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EUROPE 1992

CANADA-EC MINERALS AND METALS TRADE

AND

THE IMPACT OF EUROPE 1992

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EUROPE 1992

CANADA-EC MINERALS AND METALS TRADE

AND

THE IMPACT OF EUROPE 1992

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EUROPE 1992 INTERDEPARTMENTAL WORKING GROUP REPORTS

This report is one in a series of publications dealing with the European Single Market being released by the Government of Canada. It reflects the research and analysis of one of the Government's interdepartmental working groups, established at the request of the Department of External Affairs and International Trade, to assess the legislation put into place by the European Community to complete its internal market.

The working groups have been asked to analyze the EC legislation pertaining to their area of expertise and assess the potential impact that this legislation and the changes that it might induce will have on the Canadian economy. To complete this task, they have been working in consultation with the Sectoral Advisory Groups on International Trade and with industry associations.

The working groups' reports do not represent the final position of the Canadian Government. They are working documents published to facilitate Government's consultation with the provinces and the private sector and to disseminate technical information on the European Single Market, their purpose is to assist Canadian businesses in preparing their own responses to the challenge of 1992.

In addition to the working group reports, the Department of External Affairs and International Trade has commissioned consultants' studies on the implications of the European Single Market. The first study, on the impact of 1992 on Europe, was released in April 1989; the second study, on the impact of 1992 on specific sectors of the Canadian economy, are being released in stages, starting December 1989.

For further information, please contact (613) 996-2727. For more copies of this or other working Group Reports, please contact 1-800-267-8376.

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Part I

Introduction and Background

The term "Common Market" has been common lexicon to describe the EC since the signing of the Rome Treaty in 1956 that created the European Economic Community.¹ Nevertheless, barriers to the free movement within the EC of people, goods, services and capital have persisted. In 1985, the EC adopted a White Paper program on "Completing the Internal Market". This, in turn, led to the passage in 1987 of the "EC Single Act" and put in train a series of legislative proposals (Directives and Regulations) to be enacted by the end of 1992. The objectives of the program are to eliminate all physical, technical and fiscal barriers to the free circulation of people, goods, services and capital within the EC-12. The EC has a population of 324 million and is widely recognized as the world's largest trading bloc.

In late 1988, a Minerals and Metals Working Group was established as one of 16 groups to examine the sectoral and institutional implications of "Europe 1992" on trade and economic relations with Canada. The Minerals and Metals Working Group included representatives from Energy, Mines and Resources (serving as chair), External Affairs (serving as deputy-chair), Industry, Science and Technology and Indian and Northern Affairs. This report presents an overview of Canada-EC trade and investment links and problems in the Minerals and Metals Sector (Parts II to IV and Appendices I to III) and assesses the impact of Europe 1992 (Parts V and VI).

The Working Group relied heavily on the collective in-house expertise of commodity, marketing and trade problems and on an array of written reports and documents generally available from Canadian and EC sources. The Working Group had access to the approximately 300 measures (i.e. draft Directives or proposals) contemplated in the Europe 1992 program. Having determined that only a few dealt directly with minerals and metals, the Working Group examined numerous EC Directives implemented over the past decade or that are in the legislative process. In fact, most of the Directives examined by the Working Group have emerged in the normal course of EC legislative processes.

¹ EC is the short form for European Communities, which in a geographic sense includes its 12 member states (Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and the United Kingdom) and in an institutional sense embraces the European Coal and Steel Community (ECSC), the European Economic Community (EEC) and the European Atomic Energy Community (Euratom).

To some extent, the Working Group had access to the preliminary findings of other Working Groups. For example, the Standards Working Group, which focused on the mutual recognition of standards as one of the key elements of the Europe 1992 program, noted that ideally this meant that any Canadian product meeting the requirements of any one Member State would be marketable throughout the EC. The Competition and Company Law Working Group focused on the EC's proposed merger and joint venture regulations, public procurement, the securities market and company law. The problem of Member State aids is closely related to this policy area. The findings of these two Working Groups and the eventual outcome of the Europe 1992 program in these two areas will be relevant to this report. Indeed, the reader will find evidence in this report that progress on these two fronts is crucial to achieving: (a) ready access to mineral and metal markets in the EC-12 via one Member State; and (b) full inter-product and inter-Member State competition. Both are fundamental to the functioning of a common market.

It is worth noting that the Working Group examined the Eurocodes for construction materials insofar as they relate to mineral-based products. Most of the Eurocode details are really specifications of commercially accepted engineering design criteria and follow the norms of doing business. Their subsidiary documents, product standards and tastes are the more important determinants of trade. In this regard, European importers buying from Canada would communicate the necessary specifications to meet EC standards. The process of setting specifications and standards requires constant monitoring.

The reader will find that this report dwells on problems and issues rather than on opportunities for Canadian industry expected to arise from the EC's drive to complete the internal market. At the macroeconomic level, most economists are predicting a significant boost to the EC's GDP as the common market develops more fully. A higher GDP will be conducive to investment and trade (already rising or higher than usual rates), which should provide opportunities for Canadian exporters as well as for Canadian companies with facilities in the EC.

The Working Group has been quite conscious that the Europe 1992 program is about change. Some of the changes will be in response to legislative action while others will arise from new opportunities manifested on many fronts. Some of the changes already under way centre on corporate restructuring (including privatization) and industrial restructuring; these types of changes are not addressed in this analysis.

This report clearly has limitations. The Commission of EC is halfway through its legislative program and it will take years to implement many of the measures and even longer to

assess their full impact. Hence, there will be a continuing need at both the public and private sector levels to monitor developments in the EC, not only within the Europe 1992 program, but also in its external relations, notably the multilateral trade negotiations.

Part II

Canada-EC Economic Links in Minerals and Metals

Canada and certain EC Member States have a long economic history, frequently linked to ancestral ties. The economic linkages can be grouped into three broad categories - trade, investment, and technology and know how (including the movement of labour). This part dwells on trade and investment in recent times, insofar as they relate to the minerals and metals sector.

Trade

Canada's mineral and metal exports to the EC in 1988 amounted to \$3.0 billion representing about 12 percent of this country's total mineral and metal exports. Canada's imports from the EC were \$1.7 billion (see Table 1).

In the post-war years, EC Member States, in particular the United Kingdom, were Canada's second largest market for minerals and metals, after the United States. In absolute terms, Canada's exports to the EC have not declined, but in relative terms, they have fallen from the 30 percent range to 12 percent as markets in the Pacific Rim have opened up. Japan is now Canada's second largest market for minerals and metals.

Despite its high dependency on raw material imports, Canada is not a particularly large player in EC mineral and metal markets (see Table 2). If diamonds, gold and steel products are included, Canada ranks as the fourth most important supplier of minerals and metals to the EC, after the United States, Australia and South Africa. As a group, the EFTA countries supply almost as much minerals and metals to the EC as Canada, albeit some of the nickel from Norway has its origin in this country. Canada's share of the EC's mineral and metal imports is estimated to be 8 percent.

As illustrated in Table 1, Canada's major mineral and metal exports to the EC are: asbestos, iron ore, titanium slag, gold, copper, nickel, aluminum, lead, zinc and uranium. (See Appendix I for detail). For most minerals and metals, the level of Canada's exports to the EC rose quite sharply in the 1960s and early 1970s but then remained fairly constant over the past 15 years; exceptions are asbestos and aluminum which have dropped steadily, and gold which rose sharply in 1987\88.

Table 1

Canada-EC Trade in Minerals and Metals, 1988

Canada's Exports to EC			Canada's Imports from EC		
HS Code	Product	\$000	HS Code	Product	\$000
2503	Sulphur	43 497	25	Nonmetallic minerals	28 881
2524	Asbestos	105 360	26	Metallic ores and conc.	41 014
25	Other nonmetallics	15 199	2704	Coke	12 073
2601	Iron ore	430 685	28	Metals	705
2603	Copper conc.	71 012	68	Articles of stone, etc.	92 010
2608	Zinc conc.	291 743	69	Other ceramic products	209 975
2616	Precious metal conc.	147 512	7102	Diamonds	93 430
2618	Slag from iron	133 656	71	Precious metals, etc.	15 032
26	Other metallic ores	120 786	7201-05	Pig iron, ferroalloys, etc.	22 269
2701	Coal	95 557	7206-29	Iron and steel	685 763
280470	Phosphorus	41 103	73	Iron and steel articles	305 374
2844	Uranium	180 998	74	Copper (mainly wrought)	47 043
28	Other metals	10 474	75	Nickel (mainly wrought)	14 915
3104	Potash	58 356	76	Aluminum (mainly wrought	136 395
68	Articles of stone, etc.	12 997	78	Lead	602
69	Ceramic products	2 475	79	Zinc	3 651
7108	Gold	107 935	80-81	Other metals	14 378
71	Other precious metals	54 739			
7201	Pig iron	48 417			
7202	Ferroalloys	1 586			
7204-05	Iron and steel scrap, etc.	32 752			
7206-29	Iron and steel	46 851		TOTAL	1 723 400
73	Iron and steel articles	45 052			
7401-06	Copper, unwrought	228 209			
7407-19	Copper, wrought	13 830			
7501-04	Nickel, unwrought	242 344			
7505-08	Nickel, wrought	6 986			
7601-03	Aluminum, unwrought	216 125			
7604-16	Aluminum, wrought	22 507			
78	Lead (mainly bullion)	55 402			
79	Zinc (mainly unwrought)	46 303			
80-81	Other metals	21 972			
	TOTAL	2 952 420			

Source: Statistics Canada.

Table 2

Minerals and Metals: EC Import Dependency Showing Proportion of Imports from Canada, 1975-83

	Import Dependency 1982	1975	1976	1977	1978	1979	1980	1981	1982	1983
(Percentages)										
Aluminum	72	-	-	-	-	-	-	-	-	-
Copper	99	8.5	8.4	7.9	7.5	5.5	7.7	8.3	7.0	..
Lead	91	15.3	14.0	16.8	13.6	15.3	13.5	13.9	17.2	16.7
Nickel	96	42.7	34.7	38.2	23.7	19.3	20.5	23.4	13.0	18.3
Zinc	75	40.6	34.5	39.8	37.5	38.7	32.4	34.3	39.6	41.2
Iron Ore	94	9.0	10.9	10.5	8.2	12.8	12.4	12.5	12.4	11.2
Manganese	99	-	-	-	-	-	-	-	-	-
Chromium	98	-	-	-	-	-	-	-	-	-
Cobalt	100	3.8	4.2	5.5	4.2	..	..	..	..	..
Molybdenum	100	26.6	20.3	20.9	17.7	16.4	16.7	29.0	29.2	21.3
Niobium	100	..	..	..	..	10.0	18.3	19.2	15.7	19.1
Tantalum	100	-	-	-	-	-	-	-	3.7	-
Tin	92	-	-	-	-	-	-	-	-	-
Tungsten	83	3.7	7.5	4.1	9.5	1.9	4.0	6.6	4.3	..
Vanadium	100	-	-	-	-	-	-	-	-	-
Antimony	97	..	5.4	4.2	2.5	..	..	..	..	..
Mercury	86	-	-	-	-	-	-	-	-	-
Titanium	100	9.5	24.5	24.7	26.9	14.8	11.3	31.7	30.9	29.3
Zirconium	100	-	-	-	-	-	-	-	-	-

Source: Eurostat: EC Raw Material Balance Sheets, 1975-78 and 1979-83.

.. Not available or not comparable; - Nil or insignificant in relation to total imports. In the case of aluminum, Canada's exports to the EC are fairly large in absolute terms, but pale in relation to total imports.

The bulk of Canada's mineral and metal imports from the EC comprise iron and steel products and, to a lesser extent, ceramics and stone products, as well as nonferrous metals in wrought forms.

Investment

European financiers have long considered Canada to be a stable and profitable country for investments. An important proportion of the funds that they have invested in Canada have been earmarked for mineral and metal ventures (see Table 3). European interest in Canadian uranium has gone through two cycles: United Kingdom investment in mines in the Elliot Lake district of Ontario in the 1950s and Federal Republic of Germany and French investment in Saskatchewan in the 1970s and 1980s. Europeans have also invested in Canadian iron ore mines, nonferrous metals and potash.

Canadian investments in EC mining and smelting for the most part consist of: Inco's nickel and copper processing facilities in England and Wales; Cominco's lead-zinc mines in Spain and Alcan's bauxite operations in southern France.

TABLE 3

Canada and EC: Direct Investment in Mining and Smelting¹

Year	Canadian Investment in EC (\$ millions at Book Value)	EC Investment in Canada
1976	107	600
1977	119	691
1978	109	823
1979	176	925
1980	134	883
1981	107	1 097
1982	106	1 100
1983	89	1 141
1984	76	951
1985	106	1 170

Source: Statistics Canada.

¹ Excludes aluminum smelting, which in more recent years has witnessed considerable European investment in Canada.

In real terms, the book value of Canadian investment in EC mining and smelting has declined by one half from 1976 to 1985. In the same period, EC investment in Canada rose slightly. Since 1985, there has been considerable inflow of EC investment into the Canadian minerals and metals sector (net inflows of \$133 million in 1986 and \$324 million in 1987), much of which can be attributed to corporate restructuring. In addition, the past couple of years have witnessed heavy investments from France for aluminum smelting in Quebec (aluminum smelting is excluded from the above numerical data).

Part III

Overview of Traditional Trade and Investment Barriers

Today's pattern of Canada-EC trade and investment flows in the minerals and metals sector have their roots in Canada-EC Member State historical linkages and in the evolution of "the common market" and its institutions. The same can be said about barriers to trade and investment. The founding treaty - the European Coal and Steel Community, 1951 - was intended to safeguard the well-being of those two basic industries within the initial EC-6 and is the origin of the difficulties of industrial policy that have resulted in the massive subsidies doled out to EC coal and steel producers by Member State governments in the 1970s and 1980s.

