States of this Conference. Nevertheless, the draft convention embodies the concessions that the member States had to make to one another, guided by the sole objective of eliminating chemical weapons from the face of the Earth.



My delegation could make many observations on the draft convention at the end of the negotiating process. For the moment I will restrict myself to making only a few such observations, relating to some aspects of its content. In the first place, it might perhaps have been desirable to update the preamble, which dates for the most part from 1985, in order to bring it into line with the scope of the general obligations set out in article I.

Second, we consider that the definitions and criteria in article II are consistent with the prohibitions appearing in article I. Even though the definition of chemical weapons displays a degree of latitude, we proceed from the assumption that good faith on the part of the States parties will prevent possible combinations of circumstances from being readily confused with an alleged intention to flout obligations entered into. At all events, in the interests of safety it would appear preferable to have a degree of flexibility in interpretation rather than a narrow definition which might be overtaken in the future by ceaseless technological development, particularly in the field of non-lethal chemicals.

Third, it is true that if law enforcement is not referred to as "domestic", as in article II, paragraph 9 (d), this might give rise to far-fetched interpretations of what the negotiators intended. Consequently, my delegation considers it appropriate to point out that as far as Peru is concerned law enforcement is within the competence of each geographical State, except for activities that might be carried out by United Nations peace-keeping forces.

Fourth, in Peru's view the good faith of the States possessing chemical weapons will be judged by the way in which they implement their general plans for the destruction of their stockpiles; it would be desirable for the destruction of chemical weapons to be effected more rapidly, except in the cases specified in part IV (A), paragraph 21 of the Annex on Implementation and Verification. We continue to regard it as regrettable that States will be under the obligation to destroy only 45 per cent of their chemical weapons by the end of the seventh year of the destruction process, especially since this appears to prejudge the extension of the destruction period for five more years, as referred to in part IV (A), paragraph 24. This is why Peru attaches particular importance to the principle set forth in article IV, paragraph 16, regarding the obligation of a State possessing chemical weapons also to meet the costs of verification of storage and destruction of such chemical weapons, unless the executive council decides otherwise.

Fifth, the provisions of article VI, in the view of experts, restrict the scope of verification of world chemical industry. Of course, it was in no one's mind to cover the whole of this dynamic industrial sector, since verification would have been unmanageable and exorbitantly costly. Yet it was thought to be possible to cover more than 30 per cent of "capable facilities". In the end, the objectives of the convention proved to be more modest, either because thresholds were raised or because it focused solely on "PSF facilities".

Sixth, the agreed composition of the executive council was not the happiest solution for Latin America and the Caribbean. We accepted the agreement as the best way of stimulating greater involvement, particularly by



Africa, among the original signatories. Yet at the same time we attach particular importance to article VIII, paragraph 25, under which, as soon as the destruction of chemical weapons and production facilities has been completed, the Conference may, at the request of a majority of the members of the executive council, review the composition of the council, taking into account developments related to the principles specified in paragraph 23.

Seventh, it is worth highlighting the provisions contained in article IX relating to challenge inspections. This was not, of course, what we originally sought, but we accepted it as a compromise formula. There are no precedents for this kind of verification, and we believe that this constitutes one of the greatest contributions that the Conference on Disarmament has made in the area of multilateral disarmament negotiations.

Eighth, Peru continues to believe that the amendment procedure set out in article XV suffers from the shortcoming that it makes the new convention very rigid, to the point that it might become fossilized through the actions of a single State party which either opposed an amendment or, less dramatically, merely decided to refrain from ratifying it, after having voted in favour.

Ninth, Peru welcomes the important statement made by the Ambassador of Australia, Paul O'Sullivan, on behalf of the Australia Group, whereby the member countries of the Group made a commitment to seek to eliminate restrictions on transfers among the States parties. For the same reasons, my delegation welcomes the inclusion in parts VII and VIII of the verification annex of important provisions designed to monitor transfers to States which are not parties to the convention.

Lastly, it is to be hoped that the ban on making reservations to the various articles of the convention will not lead to the unhealthy practice of interpretative declarations. Under the Vienna Convention on the Law of Treaties, such declarations must be regarded to all intents and purposes as reservations, and they therefore fall under the ban.

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# CONFERENCE ON DISARMAMENT

CD/CW/WP.441  
26 August 1992

ENGLISH  
Original: FRENCH

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## Ad Hoc Committee on Chemical Weapons

Statement made by Ambassador Gérard Errera of France in the  
Ad Hoc Committee on Chemical Weapons on 26 August 1992

The French delegation considers that the text of the draft convention on the prohibition of chemical weapons, contained in document CD/CW/WP.400/Rev.2, represents a delicate equilibrium taking account of many interests, and that the results achieved during the recent intensive negotiations are to be commended for the following reasons.

I - The convention on the prohibition of chemical weapons will lead to a substantial improvement in international security.

