

1.4.3.1 Toxicological methods:

(a) Definitions

LD<sub>50</sub> (Lethal Dosis, 50 per cent) scientifically defined as the dosis of a substance, which is expected to kill 50 per cent of an exposed population. It is expressed as mg/kg body weight.

LCT<sub>50</sub> (Lethal Concentration and Time, 50 per cent) scientifically defined as the product of time for exposure and concentration of a substance in air, which is expected to kill 50 per cent of an exposed population. It is expressed as mg min/m<sup>3</sup>.

ED<sub>50</sub> (Effective /incapacitating, irritating/ Dosis, 50 per cent) scientifically defined as the dosis of a substance, which is expected to incapacitate 50 per cent of an exposed population. It is expressed as mg/kg body weight.

ECT<sub>50</sub> (Effective /incapacitating, irritating/ Concentration and Time, 50 per cent) scientifically defined as the product of time for exposure and concentration of a substance in air, which is expected to incapacitate 50 per cent of an exposed population. It is expressed as mg min/m<sup>3</sup>.

The expression "expected to incapacitate 50 per cent of an exposed population" could be understood as "expected to disable 50 per cent of the exposed soldiers to perform their usual duties in a war situation".

(b) Methods

General considerations. Toxicity tests could be in accordance with "Principles and Methods for Evaluating the Toxicity of Chemicals", Environmental Health Criteria 6, World Health Organization, Geneva 1978.

Toxicity tests may have to be preceded by chemical analysis, as described below. As far as possible, toxicity tests may have to be performed on pure substance. When determining lethal effects of a substance (LD<sub>50</sub> and LCT<sub>50</sub>) two species may have to be used - mice and rats of well-defined, easily available strains.

Lowest value may be decisive.

For LD<sub>50</sub>-determinations, subcutaneous injection could be the way of administration. Survival during 48 hours could be observed. Calculation of LD<sub>50</sub> may have to be done according to established procedure.

For LCT<sub>50</sub>-determinations, the time of exposure is maximized to ten minutes. When aerosols are used, particle size distribution may have to be determined and optimized in order to ascertain maximal uptake. Survival during 48 hours may have to be observed. Calculation of LCT<sub>50</sub> may have to be done according to established procedure.

For evaluating incapacitating effects of chemical substances (ED<sub>50</sub> and ECT<sub>50</sub>) animal tests may have to be devised that, as far as possible, are analogous to the situation for soldiers, which is suggested for the definition of incapacitating effects as mentioned above.