Tariffs

The second treaty - the European Economic Community, 1956 - established the basis for removing the EC-6's internal tariffs and creating a common external tariff. The structure and level of external tariffs for minerals and metals reflected a heterogenous mix of Europe's traditional import dependency for raw materials and the existence of large processing industries, such as nonferrous smelting and refining, in certain Member States. To generalize, the structure of the EC's external tariff allowed for duty-free entry of raw materials (generally defined as ores and concentrates) and for escalating levels of duties according to the degree of processing and fabricating. Several rounds of multilateral trade negotiations during the 1960s and 1970s have reduced EC tariffs to developed country norms but tariff structures remain unchanged. For example, in 1984 the Canadian delegation to a GATT Working Party on Nonferrous Metals demonstrated that the EC's tariff policy of allowing duty-free entry of zinc concentrates and applying a 3.5 percent tariff on unwrought zinc afforded the zinc refining industry an effective rate of protection equivalent to 9.1 percent.

Another aspect of the EC's external tariff policy insofar as it impacts upon Canada centres on tariff preferences. EC tariff preferences are granted to two types of countries - the EFTA trading partners and the developing countries under the Generalized System of Tariff Preferences. The latter began to take shape in the 1960s coincident with a broadening EC policy thrust to source more raw materials from Third World countries. This policy took on new momentum with the 1974 signing of the Yaoundé Convention and the subsequent Lomé Conventions. The EFTA tariff preferences began in the 1970s and reached maturity in the early 1980s when tariffs on

all industrial products traded between the EC and EFTA countries were eliminated.

Non-tariff Measures

In some sectors, non-tariff measures (NTMs) as defined in a GATT sense are quite widespread in the EC in some sectors but less so in the minerals and metals sector, especially in the unprocessed forms. The EC has a number of tariff quotas for certain mineral products, and in the past ten years or so, Canadian steel product exporters have encountered problems in obtaining import permits authorized under the Davignon Plan. Perhaps the most serious NTMs to emerge in recent years centre on health, safety, environmental, and marketing and use regulations, such as those for asbestos. Certain measures adopted by the EC in the purported interest of protecting workers and consumers have emerged as barriers to trade.

Subsidies

The EC's common agricultural policy with its inherent producer subsidies and export restitutions has received a great deal of attention in recent trade negotiations, but subsidy practices in the EC are also quite widespread in various industrial sectors. In fact, on an international product price basis, perhaps the highest levels of subsidization in the world are found in the EC's coal and steel sector. For example, in Belgium (albeit a small producer) Member State aids for domestic coal production in 1987 exceeded world prices by 5-6 fold. In West Germany, which ranks as a large coal producer, the degree of subsidization exceeds 100 percent.

The problem of Member State aids became a very contentious issue during the early 1980s when the Commission of the EC tried to restructure and rationalize the aging steel industry centered in its industrial heartland, stretching from northern France eastward into West Germany, and in certain parts of Italy and the United Kingdom.

Member State subsidies have also been extended to other industries, such as aluminum smelting and tin mining.

Monopolies and Restrictive Trade Practices

Over the years, European industries had a history of monopolies, market management, controls and other forms of restrictive trade practices. State ownership and its alleged inherent subsidization has also been quite commonplace. The

minerals and metals industry was no exception. Potash cartels already existed in Europe in the 19th century. Today the potash industries in France, West Germany and partly in Spain are controlled and operated by single organizations - state organizations in the case of France and partly in Spain. In France, the state-owned firm not only enjoys a production monopoly, but also is that country's sole distributor and vendor of potash. In the United Kingdom, the state-owned British Coal Corporation has an exclusive arrangement with the Central Electricity Generating Board for the sale of coal. In several Member States, the steel industries are virtual monopolies, some of them being state-owned. State ownership, monopoly or monopolistic tendencies are common in other areas of the EC minerals and metals sector.

Investment

There are really no artificial barriers to bilateral investment between Canada and the EC in the minerals and metals sector; nor are there any instruments that actively promote investment. Article 54 of the ECSC Treaty provides for the High Authority to grant loans for coal and iron ore mining, as well as for other steelmaking raw materials. Although the initial focus was on mining in the EC, in the 1970s a few loans were made available for EC-based companies to develop coal and iron ore supplies from abroad. One such small loan came to Canada. The boldest and largest Article 54 loan abroad went to the Carajas iron ore project in Brazil.

In a somewhat similar manner, another EC instrument - the European Investment Bank (EIB) created in 1958 - was eventually authorized to make loans abroad. By 1979, one-sixth of EIB loans outstanding, had been made to producers outside the EC, many in the primary sectors. Few, if any, made their way to Canada's minerals and metals sector.

For a number of years, EC businessmen complained about Canada's Foreign Investment Review Agency. However, there is no recorded evidence to suggest that the Agency ever inhibited proposed EC investment in Canada's minerals and metals sector.

Part IV

Overview of Commodity Issues

This part provides an overview of issues and problems for the leading minerals and metals traded between Canada and the EC. It is primarily intended to flag topics that could be affected by the harmonization of EC and Member States' directives and regulations. Details of the directives and regulations deemed to have, or likely to have, the strongest impact on bilateral trade and commercial relations are presented and analysed in Part V.

Asbestos

After Asia, Europe is Canada's second largest market for asbestos fibres accounting for 23.6 percent of export volume and 28 percent of export value in 1987. Most of this fibre goes to the EC, which is an extremely valuable market for Canada.

During the late 1970s and early 1980s, the Commission of the EC spearheaded internal discussions and implemented Directives that recognize: (1) there are no undue health risks at low levels of exposure to asbestos; (2) asbestos is only an occupational health hazard and not an environmental hazard; (3) fibre types should be differentiated; and (4) it is technically possible to achieve and sustain low fibre levels in the workplace. However, this situation could change for several reasons.

Most importantly, the entire asbestos and health issue may again come under review as a result of the harmonization of directives and regulations for Europe 1992.

In 1986, Denmark banned the use of asbestos friction materials. This ban contravenes the EC position and Directives, and the Commission of the EC has since filed documents challenging Denmark in the European Court of Justice in Strasbourg. The Canadian government, along with industry is examining the current regulations in Denmark, (as well as those in Finland, Sweden and Austria) to see if there has been any impact on Canadian trade, and to ascertain if Canada should commence action under the Technical Barrier to Trade clause of the GATT.

The Federal Republic of Germany is considering reclassifying asbestos from a Class II to a Class I carcinogen. Since a Class I classification calls for zero exposure to asbestos fibres, this in effect would be a defacto ban on the importation, sale, and use of asbestos and asbestos products.

The Europeans are still examining the best methodology for a fibre fixity test. Asbestos cement materials are currently exempt from this test, but could change and become another barrier with negative repercussions on trade in asbestos.

Sulphur

Canada is the world's largest exporter of elemental sulphur (recovered mainly from sour natural gas in western Canada). Although the EC has never been a large market for Canadian sulphur and sales have been declining, exports during the past few years have averaged about 650 000 tonnes falling to 352 000 tonnes in 1988 with most going to Belgium and France.

In Canada, (as well as in the United States and Australia), liquid sulphur falls under legislation governing controlled substances. The legislation calls for extensive procedures and elaborate documentation on health and handling hazards when marketing these substances. In Canada, since the November 1988 implementation of the Workplace Hazardous Materials Information System, all sulphur sales require documents concerning handling and transportation.

It is anticipated that similar procedures may be put in place in the EC and, consequently, augment the paper-burden associated with sulphur sales. The Canadian sulphur industry is also concerned about the possible extension of such legislation to solid sulphur, which is the form in which offshore sales are made. Canadian suppliers would appreciate standardized, but not exhaustive, measures within the EC.

Uranium

Supply and Demand

The EC Member States generate approximately one-third of their electricity from nuclear power. EC uranium requirements are approximately 15 000 tonnes U per year, about 36 percent of the total western world requirements. Two-fifths of the EC's uranium requirements are supplied by French-owned mines in France, Gabon, and Niger and about one-fifth from Canada. Most of the remainder comes from Australia, South Africa, Namibia, and the United States. Small quantities are supplied by China and by small domestic producers in EC Member States other than France.

Over the past four years, EC Member States have taken delivery of about 30 percent of Canada's total uranium exports. This portion of Canadian uranium trade is valued at about \$300 million annually. Canadian forward delivery commitments in existing contracts with EC utilities total some 15 000 tonnes U. Each EC utility negotiates its own uranium procurement contracts, but the Euratom Supply Agency performs a review and approval function after the contracts have been finalized.

EC firms headquartered in Member States control almost 40 percent of Canada's uranium production and are financing half of the ongoing uranium exploration in Canada.

Canada/EC uranium relations are generally very good. Canada is looked upon as a reliable supplier, as exemplified by the large capital investments in the Canadian uranium industry. It is unlikely that the removal of trade barriers within the EC will impact on bilateral trade and investment in uranium.

Trade Issues

(a) **Nuclear Non-Proliferation:** A disruption in uranium trade between Canada and the EC countries occurred in 1977 after Canada had strengthened its non-proliferation requirements to include the signing of a more rigorous bilateral nuclear cooperation agreement. The EC refused to accept certain details of the agreement, and after a long period of negotiation, Canada placed an embargo on further uranium shipments to the EC. This situation was resolved in 1978 after a compromise was reached, but the memory of the Canadian embargo often remains in the background during discussion of other issues.

There are two other trade issues that have led to minor disagreements in the past. Although they have never resulted in any significant trade dispute, both issues need to be recognized:

(b) **Obligation Transfers:** Canadian uranium exported to the EC comes under the coverage of the non-proliferation and safeguards obligations of the Canada/Euratom Nuclear Cooperation Agreement. Because of the international nature of the uranium market, uranium often crosses the oceans of the world in opposite directions. In order to avoid the costs of duplicate shipments in opposite directions, it is sometimes possible to arrange a transfer (i.e. an exchange) of the associated non-proliferation obligations. The end result of such an obligation transfer is identical to the end result of actually shipping the two lots of uranium.

Since their declaration of an embargo on uranium from southern Africa, both the United States and Canada have been concerned that obligation transfers (OT's) could be used to "launder" such uranium, and have insisted on a case-by-case approval of proposed OT's, plus assurance that the involved uranium did not originate in southern Africa. The utilities and fuel-services companies in EC countries do not keep track of "origin" because they consider origin to be a political issue, not a non-proliferation or safeguards issue. The EC objects to proliferation controls to achieve political objectives. This difference of opinion is likely to persist for some time, and will continue to hamper the approval of proposed obligation transfers.

(c) **Canada's Uranium Further Processing Policy:** In the past, the EC has commented on, but not raised strong objections to Canada's further processing policy for uranium, which requires Canadian uranium to be processed to the maximum extent possible prior to export. However, now that the Canada-U.S. Free Trade Agreement is in place, the European converters (Comurhex in France and BNFL in Great Britain) may initiate a protest against this policy on the grounds that it is an export restriction contrary to the GATT. The European utilities would likely support the protest by claiming that this policy restricts their options and limits competition.

Canada holds the position that the European conversion market is not a free and open market because European utilities (primarily government-owned) prefer to award their conversion business to the two government-owned European converters. Without the policy, the Canadian converter (Cameco) could lose a significant portion of its conversion business to the European converters, even though it is commercially competitive.

Coal

Canadian coal began penetrating EC markets in the mid-1970s; in 1987, exports amounted to 1 395 000 tonnes. Although the EC is not viewed as a large outlet for Canadian coal, EC coal output is being sustained at uneconomically high levels through subsidies, thereby inhibiting imports that could be supplied from abroad.

Under the authority of the ECSC Treaty, (see Commission Decision No. 2064/86/ECSC of June 1986) the Commission of the EC authorizes the governments of its coal producing Member States to provide assistance as follows: (1) deficit grant aids; (2) sales aids; (3) investment aid; (4) employment (underground staff) aid; and (5) inherent liabilities aid for industry restructuring.

The Commission has approved the following state aids for the coal industry:

<u>Country</u>	<u>Approval Date</u>	<u>Amount</u> (Millions)
Belgium	April 7, 1987	BF 15 588.6
France	April 7, 1987	FF 2 970.0
	March 21, 1988	FF 1 741.0
Federal Republic of Germany (FRG)	July 31, 1987	DM 7 178.0
	December 22, 1987	DM 4 147.0
Spain	July 31, 1987	Ptas 46 598.2
	September 8, 1988	Ptas 59 784.3
United Kingdom	April 20, 1988	£ 308.2

The above data, which for Federal Republic of Germany in 1987 represents a subsidy of about US\$53 a tonne, tells only part of the story. Other estimates indicate that the production subsidy equivalents for coal in Federal Republic of Germany in 1987 were US\$100 a tonne, representing about two-thirds the cost of delivered domestic coal and about 230 percent of world coal prices.

Procurement arrangements between coal producers and consumers (mainly public utilities) in the Federal Republic of Germany and United Kingdom for the most part exclude imports. Moreover, Federal Republic of Germany applies import quotas which stipulate the proportions of domestic and imported coal for each power generating station. These matters are further examined in the next part.

Copper

Canada exports copper to the EC in the form of concentrates, scrap and refined metal; all enter duty free. Some Canadian copper smelters rely, in part, on imported copper concentrates and scrap for feedstocks.