This draft convention constitutes the first multilateral disarmament agreement accompanied by an effective verification regime eliminating an entire category of weapons of mass destruction:

- It prohibits not only the production, but also the acquisition, stockpiling, transfer and use of chemical weapons, and military preparations for their use, as well as assistance to anyone to engage in activities prohibited under the convention;
- The prohibition encompasses CW agents as such but also their means of delivery and any device designed to allow the use of chemical weapons;
- Any State party which possesses chemical weapons or has abandoned such weapons on the territory of other States parties is under an obligation to destroy such weapons, as well as all production facilities, in accordance with the relevant provisions of this draft convention.

Hence this is indeed a truly comprehensive ban.

Moreover, the draft convention constitutes an effective tool to deter the development of covert chemical weapons programmes, thanks to an unprecedented verification regime.

Apart from verification of the destruction of weapons and inspection of the chemical industry, the draft convention contains a combination of provisions which form a major innovation:

- It introduces the concept of challenge inspections for the first time in a treaty of global scope;
- It will be possible to carry out such inspections not only in declared facilities but also in undeclared facilities;
- These inspections will be conducted by teams of international inspectors reporting to the future organization.

This unprecedented system could well become a model for other multilateral disarmament agreements or for the strengthening of existing verification regimes.

By setting down an internationally agreed norm and providing the international community with practical means of enforcing it, the convention on the prohibition of chemical weapons constitutes a major step in instituting collective action to eradicate weapons of mass destruction.

France endorses the view of the Chairman of the Ad Hoc Committee on Chemical Weapons that this draft convention establishes a proper balance between fundamental requirements:

(A) It provides a balance between the need for credible verification and the protection of national interests.

It reconciles the possibility that inspections may be carried out anywhere with the need to protect security interests:

- . by providing the organization, through on-site inspections, with practical means of revealing a breach of the convention, the draft has a real deterrent value vis-à-vis potential violators. Under the challenge inspection regime, a bilateral concern about possible non-compliance can trigger a multilateral inspection carried out by the technical secretariat and a multinational team of inspectors from the organization.
- . at the same time, the draft convention contains a series of provisions (on time-frames, access to the site, and safeguards against abuse) which allow all States to protect their sensitive facilities or information that are unrelated to chemical weapons.

The draft also takes into account the need to safeguard economic and commercial interests.

Under the draft convention, the States parties have an obligation to declare their chemical production facilities that are capable of producing chemical weapons. The draft defines various levels of risk among these



chemicals and sets an appropriate level of verification for each category. This ensures sufficiently broad coverage of facilities capable of producing chemical weapons.

But care was taken not to burden the world chemical industry with unnecessarily intrusive or bureaucratic inspections.

(B) The draft establishes a proper balance between the rights and the obligations of all States parties.

Because of the size of their chemical industries, the most highly industrialized countries will bear most of the burden of verification of industry. However, thanks to the concept of "capable facilities", all States parties with a chemical industry of any size will be subject to verification at the appropriate time.

Similarly, it is natural that countries which accept the constraints of verification and comply with all their commitments should enjoy the prospect of a relaxation of the measures taken by other States parties to prevent the proliferation of chemical weapons. This was recognized by the members of the "Australia Group" in the statement recently made in the plenary of the Conference on Disarmament (CD/1164).

The membership of the executive council is so designed as to ensure equitable representation of the different regions of the world. When the number of seats for each region was set, due account was taken of the relative size of the chemical industry in each State party. This industrial criterion has been expressed in a sufficiently flexible manner to allow the regional adjustments required and the later modifications which will be inevitable.

The draft convention places an obligation on all States parties possessing chemical weapons or chemical weapons production facilities to destroy all of them within 10 years after the convention enters into force. At the same time, the draft takes account of the technological or financial difficulties that some States parties might encounter in destroying their CW stockpiles. The draft makes it possible, in exceptional circumstances, to modify or extend the 10-year destruction period applicable to a State party, subject to stricter terms of verification by the international community. The same applies in exceptional cases to the conversion of CW production facilities to non-military uses.

II - France subscribes to the view expressed by the Chairman of the Ad Hoc Committee on Chemical Weapons that it is not realistically possible to produce a better text through further negotiations. It strongly agrees that failure to agree on this draft now would have adverse consequences for the international community as a whole.

The effect of such a situation would be to facilitate existing clandestine CW development programmes and encourage the further spread of such weapons. This would affect the security of all States, especially the least developed States, and the likely consequence would be an increased risk that chemical weapons would again be used.

Such a prospect would have as a corollary the need to strengthen and formalize the unilateral non-proliferation regimes. Inevitably, this would entail greater obstacles to trade and transfers of technology that would penalize countries abiding by their commitments, particularly developing countries.

All in all, if this convention did not exist, that would encourage the pursuit of unilateral actions, including the use of force, instead of multilateral action of benefit to States complying with the agreed measures.

It is for the reasons set out above that France considers that this draft convention, as an historic achievement of the Conference on Disarmament, should now be transmitted to the United Nations General Assembly, and that the Assembly should recommend the signing of the convention at an early date.

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