The EC severely restricts the export of copper and copper alloy scrap. Canadian companies have looked at importing scrap from Europe, but the limitations imposed by the EC in the form of quotas are a serious barrier. Canada regularly imports scrap from North American sources. The effect of restricting the EC exports is to make scrap more expensive outside the EC (or cheaper inside the EC), as world metal prices are generally equal.

The U.S. Copper and Brass Fabricators filed a 301 Trade Action against the EC export quotas and the U.S. government has since appealed for a GATT Panel ruling on these trade restrictions.

Portugal has received financing from one of the EC-level development funds for development of the Neves Corvo copper mine and mill, partly owned by RTZ Corporation plc.

Lead

Canada is a large producer and exporter of lead, mainly in the form of lead-bearing concentrates and as refined metal. The EC is an important end-market for both lead concentrates and refined metal. Over the past few years, the EC has accounted for around 40 percent of lead concentrate and 30 percent of metal exports from Canada.

Lead concentrates enter the EC duty free, as does lead bullion, but refined lead faces a tariff of 3 1/2 percent. This tariff policy has helped sustain a lead refining industry within the EC that is barely competitive internationally.

Lead market prospects over the next decade or so will be influenced by regulations to limit (and eventually eliminate) the sale of leaded gasolines for motor vehicles and perhaps by new proposals concerned with labelling, handling and human exposure to lead and some of its compounds. These types of regulations are potentially the most damaging to the long term health of the entire international lead industry. Related EC Directives are examined in the next part.

Zinc

Canada is the world's largest zinc producer; about one-half the output of zinc ores and concentrates is smelted and refined domestically and about one-third is exported, primarily to the EC. In 1987, Canada's zinc exports to the EC totalled 426 000 tonnes as concentrate and 34 599 tonnes as unwrought metal. As noted in Part III, the structure of EC tariffs strongly influences the pattern of its imports.

The EC is about 75 percent dependent on imports for zinc, most entering in the concentrate form. Most of the EC's zinc output is in Italy, where at least one of two smelters receives government assistance and, to a lesser extent, Ireland, Spain and Portugal.

For years, the EC zinc smelting industry has been suffering from excess capacity with some analysts stating that at least one-quarter of its nominal capacity should be closed. With the concurrence and indeed encouragement of EC Commission officials, five companies based in the EC and EFTA in 1987 formally discussed ways and means to phase-out some smelters and thereby stabilize zinc smelting charges and zinc prices. Although the talks collapsed, two EC-based smelter firms merged in 1988 and one of the smelters in Federal Republic of Germany was closed. Buoyant zinc markets have eased the excess smelter capacity problem but the chronic problem of overcapacity is likely to re-occur if zinc prices fall appreciably.

Nickel

The EC has for years been Canada's most important market for nickel. A large part of Canada's exports to the EC is shipped as nickel matte to the United Kingdom for refining. Some goes directly as refined metal and other nickel products, and some enters indirectly via Norway, where Falconbridge has its nickel refinery. Access to the EC market for nickel and nickel products is not inhibited by tariffs or non-tariff measures as defined in the traditional sense.

A potential threat to the nickel industry in the EC is the introduction of regulations controlling occupational and other exposure to nickel and its compounds. These regulations are due to increased concern about the possible health risks associated with nickel.

Denmark has proposed a ban on the importation of certain nickel compounds because a linkage has been indicated between these compounds and cancer. The most commercially important of the compounds being considered is nickel subsulphide. If this ban were to be put in place by Denmark and adopted by the EC, there would be no immediate effect on Canadian nickel subsulphide production or exports (which are only exported to Norway), but it would set a precedent for other countries.

Denmark has also proposed a ban on imports of certain nickel plated products that do not conform to specified standards. This ban relates to possible allergic reactions of some people to nickel. The nickel market affected by a Danish ban, which could be broadened in 1992 to all of the EC, is very small.

Of potential commercial importance to suppliers of nickel to the EC is the labelling requirements which some countries are adopting. Currently in the Federal Republic of Germany, for example, all containers of nickel powders must be

labelled "May Cause Cancer" and have a skull and crossbones symbol. This could adversely affect the market for nickel if it becomes more widespread.

Aluminum

Primary Sector

Canada is the world's largest aluminum exporter, most going to the United States and Japan. The EC is the world's largest consumer of aluminum and imports about one-third of its primary metal requirements, notably from Norway, Australia and Brazil. Years ago, the EC was a large market for Canadian aluminum; our exports averaged 230 000 tonnes in 1964\65, representing about 20 percent of Canada's output. By the end of the 1970s, Canada's exports to the EC had virtually ceased, only to recover slightly since 1985.

This trade pattern resulted from EC tariff policy changes and the expansion of EC aluminum smelting capacity, some of it subsidized. Prior to the United Kingdom's 1973 accession to the EC, Canada enjoyed duty free entry for aluminum ingot into the United Kingdom. (The EC tariff was 8 percent and was reduced to 6 percent during the Tokyo Round of MTN). With the introduction of GSP and regional tariff preferences, the EFTA countries and most Third World countries gained duty-free access to EC markets.

The early 1970s witnessed a rapid expansion of aluminum smelting capacity in the EC, particularly in the United Kingdom where regional development grants of up to 45 percent of the cost of production equipment were given. Subsidies were also granted elsewhere in the EC, particularly for electricity supply. More recently, the French Government, with EC acquiescence, has provided subsidies to the Pechiney group (which accounts for that country's entire primary aluminum industry and the larger part of processed aluminum), for a variety of reasons including investment, rationalization, worker assistance, and R & D. In recent years, these subsidies were as follows: (i) 1982-84, FF 5598 million in the form of capital assistance; (ii) 1982-84, FF 1750 million in equity loans at lower than commercial interest rates; and (iii) 1982-86, FF 15.6 million as regional aid and FF 56 million for R & D (Data compiled from Official Journal L162, May 11, 1988).

It is further understood that the publicly-owned Electricité de France (EdF) has offered Pechiney an unusually generous power rate for a new smelter at Dunkirk (equivalent to 10 mills per kWh which is 40 percent lower than charged for other plants).

Semi-Fabricated Aluminum Sector

In Canada, the semi-fabricated aluminum sector comprises 73 establishments scattered across the country, although it is mainly concentrated in Quebec and Ontario. The principal products are aluminum rods, plates, sheets, foil, tubes, pipes and structural shapes. The industry is largely domestically-oriented, although quite competitive in the United States. Canada's large integrated producers (Alcan and Reynolds) have found it increasingly difficult to penetrate EC markets from this country, largely because of transportation costs. Both firms have established interests in facilities in Europe; and there may be further potential in products that these facilities cannot supply. Bilateral trade is heavily balanced in favour of the EC whose exports to Canada in 1988 were \$140 million compared with Canadian exports of \$27.5 million. The EC imports sizeable quantities of aluminum semi-fabs from EFTA countries which enjoy duty-free access.

Market Access Issues

In 1988, a large segment of the EC aluminum industry submitted a brief to the Commission of the EC. The thrust of the brief is protectionist for both the primary and semi-fabricated sectors; much of the concern centred on fears of exchange rate fluctuations, alleged unfair trading practices, and excess export-oriented capacity outside the EC. Having made those points, the industry claimed to have state-of-the-art technology, to be fully competitive internationally and called for the removal of tariff peaks and non-tariff barriers. Ironically, it is the EC that maintains the highest tariffs for aluminum (both unwrought and semi-fabs) among the industrialized countries. In fact, to match the other major developed countries, its 6 percent tariff on aluminum ingot will have to be eliminated and the 7 to 10 percent tariffs on semi-fabs will have to be significantly reduced. Such objectives are clearly in Canada's interests.

Titanium Dioxide

Canada fills a significant role in the world's titanium industry, supplying over 90 percent of a feed material known as titaniferous slag, which is used in making titanium dioxide (TiO_2) pigment. The slag is produced by smelting ilmenite from a mine in Quebec. Significant production of titanium dioxide pigment is also carried out in Quebec. However, most of Canada's titanium dioxide pigment exports go to the United States and, therefore, the EC is not a crucial market for this product.

The question of pollution caused by acid waste from TiO_2 plants is of particular concern to Canada since the acid wastes are generally derived from the sulphate process used in the production of TiO_2 pigment from ilmenite slag. Canada (QIT

Fer et Titane, Inc. at Sorel, Quebec) is one of the world's largest producers of ilmenite slag for the sulphate process and these operations could be jeopardized if the sulphate process were to be eliminated. In 1984, the Commission of the EC submitted a proposal for a Directive on "procedures for harmonizing the programs for the reduction and eventual elimination of pollution caused by waste from the titanium dioxide industry", which inter alia called for a prohibition on the discharging of strong acids from TiO₂ plants by 31 December 1989, and the elimination of weak acid discharges by 01 July 1993. This Directive, which also called for the total recycle of process acids, has not yet been adopted.

The recent development of the Chemetics process in Canada to recycle weak acids may mitigate some of Canada's concerns about such drastic proposals. It still remains, however, to see if this process technology is adopted by EC TiO₂ sulphate plants.

Cadmium

Over 90 percent of Canada's cadmium production is exported, of which 25 percent goes to the EC, the current value of exports to the EC is about \$8 million.

Around 1980, when environmentalists began calling for a ban on cadmium, this metal has been the subject of numerous EC Directives. Thus far, the EC has preferred to regulate discharges and worker exposure, as well as severely restricting the marketing and use of products containing cadmium. It is understood that a Commission of the EC proposal for a Directive on the marketing and use of cadmium would in effect, prohibit most cadmium containing products. Developments in this area will need to be monitored, as such a Directive could be used to restrict the sale of certain cadmium-containing products not produced in the EC, while permitting some products of economic importance to EC Member States.

Mercury

Canada has not produced mercury for several years. While there are a number of EC Directives on mercury, relating to water, health and environmental protection, the concerns over mercury have subsided somewhat as it is now deemed to be reasonably well controlled.

It is also important to note that Spain is the world's largest producer of mercury. It is expected that the EC will not push for further restrictions on the substance because of potential economic implications for one of the newer Member States.

Iron Ore

Canada is a small but significant world producer (4 percent) and exporter (8 percent) of iron ore. Among western world producers, Brazil and Australia dominate, and compete with Canadian suppliers in all offshore markets. The EC market is very important to the Canadian industry, taking 43 percent of shipments in 1987 (United States - 23 percent, domestic - 23 percent and Japan - 7 percent). The value of Canadian shipments to the EC was \$437 million in 1988.

Canadian trade relations with the EC on iron ore are excellent and there are rarely any irritants or disputes.

European steelmakers and their governments have special arrangements with several iron ore producers in countries outside Europe, and are inclined to give special consideration to Nordic and West African projects. In Canada, the steelmaker Finsider S.A., of Italy, has a minority share in Wabush Mines and it proved to be an important client for Wabush during the lean years 1982 to 1986. In Mauritania, a rehabilitation project was undertaken at the Guelbs Project iron ore mine with money from the World Bank (IBRD), the Arab Fund for Economic and Social Development, other funds from Kuwait, Abu Dhabi and Saudi Arabia, the Overseas Economic Cooperation Fund of Japan and the Caisse Centrale de Coopération Economique. These lenders have priority on the revenues generated by the sale of Guelbs ore, and naturally an interest in seeing the project succeed. European steel mills regard the purchase of Mauritania ore as a means of diversifying their supply sources. In Brazil, the European mills have investments and loans that augment their normal interest in the high-grade Brazilian iron ore mines. None of these arrangements are expected to distort the iron ore market to a greater degree than currently exists.

Iron and Steel

For the purposes of this analysis, the sector includes those companies which produce steel mill products as follows: primary products---ingots, blooms, billets, slabs; secondary products---plate, sheet, strip, bars, rails, structural shapes, wire rods; and tertiary products---pipes, tubes, wire and wire products.

The EC Steel Industry

In 1975, after the first oil shock, a deep worldwide recession brought into focus the major problems facing the steel industries of the EC, mainly overcapacity. All of the

Member States continued to complete new steelmaking facilities which they had started during 1974, a year of high demand. Since most of the companies were state-owned, there was little or no political will to close the older plants.

Since 1978, EC Member States have slowly closed the older plants and even some newer ones, to bring capacity more into line with demand. Between 1980 and 1987, some 32 million tonnes of capacity were eliminated leaving a current 140 million tonnes. Further cuts of a least 15 million tonnes are still required. During the same period, the EC steel market was highly protected from imports.

Between 1980 and 1986, it cost EC Member States over US\$37 billion to retire debt and install modern equipment for their steel industries. Many EC steel companies are now debt-free whereas Canadian steel companies have accumulated debt loads in similar modernization efforts, thereby providing an unfair competitive advantage to the highly subsidized EC steel sector.

Canada-EC Steel Trade, 1978-88

	Canada's Imports from EC	Canada's Exports to EC
	(000 tonnes)	
1978	382	107
1979	607	144
1980	238	221
1981	950	98
1982	248	354
1983	304	53
1984	700	95
1985	809	56
1986	456	35
1987	1 335	33
1988	1 700	97

Source: StatsCan 65-004 and Export and Import Permits.

Canada - EC Trade in Steel Products

For many years, Stelco was one of only two suppliers (the other was West German) which could supply the quality of wire rod required by Michelin for its high quality wire for steel-belted radial tires. Initially, there was a tonnage quota into the EC which carried no tariffs because of the inability of European steel producers to produce quality wire rod. However, an ongoing French government requirement that

the rod be shipped in smaller containers, coupled with slow release procedures by French customs, frustrated both Stelco and Michelin. Ongoing pressures by the French government on Michelin to buy French wire rod, accompanied by customs pressures and elimination of the tariff free quota, finally convinced Stelco to give up on its exports to Michelin in France. However, it is still a major supplier to Michelin in Canada and the United States.

Over the years, the issuance of import permits to Canadian exporters has been delayed by the EC for lengthy periods. In 1987, Dofasco obtained an order for 30 000 tonnes of hot rolled coils for Spain. The Spaniards continued delays in issuing a permit over a period of 8 months, in spite of protestations by EC officials. Late in the year, under a GATT XXIX clause, they instituted import quotas. While Canada negotiated and obtained a 50 000-tonne quota for 1988, opportunities were lost, and there were no shipments.

Throughout this period, the highly subsidized EC steel industry shipped steel to Canada at dumped prices. This resulted in a large number of successful anti-dumping cases covering many products against exporters from virtually every EC Member State.

Steel exports to Europe are considered as marginal sales by the Canadian steel industry. High freight costs, \$40 to \$60 per tonne compared to \$13 to \$15 per tonne to the prime markets in the United States, have developed a pattern for these sales.

Internationally, steel industries do not ship secondary (or off-spec) material in their home markets. There are two reasons for this: firstly, it would reduce domestic demand for prime product, and secondly, shipments to selected customers would be discriminatory, and could result in adverse reaction by other customers. In 1984, Dofasco made several shipments of secondary product to the EC. This resulted in an anti-dumping complaint by the European steel industry.

In contrast to Canada and the United States, there are no public hearings on the injury determination. The EC investigators chose to designate Dofasco's sales as prime material, thereby establishing a dumping margin of 32 percent. Only Dofasco and Sidbec-Dosco had shipped steel during the reference period. However, Stelco, Algoma and Ipsco were also penalized by the dumping margin, thereby precluding future sales.

Because of this scenario, it is not surprising that steel trade between Canada and the EC has evolved in the Community's favour (see table). The data illustrates that

during the reference period, it was only in 1982 that the balance of steel trade was in Canada's favour. This was a major international recession year. However, Dofasco identified substantial opportunities to ship to the EC. It is significant that Dofasco was the only major international steel producer which made a profit in 1982.

Specifications and Codes

Steel is a fungible product. It is designated by various chemical compositions and a variety of physical properties. While most countries have their own specifications and definitions, there is an international correlation, such that it is impossible for the EC to out-spec competition. It is interesting to note that the EC has a number of dimensional standards for structural sections which do not correspond to North American standards. However, they also produce sections which correspond to North American standards, illustrating the importance which the EC places on the North American market.

An important problem is the EC's Eurocode III (Common Unified Rules for Steel Structures). These specifications are significantly different from standards in Canada and the United States. Canadian exports of fabricated structural steel to the EC have been miniscule. However, the EC is attempting to turn its standards into an international advantage; it is currently attempting to have its steel building standards approved by the International Standards Organization (I.S.O.), as that organization's official standard. This would place Canada and the United States at a disadvantage in such markets as the Caribbean and South America.

Ferroalloys

Currently the EC imposes import tariffs of 4-8 percent on silicon and ferrosilicon products, 7-15 percent on chromium and ferro-chromium products, and 5-10 percent on molybdenum products.

In 1987, Canadian exports of molybdenum to the EC were approximately 4 850 tonnes, valued at \$38 million. Canadian exports of silicon and ferrosilicon products to the EC in 1986 were 142 tonnes, valued at \$32 000.

Recently, EC producers of silicon ferroalloys lobbied the EC Commission to impose trade action against South African, Chinese, Brazilian and East European producers, who are alleged to be dumping silicon ferroalloy products on EC markets.

Part VSummary of Selected Member State and EC Directives, Regulations and Policies and Their Impacts on Mineral and Metal Trade and Investment

This part highlights a range of EC Directives, regulations and policies, some of them implemented by Member State governments, that have a significant bearing on mineral and metal production, trade and consumption, as well as investment in this sector. It also presents a brief descriptive assessment of their impacts on Canada-EC trade and investment. The discussion is presented under four broad headings: asbestos, EC and Member State regulations; coal, Member State subsidies and public procurement; environmental, health and safety regulations for nonferrous metals; and titanium dioxide.

Asbestos: EC and Member State Regulations

Three EC Directives and some Danish regulations have a significant impact on asbestos trade and use. These are summarized below, starting with the most important.

Directive No. 83/477 of September 1983 on the protection of workers from the risks related to exposure to asbestos at work. This Directive applies to activities in which workers either are or potentially are exposed to dust from asbestos or asbestos containing materials during their work. Spray application of asbestos is prohibited; limit values of 1f/cc for asbestos other than crocidolite and 0.5f/cc for crocidolite are stated.

Directive No. 87/217 of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos. This Directive sets measures and supplements provisions already in force with a view to preventing and reducing pollution by asbestos in the interests of the protection of human health and environment.

Directive No. 85/610 of 20 December 1985 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (asbestos). This amended for the seventh time Directive 76/769.

This directive prohibits the sale and use of products containing asbestos fibres for: toys; materials or preparations intended to be applied by spraying; finished products retailed in powder form; items for smoking such as tobacco pipes and

cigarette and cigar holders; catalytic filters and insulation devices for incorporation in catalytic heaters using liquefied gas; paints and varnishes.

In 1986, Denmark banned the use of asbestos friction material. On 1 April 1988, the Danish government implemented regulations requiring passenger vehicles to have asbestos-free friction linings in both the original equipment and replacement markets.

The Commission of the EC is in the process of challenging Denmark in the European Court of Justice. The outcome is expected to have broad ramifications for the EC, not only within the context of EC Directives on asbestos, but also on Member State behaviour regarding Community-wide rules on a range of matters.

Currently, there are a number of other policy areas under review at the Commission level which could have an impact on asbestos (these originate within the various EC Directorates, herein described as DGs).

DG III Fibre Fixity Test. This is a proposed Directive on a testing procedure for asbestos textile. Products successfully passing this test could be marketed freely in the EC Member States.

DG V Proposal for Directive on Exposure to Carcinogens. A proposed draft Directive was published in the Official Journal on 8 February 1988 making reference to 31 carcinogenic and 8 industrial agents considered as presenting carcinogenic risk. Asbestos was not included. However, a proposal has been made to replace the enumeration of 31 carcinogens by a reference to existing and future Directives on dangerous substances. Asbestos could be within the scope of such a Directive.

DG XI. The Technical Progress Committee has proposed an annex to Directive 67/548 relating to the classification, packaging and labelling of dangerous substances. Annex 1 indicates, for each substance, the chemical formula, name, label to be applied, the nature of the risk and the safety advice. It has been proposed by the Committee to add asbestos to this list, and to classify it as a carcinogenic product.

(Asbestos is not officially classified by the EC as a recognized human carcinogen, nor is it on the EC list of toxic and dangerous substances).

Although the inclusion of asbestos in the list should directly only affect the labelling of the raw materials (asbestos bags), indirectly, it would have a dramatic effect. A number of actual and future Directives from

III, DG IV and DG XI are making reference to this list and a number of prescriptions, restrictions and limitations automatically apply to the substances from this list and, to a certain extent, also to preparations including those listed products. The proposal makes no distinction between chrysotile and the amphiboles (crocidolite, amosite...).

Impacts

Since health, safety and environmental concerns over asbestos became widely recognized, production of asbestos in Canada has fallen from a peak of 1 536 000 tonnes in 1976 to 705 000 tonnes in 1988. Exports have also declined from a record 1 502 400 tonnes in 1976 to 823 600 tonnes in 1988; the latter includes sales of asbestos from inventory. Exports to the EC-12 dropped from 413 892 tonnes in 1976 to 158 000 tonnes in 1988. Although the EC cannot be held responsible for the above concerns as this has been a worldwide phenomenon, it was amongst the leaders in establishing rules and regulations for the handling, marketing and use of asbestos.

Throughout the process of developing EC Directives for asbestos, Canada engaged in bilateral discussions and cooperative activities (mainly under auspices of the Canada-EC Framework Agreement and more particularly the Metals and Minerals Working Group) aimed at establishing a sound and workable regulatory regime for asbestos. These discussions proved very effective, especially in working together with industry, labour, academia, the Member States and other interested parties, and contributed significantly to the harmonization and full implementation of the above-noted EC Directives. The Working Group continues to be a useful forum for bilateral discussion and cooperation aimed at sustaining and furthering a sound and balanced "controlled use" approach to asbestos, and has avoided the need to rely on other forms of dispute settlement.

One potential problem area could be the re-opening of the asbestos exposure limit. The Federal Republic of Germany's on-going pressure to prohibit more asbestos containing products could also be a problem as far as the DG III's restrictions on marketing and use are concerned. The DG III activity should continue to be monitored.

Of greater concern, although initially more innocuous, is the activity regarding labelling under DG XI, because of the automatic ramifications. This should be monitored not only for asbestos, but for other carcinogens. As well, the addition of asbestos to this list as a carcinogenic

product would likely "open the door wide" for the German reclassification proposal.

In the case of the Danish ban on asbestos friction materials, there may be some scope or need for launching an action under the GATT Technical Barriers to Trade Agreement.

Coal: Member States Subsidies and Public Procurement

Completion of the EC's internal market will require solutions for two separate issues in the coal sector: strict containment of subsidies (Member State aids) and termination of exclusive buying/selling arrangements between Member State coal producers and public utilities.

Subsidies

Although the EC coal industry has received assistance for many years under the authority of the European Coal and Steel Community, it has only been since the early 1970s that the magnitude of assistance has mushroomed at the Member State level. This in turn prompted the Commission of the EC to establish in 1986 rules for state aid to the coal industry. (Commission Decision No. 2064/86/ECSC of June 30, 1986 Official Journal No. L177, 1 July 1986). In establishing these rules, that are to run until the end of 1993, the Commission was charged with the yearly responsibility of ensuring that Member State aid contribute to the achievement of the following aims:

- "improvement of competitiveness of the coal industry, which contributes to assure a better security of supply;
- creating new capacities provided that they are economically viable;
- solving the social and regional problems related to developments in the coal industry."

To this end, coal producing Member States were required to submit statements of intentions and objectives for the coal industry. The rules provide for aid under six categories:

1. Deficit grant aid - i.e., aid to cover operating losses provided that it does not exceed the difference between foreseeable average costs and the foreseeable average returns in the following financial year.
2. Sales aid - i.e., to supply coal and coke to the EC's iron and steel industry.

3. Investment aid for new investment provided it covers no more than 50 percent of the costs of the investment.
4. Aid for underground staff.
5. Financing of social grants in the coal industry - i.e., to finance social grant schemes specific to the coal industry provided that the ratio between the burden per mine worker and the benefits per person do not exceed the ratios in other industries.
6. Inherited liabilities - i.e., aid to cover past liabilities related to restructuring and not related to current production.

The rules also provide that the Commission be notified of any other aid measures, such as those granted in the Federal Republic of Germany for the burning of domestic coal to generate electricity.

State aid approved under the rules in 1987 ranged from a low of ECUs 4.70 (US\$5.34) a tonne of coal produced in the United Kingdom to a high of ECUs 111.10 (US\$134.12) a tonne in Belgium. In the Federal Republic of Germany, where the overall level of payments is the highest, the average rate was ECUs 46.40 (US\$52.70), which was well above world coal prices.

The above levels represent approved aid only. A recent International Energy Agency report contains "production subsidy equivalents" and other forms of assistance that yield much higher levels of aid in Federal Republic of Germany and the United Kingdom. Moreover, in a 1989 EC "Inventory of State Aids", it was revealed that the level of assistance paid out by EC Member States for coal amounted to ECUs 25 000 per employee, compared to an industry-wide average of ECUs 770 per employee.

Public Procurement

Preferential or exclusive procurement contracts between domestic coal producers and large consumers (i.e. public utilities mainly) exist in the Federal Republic of Germany and United Kingdom. With regard to the latter, there is a written agreement between British Coal Corporation (BCC) (publicly owned) and the Central Electricity Generating Board stipulating that the Board buy BCC's coal output. For years, the Board has complained that its procurement costs are much too high (publicly it has said £750 million annually over the past three years) and that British electrical rates could be lowered if it were free to buy imported coal.

In the Federal Republic of Germany, there are two major contracts. Under Huttenvertrag, the German coal industry (about 2/3 controlled by Ruhrkohle AG) is obliged to deliver as much coking coal as required by the German steel industry and the latter is obliged to buy its needs from the German coal industry. Transaction prices are based on world coal prices and the federal government makes up the difference between these prices and production costs. The present Hutten contract came into effect in January 1989 and from an industry perspective was intended to run until 2000, but the Commission of the EC (which had previously indicated that the contract was to end in 1995) has thus far given approval to the end of 1997. Under Jahrhundertvertrag, known as the "century contract", German power utilities are obliged to buy 40-45 million tonnes of domestic coal until 1995. Once a certain level of purchases is reached, the utilities can then import one tonne of coal for each additional tonne of domestic coal, up to a limit of 8 million tonnes yearly of imported coal. Most of the utilities' additional cost incurred from burning domestic coal is recovered from electricity rate-payers.

Enforcement of these two contracts is ensured by the application of Federal Republic of Germany's Tariff Quota Law (of 1980), which provides for annual coal imports of up to 8 million tonnes annually for the period 1986-90 and 12 million tonnes annually from 1991-95. Apparently, import licenses are made available to all coal users, but they can be traded or sold to enable coastal utilities to take advantage of easier access to lower-priced imported coal.

Impacts

Quite apart from internal market distortions, in terms of intra-EC country coal production, trade and consumption, coal-use in relation to other energy sources, and a drain on budgetary resources, these subsidies and procurement policies have severe external trade impacts. They impact on coal trade with Canada and even more so with the United States, Australia and South Africa. Although it is impossible to be precise, one estimate indicates that if the EC market for coal were liberalized and exposed to international competition, foreign suppliers could expect to increase annual sales by at least \$7 billion. Implicit in this scenario would be the closure of most EC hard coal mines on the continent and the closure of a significant part of the United Kingdom coal industry.

The elimination of, or even significant reduction of, these subsidies and a termination of present public procurement practices (as well as import quotas in the case of Federal Republic of Germany) would be an important step in liberalizing

world trade in coal, in promoting competition in the EC's energy sector and in contributing to the EC Commission's drive to complete the internal market. External pressures in the Uruguay Round of multilateral trade negotiations may also help in resolving these issues.

Nonferrous Metals: Environmental, Health and Safety Regulations

Although preservation of the environment and the protection of workers and the population at large against exposure to dangerous substances is a worldwide concern and responsibility, a number of EC-based institutions and Member States have instigated measures for nonferrous metals that exceed world norms and may not adequately reflect commercial/economic interests. These measures can be grouped under four broad headings: the management and control of hazardous materials; health and safety in the workplace; prevention of air and water pollution and the management of wastes and hazardous wastes. This section focuses on the first three insofar as measures or proposed measures relate to nonferrous metals.

Management and Control of Hazardous Materials

Within the EC regulatory context, these measures fall largely under the directives of classification, labelling, packaging, marketing and use which cover the so-called C/M/T substances (carcinogenic, mutagenic and teratogenic). Although a number of metallic compounds (including arsenic trioxide and the chromates of calcium, lead, strontium and zinc) have long been classified as carcinogens, there have been some recent actions and proposals to classify certain metals as C/M/T substances - namely arsenic, beryllium, cadmium, chromium, nickel and lead "families", as well as aluminum production. From a Canadian mineral industry perspective, the immediate concerns centre on cadmium and nickel.

Cadmium: The "European Action Programme to Combat Environmental Pollution by Cadmium" (Cadmium Program) is an integrated approach that aims to tackle all sources of cadmium pollution. This is in addition to the 20 Directives concerning cadmium either directly or indirectly already in existence in Europe. The Commission's policy paper received the Council's support in January 1988 (Council Resolution 88/C30/01 of 25 January 1988, OJ C30 of 4 February 1988). Moreover, the Council emphasized the major elements of the cadmium strategy to be implemented in this connection, as follows:

- limitation of the use of cadmium to cases where suitable alternatives do not exist;
- encouragement to the development of further alternatives to the use of cadmium in pigments, stabilizers and plating;
- incentives to research related to the cadmium content of the raw materials used for the production of phosphate fertilizer and to varieties of tobacco and food plants with a lower cadmium content;
- collection and recycling of products containing cadmium, such as spent Ni-Cd batteries;
- development of a strategy designed to reduce cadmium input in soil;
- combating significant sources of airborne and water pollution.

Implementation of the Cadmium Program is expected to follow the above priority list. The Commission's first action was to draft a directive aimed at restricting the marketing and use of certain cadmium-bearing products, namely pigments, stabilizers and plating (10th amendment to Directive 76/769). It implies use of cadmium in these products, excepting those which are, or must be banned.

Cadmium in brazing and soldering rods is to be tackled through Directive 88/379 on the classification, labelling and packaging of dangerous preparations, i.e., they are to be covered by a special label. With respect to cadmium in phosphatic fertilizing, the Commission announced a program for monitoring cadmium in the soil and a feasibility study on ways to reduce cadmium content in phosphatic rocks.

Nickel: For nickel, one of the immediate concerns centres on classifications emerging from the International Agency for Research on Cancer (IARC), an internationally recognized authority on carcinogens. IARC is affiliated with the UN World Health Organization, but is financed by 14 member countries, including 6 EC Member States; it is headquartered in Lyons, France. In a 1983 IARC publication, nickel refining was classified carcinogenic to humans and certain nickel compounds as probably carcinogenic. Early in 1988, IARC released a report stating that "nickel and nickel compounds" are carcinogenic to humans, although this conclusion was clouded up by some qualifying statements, which indicated that a grouping approach was used and that not all components of the group may be carcinogenic.

Since many governments, including most EC countries, use the IARC list in their regulatory process, the agency's action can have important implications. As well, there has been a general trend in recent years to more stringent regulations for exposure to nickel.

IARC held a Working Group meeting of experts in June 1989 to discuss nickel, chromium and welding dusts. The basis for the discussion on nickel was for the most part a study chaired by Sir Richard Doll on Nickel Carcinogenesis in Man. The Doll study, which is to be published in 1990, is sponsored by the EC, United States, Canada, Ontario and the Nickel Producers Environmental Research Association. The Working Group concluded that nickel compounds would be classified as carcinogenic to humans and that nickel metal was possibly carcinogenic.

In 1987, Denmark had proposed a ban under Directive 83/189 on the importation of certain nickel compounds because a linkage has been indicated between these compounds and cancer, but due to objections from industry and other Member States, the notification was withdrawn. Denmark has apparently been considering notifying again. The most commercially important of the compounds being considered is nickel subsulphide. If this ban was put in place by Denmark and adopted by the EC, there would be no immediate effect on Canadian nickel subsulphide production or exports (which are only exported to Norway) but it would set a precedent for other countries.

Denmark has also proposed a ban on imports of certain nickel plated products that do not conform to specified standards. The ban relates to possible allergic reaction of some people to nickel. The nickel market affected by a Danish ban, which could be broadened in 1992 to all of the EC, is very small.

Of potential commercial importance to suppliers of nickel to the EC is the labelling requirements which some countries are adopting. Currently in the Federal Republic of Germany, for example, all containers of nickel powders must be labelled "May Cause Cancer" and have a skull and crossbones symbol. This could adversely affect the market for nickel if it becomes more widespread.

These issues are followed closely within Canada and bilaterally with the EC within the context of the Canada/EC Metals and Minerals Working Group.

Lead: The concern about the health impacts of higher lead concentrations in the environment has resulted in various governments initiating programs to reduce or eliminate the use

of lead gasoline. This process, although started in North America, is currently under way in Europe.

EC Directive 78/611/EEC of 29 June 1978 sets a maximum and minimum lead compound content of leaded gasolines sold in Member States at 0.40 grams/litre (g/l) and 0.15 g/l, respectively.

EC Directive 85/210/EEC of 20 March 1985 sets a maximum lead compound content of unleaded gasolines at 0.13 g/l (0.20 g/l until 1 April 1990). By this Directive, the EC requested Member States to ensure that unleaded gasolines be made available and have a balanced distribution system by 1 October 1989. Furthermore, this Directive encouraged Member States to tax leaded gasolines at a higher rate than unleaded gasolines.

Canada commenced a similar program in the mid-1970s and in 1988 announced that a ban on the use of lead in gasolines, except under special circumstances, would take effect on 1 December 1990. Currently the maximum amount of lead in leaded gasoline in Canada is 0.29 g/l.

Of increased concern to various governments, including the United States, is the possible carcinogenicity of lead. As a result, these governments are examining lead closely, including their current regulations. The International Lead and Zinc Research Organization Inc. (ILZRO), an industry funded organization, has devised a \$2.7 million program of research designed to answer some fundamental questions concerning the possible role of lead as a human carcinogen. The industry plans to fund roughly one-half of the program and ILZRO is seeking financial contributions from several governments, including the EC, Canada and the United States.

Health and Safety in the Workplace

In December 1987, the commission of the EC proposed a "Directive on the Protection of Workers from Risks Related to Exposure to Carcinogenic Agents in the Workplace" (Com 87/641, OJ C34 of 8 February 1988). The proposal focuses on substances already classified as carcinogens at the EC level and on industrial processes deemed as carcinogenic by IARC. In this regard it mentions nickel refining for which the immediate concerns are nickel oxides and nickel subsulphides.

Prevention of Air and Water Pollution

EC Directive 84/360 of 28 June 1984 "On the Combating of Air Pollution from Industrial Plants" (OJ L 188 of 16 July

1984) sets out measures and procedures to prevent and reduce air pollution in, inter alia, plants producing and processing metals and it lists heavy metals and their compounds as among the most important polluting substances.

With regard to cadmium, the Commission put forth two new proposals on the prevention of air pollution from new and existing municipal waste incineration plants (OJ C 75 of 23 March 1988). For new installations, cadmium and mercury emissions will have to be below 0.1 mg/Nm^3 while the European Parliament seems to be proposing a further reduction to 0.01 mg/Nm^3 , for both new and old installations. For cadmium as a water pollutant, the EC will concentrate on implementation existing directives (e.g. Directive 85/513 of 26 September 1985 or limit values and quality objectives for cadmium discharges).

In addition to the Cadmium Program and the existing 20 Directives, further European initiatives in cadmium will take into account the results of two reviews that the Commission, in December 1988, decided to undertake: a review of the question of toxicity and ecotoxicity of cadmium to man and the environment, and the sources of human and environmental contamination by cadmium.

Titanium Dioxide

Titanium dioxide (TiO_2) is an environmental issue because the sulphate process used to produce titanium dioxide pigment from titania slag digests the slag in concentrated sulphuric acid. Effluents from such plants are very acidic and contain high levels of dissolved solids, including some toxic heavy metals. Canada's interest in this issue relates to the fact that QIT-Fer et Titane Inc. (QIT) produces much of the slag used in the western world for the sulphate TiO_2 process. If regulatory regimes were to force conversion of many such plants to the gaseous chloride process, which requires a high-grade slag or mineral sand as feed, QIT slag (which is unsuitable for the chloride process) would become difficult to market.

EC Directive 78/176/EEC of 20 February 1978 "On Waste from the Titanium Dioxide Industry" established the general objectives of prevention and control of effluents from TiO_2 sulphate plants. However, the 1978 Directive did not establish any limit values, but generally established the parameters to be monitored.

A subsequent proposal for a Directive OJ 84/C 1967 "For the Reduction and Eventual Elimination of Pollution Caused by Waste from the Titanium Dioxide Industry" was submitted to the Council in April 1983. While this proposed Directive deals

with both the chloride and sulphate processes, the impact would be greater on the sulphate system. Major aspects of this Directive are as follows:

"In order to eliminate the wastes concerned from surface fresh waters, coastal waters, territorial sea waters and the open sea, Member States shall take the necessary measures to ensure that:

- by 1 January 1986, they prohibit discharges of solid wastes,
- by 31 December 1989, or in the case of surface fresh waters by 1 January 1986, they prohibit discharges of:
 - strong acid, and
 - wastes arising from the treatment of strong acid and containing various heavy metals,
- by 1 July 1993, discharges of weak acids and of wastes arising from the treatment of wastes arising from the treatment of liquid wastes are reduced."

"In respect of the atmosphere, Member States shall take the measures necessary to ensure that by 1 July 1988 SO_x discharges are reduced to the reference value of 20 kilograms per tonne of titanium dioxide produced, as the annual average."

"Member States shall take the necessary measures, including those relating to the installation of appropriate waste treatment systems, to ensure that:

- in respect of estuary waters, coastal waters and the open sea, by 1 July 1986 discharges of liquid wastes are reduced to the reference value of 200 kilograms of acid per tonne of titanium dioxide produced,
- in respect of surface waters, by 1 July 1986 they prohibit discharges of liquid wastes with a pH value lower than 6.5."

As of the end of 1988, this proposed Directive had not yet been adopted by Council.

As noted in Part IV, Canada's concerns over the impact of the EC titanium dioxide directives have been lessened by the successful pilot-plant testing of the Chemetics process for treating TiO₂ sulphate wastes. Indeed, Quebec's regulations are now almost as stringent as the EC's. However,

efforts should be made to influence the EC from moving towards a goal of 100 percent recovery of weak acid; the Chemetics process totally evaporates dilute acidic sulphate effluent to sulphate solids, and concentrates the acid to over 90 percent H_2SO_4 for recycle. In this regard, efforts have been made to demonstrate to EC officials that the new process can be utilized in European TiO_2 sulphate plants.

Part VISummary and Conclusions

Europe 1992 is clearly an ambitious program but it is not expected to bring a radical change from the recent past. It will carry important implications for Europeans and for persons and firms dealing with Europeans, but it is not expected to significantly alter trade and investment patterns in the minerals and metals sector. In relative terms, the EC has been for some time a decreasingly important market for Canadian minerals and metals, partly because of changes in preferential access (e.g. the loss of preferential access to the United Kingdom when it joined the EC in 1973 and more recently the preferential market access accorded by the EC to other natural resource exporting countries). In 1988, Canada's mineral and metal exports to the EC amounted to \$3.0 billion (major products were aluminum, asbestos, copper, gold, iron ore, lead, nickel, zinc and uranium) and imports from the EC were \$1.7 billion (mainly iron and steel and semi-fabricated products).

EC barriers to trade fall into four broad categories: tariffs, including absolute levels, tariff preferences and tariff escalation; non-tariff measures; subsidies; and monopolistic and other restrictive trade practices. Tariffs fall under the EC's external policy and are not part of the 1992 program; they will have to be addressed in the multilateral trade negotiations (MTN).

Although non-tariff measures also fall within the scope of the MTN, the removal of internal technical barriers to trade (e.g. obstructive national standards and regulations) and the creation of common EC standards should bring significant external benefits and opportunities. Generally speaking, EC standards are not likely to be a problem for raw material exports but they could affect trade in processed mineral and metal products, as well as fully manufactured products containing certain compounds (e.g. asbestos).

Subsidies are also an important element of the MTN, but the extent to which the EC Commission can come to grips with the problem of Member State aids, (e.g. for coal) which is crucial to the functioning of a common market, will have important external implications. Indeed, the elimination of EC Member State financial assistance to the coal, iron and steel sectors should prompt some industry restructuring and trade opportunities. Although there are a number of EC Directives setting out guidelines for the use and magnitude of state aids, none have yet to emerge for the termination of these practices; rather, from a Canadian trade perspective, it is hoped that these problems can be resolved.

Although competition policy, monopolistic (including state ownership) and other trade restrictive practices are being addressed in the 1992 program, this analysis has not covered this area. Progress in this area could impact positively upon Canada's trade potential in the coal, iron and steel sector, potash and uranium.

A fifth area of particular concern centers on environmental, health and safety regulations for processing, handling and use of a wide range of minerals, metals and their products, notably asbestos, cadmium, lead, nickel and titanium dioxide. These concerns are shared worldwide and it would be misleading to suggest that the Europe 1992 program poses any threat in this area. Rather, the Europe 1992 exercise and the embodied harmonization of EC standards may provide an opportunity for Canadians to cooperate bilaterally (as well as multilaterally) in search of workable norms and regulations that balance commercial interests with protection of the environment, workers and users of such products. These issues will have to be examined and managed prudently and systematically over the years ahead. In the case of asbestos, bilateral cooperation under the auspices of the Canada/EC Minerals and Metals Working Group proved beneficial to both sides. There is scope for continued cooperation on asbestos, nickel, lead, as well as other commodities.

On balance, completion of the internal EC market should generate a more competitive business environment, not only within the EC-12 but also internationally. As long as some external trade barriers persist, companies situated within the EC, be they EC-based or Canadian-based, will be best positioned to take advantages of ready access to a vast internal market.

This report should not be regarded as a rigorous assessment of Europe 1992. Hopefully, it will serve as one road map for monitoring the evolution of EC market and regulatory policies and setting a tone for cooperation and negotiation with EC policy makers.

Appendix I

EC Imports of Selected Minerals and Metals, 1988

TABLE A1: EUROPEAN COMMUNITY IMPORTS OF ASBESTOS STAGE 1

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	505 364	263 382	13 908	491 456	52.12	53.59	2.75
1964	400 642	224 770	15 305	385 337	56.10	58.33	3.82
1965	662 671	331 079	25 393	637 278	49.96	51.95	3.83
1966	707 106	379 652	34 615	672 491	53.69	56.45	4.90
1967	628 359	318 409	36 756	591 603	50.67	53.82	5.85
1968	735 647	379 107	39 439	696 208	51.53	54.45	5.36
1969	755 604	391 067	42 060	713 544	51.76	54.81	5.57
1970	756 369	385 776	41 622	714 747	51.00	53.97	5.50
1971	741 699	386 165	43 358	698 341	52.06	55.30	5.85
1972	796 518	448 566	52 667	743 851	56.32	60.30	6.61
1973	1 041 782	620 507	75 973	965 809	59.56	64.25	7.29
1974	1 117 911	673 910	87 873	1 030 038	60.28	65.43	7.86
1975	971 027	503 369	89 480	881 547	51.84	57.10	9.21
1976	1 046 679	604 074	76 884	969 795	57.71	62.29	7.35
1977	979 310	585 415	55 959	923 351	59.78	63.40	5.71
1978	854 970	505 664	68 112	786 858	59.14	64.26	7.97
1979	909 474	574 419	73 282	836 192	63.16	68.69	8.06
1980	891 376	561 054	52 546	838 830	62.94	66.89	5.89
1981	553 237	288 195	45 821	507 416	52.09	56.80	8.28
1982	464 683	251 436	51 056	413 627	54.11	60.79	10.99
1983	490 389	277 766	61 470	428 919	56.64	64.76	12.53
1984	351 100	128 746	57 164	293 936	36.67	43.80	16.28
1985	311 609	157 755	47 744	263 865	50.63	59.79	15.32
1986	306 942	161 190	48 379	258 563	52.51	62.34	15.76
1987	304 729	159 954	57 572	247 157	52.49	64.72	18.89

EUROPEAN COMMUNITY IMPORTS OF SULPHUR STAGE 1

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	1 381 082	2 599	481 179	899 903	0.19	0.29	34.84
1964	1 880 826	87 096	681 527	1 199 299	4.63	7.26	36.24
1965	2 297 598	78 127	642 058	1 655 540	3.40	4.72	27.94
1966	2 047 724	28 134	623 771	1 423 953	1.37	1.98	30.46
1967	2 112 547	27 825	661 226	1 451 321	1.32	1.92	31.30
1968	2 438 907	43 509	723 736	1 715 171	1.78	2.54	29.67
1969	2 679 459	79 599	717 162	1 962 297	2.97	4.06	26.77
1970	2 754 855	245 062	788 029	1 966 826	8.90	12.46	28.61
1971	3 231 324	364 517	795 895	2 435 429	11.28	14.97	24.63
1972	3 581 318	472 123	732 112	2 849 206	13.18	16.57	20.44
1973	4 209 853	511 840	886 173	3 323 680	12.16	15.40	21.05
1974	5 384 784	801 828	1 359 588	4 025 196	14.89	19.92	25.25
1975	3 430 890	664 416	704 075	2 726 815	19.37	24.37	20.52
1976	3 939 463	784 418	827 956	3 111 507	19.91	25.21	21.02
1977	4 047 339	662 022	1 031 112	3 016 227	16.36	21.95	25.48
1978	2 917 429	525 372	732 459	2 184 970	18.01	24.04	25.11
1979	3 184 153	592 157	743 427	2 440 726	18.60	24.26	23.35
1980	2 860 952	639 455	742 929	2 118 023	22.35	30.19	25.97
1981	3 459 074	548 460	1 241 746	2 217 328	15.86	24.74	35.90
1982	3 125 574	418 105	1 194 727	1 930 847	13.38	21.65	38.22
1983	2 225 518	432 145	668 634	1 556 884	19.42	27.76	30.04
1984	2 375 853	454 095	738 042	1 637 811	19.11	27.73	31.06
1985	2 355 817	567 207	692 439	1 663 378	24.08	34.10	29.39
1986	1 998 507	527 479	595 315	1 403 192	26.39	37.59	29.79
1987	2 053 832	423 931	729 408	1 324 424	20.64	32.01	35.51

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC Intratrader.

TABLE A2: EUROPEAN COMMUNITY IMPORTS OF IRON AND STEEL STAGE 1 (ORE AND CONCENTRATES)

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRADE	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADE % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	0	0	0	0	.	.	.
1964	0	0	0	0	.	.	.
1965	0	0	0	0	.	.	.
1966	0	0	0	0	.	.	.
1967	0	0	0	0	.	.	.
1968	0	0	0	0	.	.	.
1969	0	0	0	0	.	.	.
1970	0	0	0	0	.	.	.
1971	0	0	0	0	.	.	.
1972	0	0	0	0	.	.	.
1973	0	0	0	0	.	.	.
1974	0	0	0	0	.	.	.
1975	0	0	0	0	.	.	.
1976	0	0	0	0	.	.	.
1977	0	0	0	0	.	.	.
1978	0	0	0	0	.	.	.
1979	122 895 504	15 080 778	11 685 923	111 209 581	12.27	13.56	9.51
1980	114 894 480	13 123 222	10 608 246	104 286 234	11.42	12.58	9.23
1981	109 729 296	13 092 905	8 215 575	101 513 721	11.93	12.90	7.49
1982	97 230 064	11 608 113	7 668 304	89 561 760	11.94	12.96	7.89
1983	88 500 544	9 722 237	6 862 833	81 637 711	10.99	11.91	7.75
1984	107 208 672	10 331 869	6 999 362	100 209 310	9.64	10.31	6.53
1985	100 761 760	10 506 789	5 513 567	95 248 193	10.43	11.03	5.47
1986	95 404 384	9 951 672	6 281 218	89 123 166	10.43	11.17	6.58
1987	94 149 940	9 458 485	6 065 258	88 084 682	10.05	10.74	6.44

EUROPEAN COMMUNITY IMPORTS OF IRON AND STEEL STAGE 1 (PELLETS)

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRADE	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADE % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	72 524 624	3 538 171	23 492 864	49 031 760	4.88	7.22	32.39
1964	87 950 832	4 353 332	23 820 224	64 130 608	4.95	6.79	27.08
1965	93 677 584	5 099 821	22 403 616	71 273 968	5.44	7.16	23.92
1966	84 920 000	4 779 987	18 925 184	65 994 816	5.63	7.24	22.29
1967	88 751 360	6 087 713	17 749 328	71 002 032	6.86	8.57	20.00
1968	104 026 224	7 312 871	19 660 688	84 365 536	7.03	8.67	18.90
1969	113 666 016	7 233 448	20 468 336	93 197 680	6.36	7.76	18.01
1970	125 953 440	12 185 331	21 737 456	104 215 984	9.67	11.69	17.26
1971	116 485 968	10 103 665	20 386 608	96 099 360	8.67	10.51	17.50
1972	121 571 056	8 244 951	20 373 472	101 197 584	6.78	8.15	16.76
1973	144 815 840	12 668 064	19 810 240	125 005 600	8.75	10.13	13.68
1974	158 456 000	12 345 682	21 735 744	136 720 256	7.79	9.03	13.72
1975	129 051 776	11 479 180	18 199 504	110 852 272	8.90	10.36	14.10
1976	137 026 352	15 375 243	17 730 256	119 296 096	11.22	12.89	12.94
1977	120 428 880	13 267 834	13 277 526	107 151 354	11.02	12.38	11.03
1978	123 562 912	10 143 724	12 420 024	111 142 888	8.21	9.13	10.05
1979	20 557 296	4 815 362	75 062	20 482 234	23.42	23.51	0.37
1980	14 335 572	3 646 191	82 578	14 252 994	25.43	25.58	0.58
1981	13 993 743	2 892 714	11 544	13 982 199	20.67	20.69	0.08
1982	13 100 178	2 987 755	1 650	13 098 528	22.81	22.81	0.01
1983	13 754 638	2 877 880	102 803	13 651 835	20.92	21.08	0.75
1984	16 309 271	3 263 202	9 829	16 299 442	20.01	20.02	0.06
1985	27 376 208	7 168 218	224 395	27 151 813	26.18	26.40	0.82
1986	24 534 784	7 165 210	6 043	24 528 741	29.20	29.21	0.02
1987	27 012 760	6 569 306	8 791	27 003 969	24.32	24.33	0.03

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC Intrade.

TABLE A3: EUROPEAN COMMUNITY IMPORTS OF LOPPER STAGE 3

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	45 522	2 350	101	45 421	5.16	5.17	0.22
1964	42 780	410	141	42 647	0.96	0.96	0.33
1965	47 846	1 677	754	47 092	3.51	3.56	1.58
1966	48 215	981	800	47 415	2.03	2.07	1.66
1967	50 054	3 329	1 073	48 979	6.65	6.80	2.15
1968	80 466	4 058	2 701	77 765	5.04	5.22	3.36
1969	79 962	7 296	8 460	71 502	9.12	10.20	10.58
1970	82 528	4 753	4 805	77 723	5.76	6.11	5.82
1971	78 950	3 597	8 016	70 934	4.56	5.07	10.15
1972	165 752	24 057	18 027	147 725	14.51	16.29	10.88
1973	186 229	10 156	15 131	171 098	5.45	5.94	8.12
1974	205 185	7 792	17 046	188 139	3.80	4.14	8.31
1975	213 451	22 320	10 499	202 952	10.46	11.00	4.92
1976	235 731	3 572	3 486	232 245	1.52	1.54	1.48
1977	221 053	24 115	4 924	216 129	10.91	11.16	2.23
1978	214 470	12 549	6 295	208 175	5.85	6.03	2.94
1979	189 636	15 613	3 210	186 425	8.23	8.38	1.69
1980	211 626	12 031	3 002	208 625	5.68	5.77	1.42
1981	182 570	9 249	284	182 285	5.07	5.07	0.16
1982	197 818	13 525	350	197 468	6.84	6.85	0.18
1983	189 617	5 434	234	189 382	2.87	2.87	0.12
1984	196 960	6 290	2 336	194 623	3.19	3.23	1.19
1985	191 139	4 377	3 158	187 980	2.29	2.33	1.65
1986	233 852	1 705	720	233 131	0.73	0.73	0.31
1987	220 522	17 178	299	220 224	7.79	7.80	0.14

EUROPEAN COMMUNITY IMPORTS OF COPPER STAGE 2

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	1 680 530	113 680	307 766	1 372 764	6.76	8.28	18.31
1964	1 841 890	120 119	360 805	1 481 085	6.52	8.11	19.59
1965	1 935 194	118 493	369 435	1 565 759	6.12	7.57	19.09
1966	1 914 215	91 357	387 137	1 527 078	4.77	5.98	20.22
1967	1 822 750	110 117	377 115	1 445 635	6.04	7.62	20.69
1968	1 964 806	115 379	407 681	1 557 125	5.87	7.41	20.75
1969	2 090 380	112 789	407 117	1 683 263	5.40	6.70	19.48
1970	2 172 134	164 999	398 268	1 773 866	7.60	9.30	18.34
1971	2 087 080	162 347	362 353	1 724 927	7.78	9.41	17.35
1972	2 229 881	164 073	402 967	1 826 914	7.36	8.98	18.07
1973	2 316 453	146 193	503 415	1 813 038	6.31	8.06	21.73
1974	2 309 134	161 566	437 942	1 871 192	7.00	8.63	18.97
1975	2 237 279	168 923	329 089	1 908 190	7.55	8.85	14.71
1976	2 382 258	188 904	446 581	1 935 677	7.93	9.76	18.75
1977	2 459 125	168 335	453 997	2 005 128	6.85	8.40	18.46
1978	2 339 702	155 098	465 006	1 874 616	6.63	8.27	19.88
1979	2 323 835	104 336	486 290	1 837 545	4.49	5.68	20.93
1980	2 347 553	166 603	491 146	1 856 407	7.10	8.97	20.92
1981	2 106 042	161 757	418 630	1 687 412	7.68	9.59	19.88
1982	2 150 477	127 108	417 268	1 733 209	5.91	7.33	19.40
1983	1 899 963	81 983	355 393	1 544 570	4.31	5.31	18.71
1984	2 107 723	102 618	374 365	1 733 358	4.87	5.92	17.76
1985	2 117 577	101 897	374 582	1 742 995	4.81	5.85	17.69
1986	2 204 304	102 818	397 560	1 806 744	4.66	5.69	18.04
1987	2 078 892	75 823	424 518	1 654 374	3.65	4.58	20.42

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WIMS).

* Includes EC Intrade.

TABLE A4: EUROPEAN COMMUNITY IMPORTS OF NICKEL MATTE

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	77 647	64 397	795	76 851	82.94	83.79	1.03
1964	73 374	59 016	1 936	71 388	80.43	82.67	2.71
1965	87 273	69 894	1 217	86 056	80.09	81.22	1.39
1966	81 774	66 975	2 259	79 515	81.90	84.23	2.76
1967	84 576	65 069	1 170	83 406	76.94	78.01	1.38
1968	21 184	5 322	507	20 677	25.12	25.74	2.39
1969	20 854	4 415	1 249	19 805	21.17	22.52	5.99
1970	102 100	78 277	1 409	100 691	76.67	77.74	1.38
1971	93 928	80 438	601	93 327	85.64	86.19	0.64
1972	86 727	64 522	578	86 149	76.70	77.22	0.67
1973	76 985	55 508	1 922	75 013	72.10	74.00	2.56
1974	75 804	60 027	1 720	74 084	79.19	81.03	2.27
1975	94 241	73 116	1 866	92 375	77.58	79.15	1.98
1976	91 494	59 688	1 521	89 973	63.24	66.34	1.66
1977	104 913	67 649	1 949	102 964	64.48	65.70	1.86
1978	75 138	38 117	1 298	73 840	50.73	51.62	1.73
1979	66 247	32 854	1 316	64 931	49.59	50.60	1.99
1980	76 040	30 240	662	75 378	39.77	40.12	0.87
1981	80 133	37 350	979	79 154	46.61	47.19	1.22
1982	44 395	12 869	777	43 618	28.99	29.50	1.75
1983	55 136	26 662	3 859	51 277	48.36	52.00	7.00
1984	69 998	40 345	3 867	66 131	57.64	61.01	5.52
1985	78 958	47 240	2 635	76 523	59.83	61.73	3.08
1986	204 414	39 837	2 528	201 886	19.49	19.73	1.24
1987	202 983	44 126	2 824	200 159	21.74	22.05	1.39

EUROPEAN COMMUNITY IMPORTS OF NICKEL STAGE 2:

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	45 434	14 309	13 969	29 465	31.49	48.56	35.15
1964	71 018	32 969	17 923	53 095	46.42	52.09	25.24
1965	70 905	25 225	22 176	48 729	35.58	51.77	31.28
1966	85 784	36 120	18 934	66 850	42.11	54.03	22.07
1967	83 240	26 377	24 043	59 197	31.69	44.56	28.88
1968	90 906	26 725	26 081	64 825	29.40	41.23	28.69
1969	77 024	18 038	20 191	56 833	23.42	31.74	26.21
1970	107 187	45 107	20 244	86 943	42.08	51.88	18.89
1971	114 192	39 190	18 448	95 744	34.32	40.93	16.16
1972	92 198	21 094	22 117	70 081	22.88	30.10	23.99
1973	95 831	26 561	21 326	74 505	27.72	35.65	22.25
1974	115 128	27 760	26 711	86 417	24.11	32.12	24.94
1975	97 867	28 137	24 915	72 952	28.75	38.57	25.46
1976	102 197	23 735	23 415	78 782	23.22	30.13	22.91
1977	96 961	24 596	20 693	76 268	25.37	32.25	21.34
1978	97 097	16 882	22 709	74 388	17.39	22.69	23.39
1979	118 499	16 023	23 943	94 556	13.52	16.95	20.21
1980	115 283	21 140	22 406	92 877	18.34	22.76	19.44
1981	99 589	14 996	20 786	78 803	15.06	19.03	20.87
1982	107 146	10 214	21 925	85 221	9.53	11.99	20.46
1983	103 733	8 674	22 055	81 678	8.36	10.62	21.26
1984	117 003	11 419	27 780	89 223	9.76	12.80	23.74
1985	105 214	13 157	24 734	80 480	12.50	16.35	23.51
1986	113 206	13 787	26 384	86 822	12.18	15.88	23.31
1987	133 472	15 063	37 270	96 202	11.29	15.66	27.92

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC intratrade.

TABLE A5: EUROPEAN COMMUNITY IMPORTS OF LEAD STAGE 1

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	232 613	32 669	9 754	222 859	14.04	14.66	4.19
1964	217 598	61 882	6 178	211 420	28.44	29.27	2.84
1965	287 444	85 655	9 725	277 719	29.80	30.84	3.38
1966	296 893	57 087	47 374	249 519	19.23	22.88	15.96
1967	299 118	71 426	70 953	228 164	23.88	31.30	23.72
1968	375 321	91 601	85 654	289 667	24.41	31.62	22.82
1969	331 577	50 364	88 191	243 386	15.19	20.69	26.60
1970	403 992	81 162	107 422	296 570	20.09	27.37	26.59
1971	331 052	69 698	81 967	249 085	21.05	27.98	24.76
1972	315 248	41 298	83 069	232 179	13.10	17.79	26.35
1973	299 467	29 093	86 991	212 475	9.72	13.69	29.05
1974	330 200	53 722	62 779	267 421	16.27	20.09	19.01
1975	286 518	48 583	56 136	230 382	16.96	21.09	19.59
1976	266 851	45 543	50 845	216 036	17.07	21.08	19.04
1977	255 556	41 655	57 294	198 262	16.30	21.01	22.42
1978	261 362	31 259	55 731	205 631	11.96	15.20	21.32
1979	296 904	48 760	69 505	227 399	16.42	21.44	23.41
1980	292 833	29 860	73 506	219 327	10.20	13.61	25.10
1981	304 857	35 915	46 184	258 674	11.78	13.88	15.15
1982	314 543	56 535	46 084	268 459	17.97	21.06	14.65
1983	303 787	62 279	39 323	264 464	20.50	23.55	12.94
1984	310 897	30 482	53 814	257 003	9.78	11.83	17.31
1985	360 976	41 284	53 961	307 016	11.44	13.45	14.95
1986	318 534	40 571	60 203	258 331	12.74	15.71	18.90
1987	366 684	63 848	64 006	302 679	17.41	21.09	17.46

EUROPEAN COMMUNITY IMPORTS OF ZINC STAGE 1

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	576 035	28 662	75 212	500 823	4.98	5.72	13.06
1964	703 336	138 488	63 023	640 313	19.69	21.63	8.96
1965	680 793	191 882	49 407	631 386	28.19	30.39	7.26
1966	724 380	228 023	73 241	651 139	31.48	35.02	10.11
1967	721 334	270 315	79 810	641 524	37.47	42.14	11.06
1968	883 485	335 113	152 742	730 742	37.93	45.86	17.29
1969	933 537	335 497	151 671	781 866	35.94	42.91	16.25
1970	967 085	428 108	139 104	827 981	44.27	51.71	16.38
1971	903 065	394 185	120 405	782 659	43.65	50.36	13.33
1972	960 089	425 164	127 859	832 230	44.28	51.09	13.32
1973	1 145 973	500 184	175 955	970 018	43.65	51.56	15.35
1974	1 358 720	473 980	223 723	1 134 997	34.88	41.76	16.47
1975	1 166 561	440 632	175 911	990 650	37.77	44.48	15.08
1976	1 247 391	420 008	181 370	1 066 621	33.67	39.40	14.54
1977	1 190 244	426 361	172 513	1 017 732	35.82	41.89	14.49
1978	1 150 435	356 888	271 784	878 651	31.02	40.62	23.62
1979	1 233 666	417 190	277 409	956 257	33.82	43.63	22.49
1980	1 262 057	302 532	353 234	908 823	23.97	33.29	27.99
1981	1 115 587	322 587	234 201	881 386	28.92	36.60	20.99
1982	1 213 174	373 890	231 116	982 058	30.82	38.07	19.05
1983	1 290 528	403 168	319 109	971 419	31.24	41.50	24.73
1984	1 383 295	407 673	330 371	1 052 924	29.47	38.72	23.88
1985	1 408 791	330 332	372 749	1 036 043	23.45	31.68	26.46
1986	1 392 465	344 225	349 247	1 043 218	24.72	33.00	25.08
1987	1 457 619	425 903	299 339	1 159 280	29.22	36.77	20.54

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC intratrader.

TABLE A6: EUROPEAN COMMUNITY IMPORTS OF ALUMINUM STAGE 2

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	622 461	197 566	98 572	523 009	31.71	37.67	19.84
1964	753 963	251 139	126 940	627 023	30.68	35.86	16.84
1965	771 385	227 949	160 543	610 842	29.55	37.32	20.81
1966	889 527	189 224	214 652	674 865	21.27	28.04	24.13
1967	869 547	163 594	209 653	659 894	18.81	24.79	24.11
1968	1 067 319	153 196	282 317	785 002	14.35	19.52	26.45
1969	1 325 543	161 236	340 671	984 872	12.16	16.37	25.70
1970	1 425 254	219 178	323 196	1 102 058	15.38	19.89	22.68
1971	1 168 792	144 460	366 321	802 471	12.36	19.00	31.34
1972	1 299 512	104 053	503 789	795 723	8.01	13.08	38.77
1973	1 470 507	102 071	507 209	883 298	6.94	11.56	39.93
1974	1 599 372	116 779	726 215	873 156	7.30	13.37	45.41
1975	1 127 796	31 772	572 867	554 929	2.82	5.73	50.80
1976	1 537 005	25 764	798 571	738 434	1.55	3.22	51.96
1977	1 566 575	16 596	785 211	781 364	1.05	2.32	50.12
1978	1 576 064	15 591	834 834	741 230	0.99	2.10	52.97
1979	1 701 622	7 813	924 405	777 216	0.46	1.01	54.32
1980	1 914 232	36 877	921 076	993 156	1.93	3.71	48.12
1981	1 594 793	8 572	878 830	715 963	0.54	1.20	55.11
1982	1 818 972	8 532	894 196	924 776	0.47	0.92	49.16
1983	2 041 507	3 147	934 357	1 107 150	0.15	0.28	45.77
1984	2 047 130	1 692	950 013	1 097 117	0.08	0.15	46.41
1985	2 089 037	1 519	1 031 857	1 057 180	0.07	0.14	49.39
1986	2 286 836	16 443	1 082 696	1 204 140	0.72	1.37	47.34
1987	2 231 902	29 171	1 108 371	1 123 531	1.31	2.60	49.66

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC Intratrade.

TABLE A7: EUROPEAN COMMUNITY IMPORTS OF COAL STAGE I

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRATRADER	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRATRADER % OF TOTAL
	(TONNES)	(TONNES)	(TONNES)	(TONNES)			
1963	57 831 680	726	28 855 792	30 975 888	0.00	0.00	46.44
1964	53 060 240	0	23 341 072	29 719 168	0.00	0.00	43.99
1965	50 238 480	0	19 838 032	30 400 448	0.00	0.00	39.49
1966	48 360 520	0	19 865 040	28 495 480	0.00	0.00	41.08
1967	49 486 576	101	22 188 176	27 298 400	0.00	0.00	44.84
1968	49 837 584	239	25 044 752	24 792 832	0.00	0.00	50.25
1969	50 297 664	121	24 318 960	25 978 704	0.00	0.00	48.35
1970	56 018 192	127 612	21 576 576	34 441 616	0.23	0.37	38.52
1971	51 873 808	277 264	18 867 440	33 006 368	0.53	0.84	36.37
1972	50 784 144	71 059	17 511 040	33 273 104	0.14	0.21	34.48
1973	51 258 448	10 605	18 636 048	32 622 400	0.02	0.03	36.36
1974	60 962 544	424 160	19 786 128	41 176 416	0.70	1.03	32.46
1975	61 735 392	917 874	16 713 382	45 022 010	1.49	2.04	27.07
1976	62 362 416	818 731	14 848 719	47 513 697	1.31	1.72	23.81
1977	66 400 736	422 365	15 401 222	50 999 514	0.64	0.83	23.19
1978	67 972 208	853 707	18 941 968	49 030 240	1.26	1.74	27.87
1979	82 417 392	970 787	17 595 056	64 822 336	1.18	1.50	21.35
1980	98 113 520	831 370	17 248 896	80 864 624	0.85	1.03	17.58
1981	98 544 256	970 212	18 377 632	80 166 624	0.98	1.21	18.65
1982	92 999 792	1 035 032	14 890 640	78 109 152	1.11	1.33	16.01
1983	81 519 760	937 303	14 695 794	66 823 966	1.15	1.40	18.03
1984	97 760 384	1 346 727	16 737 603	81 022 781	1.38	1.66	17.12
1985	108 819 520	1 663 068	15 694 532	93 124 988	1.53	1.79	14.42
1986	105 991 952	1 766 413	12 902 394	93 089 558	1.67	1.90	12.17
1987	100 613 400	1 574 845	10 970 580	89 642 820	1.57	1.76	10.90

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC Intratrader.

TABLE A8: EUROPEAN COMMUNITY IMPORTS OF GOLD*

YEARS	TOTAL IMPORTS*	IMPORTS FROM CANADA	EC INTRA-TRADE	IMPORTS FROM OUTSIDE EC	CANADA % OF TOTAL	CANADA % OF OUTSIDE EC	INTRA-TRADE % OF TOTAL
	(US\$000)	(US\$000)	(US\$000)	(US\$000)			
1963	0	0	0	0			
1964	0	0	0	0			
1965	0	0	0	0			
1966	0	0	0	0			
1967	0	0	0	0			
1968	0	0	0	0			
1969	0	0	0	0			
1970	0	0	0	0			
1971	0	0	0	0			
1972	0	0	0	0			
1973	0	0	0	0			
1974	0	0	0	0			
1975	0	0	0	0			
1976	0	0	0	0			
1977	0	0	0	0			
1978	0	0	0	0			
1979	3 629 305	49 041	402 606	3 226 699	1.35	1.52	11.09
1980	5 769 957	29 812	704 819	5 065 138	0.52	0.59	12.22
1981	5 531 361	31 872	784 140	4 747 221	0.58	0.67	14.18
1982	5 037 591	11 160	763 884	4 273 707	0.22	0.26	15.16
1983	4 699 363	22 438	465 483	4 233 880	0.48	0.53	9.91
1984	4 369 312	42 457	303 463	4 065 849	0.97	1.04	6.95
1985	4 285 344	46 177	418 426	3 866 918	1.08	1.19	9.76
1986	5 529 119	16 318	601 327	4 927 792	0.30	0.33	10.88
1987	4 961 335	136 876	479 383	4 481 952	2.76	3.05	9.66

SOURCE: WORLD TRADE IN MINERALS DATABASE SYSTEM (WTMS).

* Includes EC Intra-trade.

**APPENDIX II. Principal Canadian Investments in Mining and
Primary Metal Industry Operations in the European Community, as of January 1, 1989.**

Canadian Parent Company	Subsidiary	Location	Activity	Comments
Belgium				
Cominco Ltd.	Cominco Resources Europe N.V.	St. Stevens-Woluwe (Brussels)	exploration office	
Falconbridge Limited	Falconbridge International Limited	Brussels	sales office	
Inco Limited	Wiggin Alloys S.A.	Brussels	sales office	Wiggin Alloys S.A. is owned by Inco Ltd. (International).
France				
Alcan Aluminium Limited	Cie. des Bauxites du Midi	Var	bauxite mining	
Cominco	Cominco France S.A.	Paris	office	
Inco Limited	International Nickel France, S.A.	Paris	sales office	
Westar Mining Ltd.	Westar Mining International Ltd.	Paris	sales office	

Canadian Parent Company	Subsidiary	Location	Activity	Comments
Greece				
Denison Mines Limited	North Aegean Petroleum Company E.P.E.	Athens	oil and gas production	Denison has a 68.75% interest in offshore Prinos and South Kavala Fields.
Ireland				
Alcan Aluminium Limited	Aughinish Alumina Limited	Aughinish Island, Co. Limerick	production of alumina	Alcan holds a 65% interest in the alumina plant.
Cominco Ltd.	Cominco Ireland Limited	Dublin	exploration office	
Northgate Exploration Limited				Has interest in Ennex International plc, (Dublin). Former major holding in Tara Exploration & Development sold to Outokumpu Oy, of Finland, in 1985.
Italy				
Cominco Ltd.	Cominco Italia S.p.A.	Rome	exploration office	
Denison Mines Limited	Petromarine Italia S.p.A.	Rome	offshore oil and gas production	

Canadian Parent Company	Subsidiary	Location	Activity	Comments
Italy (continued)				
Inco Limited	Wiggin Alloys Sarl.	Milan	sales office	
Netherlands				
Cominco Ltd.	Cominco Holdings N.V.	Amsterdam	office	
Spain				
Alcan Aluminium Limited	Industria Española del Aluminio S.A. (Inespal)	San Ciprián, (Galicia), Avilés, and La Coruña	aluminum smelting	Alcan has 24% interest in this state-controlled enterprise.
Cominco Ltd. (Cominco España S.A.)	(EXMINESA) Exploración Minera Internacional España S.A.	Villafranca del Bierzo, Leon		
	1. Rubiales mine	Lugo province	production of zinc-lead concentrate	
	2. Troya mine	Guipuzcoa province	production of zinc-lead concentrate	
Curragh Resources Inc.		San Juan de Nieva	zinc smelting	Curragh has a 20% interest in Asturiana de Zinc S.A., which operates a smelter at San Juan de Nieva.

Canadian Parent Company	Subsidiary	Location	Activity	Comments
Spain (continued)				
Denison Mines Limited	Denison Mines (España) Limited	Madrid.	offshore oil and gas production	Denison has a 12.64% interest in Casablanca Field in Mediterranean.
United Kingdom				
Alcan Aluminium Limited	British Alcan Aluminium	Lynemouth, Northumberland, England; Kinlochleven, Argyllshire, Scotland; and Lochaber, Inverness-shire, Scotland	aluminum smelting	British Alcan Aluminium also makes aluminum alloys.
BHP-Utah Mines Ltd.	BHP-Utah Minerals Europe Ltd.	London	sales office for Europe	
Cominco Ltd.	Cominco Europe Limited	London	head office	
	Cominco (U.K.) Limited	Wilmslow, Cheshire	sales office	
Inco Limited	Acton Refinery	London, England	production of platinum group metals	
	Clydach Refinery	Clydach, Swansea, Wales	production of nickel	

Canadian Parent Company	Subsidiary	Location	Activity	Comments
United Kingdom (continued)				
Noranda Inc.	Noranda Sales Corporation of Canada Limited	London	sales office	
	Rudolf Wolff & Company	London	metal broking on the London Metal Exchange	
Quebec Cartier Mining Company	QCM Sales	London	sales office	
West Germany				
Alcan Aluminium Limited	Alcan Deutschland GmbH	Eschborn	office	
Cominco Ltd.	Cominco Bergbau GmbH	Essen	office	
Inco Limited	International Nickel G.m.b.H.	Dusseldorf	sales office	
Noranda Inc.	Rudolf Wolff & Co. G.m.b.H.	Hamburg	sales office	

**APPENDIX III. Principal European Community Investments
in Mining and Primary Mineral Processing in Canada, 1989.**

European Company	Canadian Operation	Location	Product	Comments
Belgium				
Glaverbel S.A.	Glaverbec	Quebec	flat glass	Glaverbel has announced that it plans to build a flat glass plant in the Quebec City area.
Société Générale de Belgique S.A. (Cimenteries CBR)	CBR Cement Canada Ltd.	Western Canada	cement and concrete products	
Denmark				
Rockwool International A/S	Roxul Ltd.	Milton, Ontario	mineral wool insulation	Subsidiary of Kähler & Co. I/S, Hedehusene, Denmark.
France				
Charbonnages de France International S.A.	Denison Mines Limited, Quintette coal mine	British Columbia	coal	C de F I. has a 12.5% interest in the Quintette operation.

European Company	Canadian Operation	Location	Product	Comments
France (continued)				
Cheni S.A.	Cheni Gold Mines Inc.	British Columbia	gold	
S.A. des Ciments Français	Lake Ontario Cement Ltd.	Picton, Ontario	cement and concrete products	
	Miron Inc.	Montreal, Quebec	cement and concrete products	
Compagnie Générale des Matières Nucléaires (COGEMA)	COGEMA (Canada) Ltd. (100%)			
	Cigar Lake Mining Corporation (32.625%)	Cigar Lake, Saskatchewan	uranium	3.75% interest held by Corona Grande Exploration Corporation.
	Amok Ltd. (75%)		uranium	Pechiney has a 25% interest.
	Cluff Lake Mine & Mill	Cluff Lake, Saskatchewan	uranium	
Entreprise Minière et Chimique	Potash Company of Canada Limited (Potacan) (50%)	Denison-Potacan mine, Sussex, New Brunswick	potash	Kali und Salz AG (West Germany) has the other 50% of Potacan. The Potash Company of Canada Limited has a 40% interest in the Denison-Potacan Potash Company; (Denison owns the other 60%).

European Company	Canadian Operation	Location	Product	Comments
France (continued)				
Lafarge-Coppée S.A. (Lafarge Corporation, U.S.A.)	Lafarge Canada Inc. and Standard Aggregates Inc.	plants across Canada	cement and concrete products	
Pechiney S.A.	Aluminerie de Bécancour, Inc., Bécancour smelter	Bécancour, Quebec	aluminum metal	Pechiney S.A. is owned by the French government; a candidate for privatization.
	Pechiney World Trade Canada, (Inc.)			A trader of ores, minerals, metals and chemicals and a North American marketer and distributor of metals, metal products, and other materials.
Total Compagnie Française des Pétroles	Total Energold Corporation	Cassiar, British Columbia	gold	73%-owned subsidiary.
Italy				
Finsider (Società Finanziaria Siderurgica)	AGIP Resources Ltd. Elco Mining	Wabush, Quebec	iron ore	Has an interest in Wabush mines.

European Company	Canadian Operation	Location	Product	Comments
Netherlands				
Royal Dutch Petroleum Co.	Shell Canada Limited Billiton group	Calgary and Ontario		
	Crows Nest Resources Limited B.C.	British Columbia	coal	
United Kingdom				
The British Petroleum p.l.c.	B.P. Resources Canada Limited			
	Les Mines Selbaie (55%)	Selbaie, Quebec	copper, zinc concentrate	BP is the operator.
	Hope Brook Gold Inc. (75.7%)	Newfoundland	gold	BP is the operator.
	Mt. Milligan (30%)	British Columbia	copper-gold	Continental Gold has a 70% interest.
	Texada Lime operation	British Columbia	lime	
	Tally Pond Joint Venture (40%)	Newfoundland	copper-zinc	Noranda (owning 60%) is the operator.
BPB Industries plc	Westroc Industries Ltd.	plants across Canada	gypsum wallboard	

European Company	Canadian Operation	Location	Product	Comments
United Kingdom (continued)				
Central Electricity Generating Board	Kiggavik project	N. Saskatchewan	uranium	Has a 20% interest. See also entry for West Germany: Urangesellschaft mbH.
Fisons PLC	Fisons Western Corporation	Alberta, Manitoba, New Brunswick	peat moss	
Imperial Chemical Industries PLC	C-I-L Inc.	Toronto, Ontario	sulphuric acid, sulphur	Units for sale in 1988.
Johnson Matthey Public Limited Company	Johnson Matthey Limited	Victoria, British Columbia	electronic materials	Acquired the Cominco Electronic Materials unit of Cominco Ltd., by early 1989.
	Johnson Matthey Electronics	Trail, British Columbia		
Minworth Minerals	Newfoundland Fluorspar	St. Lawrence, Newfoundland	fluorspar	
Pilkington Bros.	Clifton Industries	Kingston, Ontario	ceramic tiles	
The RTZ Corporation PLC	Rio Algom Limited (52.3%)	Elliot Lake, Ontario	uranium	Rio Algom operates three, 100%-wholly-owned uranium production centres at Elliot Lake, Ontario. Also produces tin at East Kemptville, Nova Scotia.

European Company	Canadian Operation	Location	Product	Comments
United Kingdom (continued)				
	QIT Fer et Titane Inc.	Sorel, Québec	ilmenite, pig iron, titanium slag	
Steelco PLC	Steelco Industries Limited	Dundas, Ontario	lime and "Dolime"	National Slag Limited, Hamilton.
West Germany				
Kali und Salz AG	Potash Company of Canada Limited (Potacan) (50%)	Denison-Potacan mine, Sussex, New Brunswick	potash	Entreprise Minière et Chimique (France) has the other 50% of Potacan. Potacan has a 40% interest in the Denison-Potacan mine, operated by Denison Mines.

European Company	Canadian Operation	Location	Product	Comments
West Germany (continued)				
Metallgesellschaft AG.	Metallgesellschaft Canada Ltd.			
	Metall Mining Corporation (62.7%)	Toronto		<ol style="list-style-type: none"> 1. Owns 20.5% voting and 10.4% equity interest in Teck Corporation - and therefore an interest in Highland Valley Copper. 2. Owns 25% interest (Teck 50%) in Nunachiaq Inc., which owns 29.9% interest in Cominco Ltd.
	Afton mine. (16.7%)	British Columbia	copper	
Süddeutsche Kalkstickstoff-Werke AG.	S.K.W. Electro-metallurgy Canada Ltd.	Beauharnois, Québec	silicon carbide	
Uranerzbergbau GmbH	Uranerz Exploration and Mining Limited (100%)			
	Eagle Point North project	N. Saskatchewan	uranium	Uranerz Exploration and Mining has a 33 1/3% interest.

European Company	Canadian Operation	Location	Product	Comments
West Germany (continued)	Key Lake Mining Corp. (33.33%)	N. Saskatchewan	uranium	
	Midwest project	N. Saskatchewan	uranium	Uranerz Exploration and Mining has a 20% interest.
	Star Lake mine (15%)	N.E. of La Ronge, Sask.	gold	
Uranengesellschaft mbH	Uranengesellschaft Canada Ltd. (100%)			
	Kiggavik project	Baker Lake, N.W.T.	uranium	80% interest. See also entry for United Kingdom; Central Electricity Generating Board.
	ESI Resources (49%)	Calgary, Alberta	uranium	

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