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Ad Hoc Working Group of Legal and Technical Experts for the Harmonization of Data on Production, Imports and Exports of Substances that Deplete the Ozone Layer

First meeting
Nairobi, 9-11 March 1988

# DRAFT REPORT OF THE AD HOC WORKING GROUP ON THE WORK OF ITS FIRST MEETING

## I. INTRODUCTION

1. The first meeting of the Ad Hoc Working Group of Legal and Technical Experts for the Harmonization of Data on Production, Imports and Exports of Substances that Deplete the Ozone Layer was held in Nairobi from 9 to 11 March 1988 in accordance with paragraph 3 of Resolution 3, on reporting of data, of the Final Act of the Conference of Plenipotentiaries on the Protocol on Chlorofluorocarbons to the Vienna Convention for the Protection of the Ozone Layer, adopted at Montreal on 16 September 1987.

## II. ORGANIZATIONAL MATTERS

### A. Opening of the meeting

2. The first meeting was opened by the Executive Director of UNEP, Dr. M.K. Tolba. After welcoming the participants to Nairobi, he reviewed the current status of the process of signatures to the Montreal Protocol on Substances that Deplete the Ozone Layer and ratifications, approvals or acceptances of the Vienna Convention for the Protection of the Ozone Layer or accessions to it. The Vienna Convention had been ratified by 16 countries and the Montreal Protocol had been signed by 31 countries and the European Economic Community (EEC). Dr. Tolba drew attention to the documents prepared for the meeting, especially his Note "Harmonization of data on production, imports and exports of substances controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer and other outstanding issues arising under the resolutions of the Final Act of the Conference of Plenipotentiaries and under the Montreal Protocol" (UNEP/WG.185/3).

B. Attendance

3. The first meeting was attended by experts from Australia, Austria, Bangladesh, Brazil, Canada, Costa Rica, Czechoslovakia, Egypt, Finland, France, Germany, Federal Republic of, Italy, Japan, Kenya, Mauritania, Mexico, Norway, Spain, Sweden, Thailand, Togo, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the European Economic Community. Observers from Natural Resources Defense Council (NRDC), Conseil Européen des Fédérations de l'Industrie Chimique (CEFIC) and International Chamber of Commerce (ICC) and International Council of Environmental Law (ICEL) also attended.

C. Election of Officers

4. The Working Group elected as its Chairman Mr. William A. Nitze (USA). The Working Group also elected Mr. Aladdin Resk (Egypt) and Mr. Vaycheslav Khattatov (USSR) as Vice-Chairman and Mr. Per M. Bakken (Norway) as Rapporteur.

D. Adoption of the agenda and organization of the work

5. The Working Group adopted the following agenda:

Wednesday 9 March

- Opening of the meeting
- Discussion of work programme for the meeting
- Election of the Chairman

Wednesday 9 March (continued)

- Signatures and ratifications - Convention/Protocol
- Anticipated dates for entry into force - Convention/Protocol
- Discussion on data required for the entry into force of the Montreal Protocol
- Discussion of calculation method to be used by UNEP in determining entry into force
- Further clarification of data collection pursuant to Article 1 (4)
- Clarification of definitions of exports and imports
- Clarification of industrial rationalization
- Article 1 (8) and implications of Article 2.

Thursday 10 March

- Discussion on confidentiality of data
- Clarification of data reporting period
- Clarification of the term "basic domestic needs"
- Discussion on the definition of developing countries
- Further clarification of reference from 1995 to 1997 in Article 5 (1).

Friday 11 March

- Other business relating to data collection
- Consideration of the ozone depletion potential of Halon 2402 as required by Article 3
- Further clarification of the amount of controlled substances which may be destroyed using control technologies to be approved by the Parties for the purposes of Article 7
- Information on technology transfer, workshops, etc.
- Future work programme
- Financial considerations
- Consideration of meeting report.

## III. REVIEW OF HARMONIZATION OF DATA ON PRODUCTION, IMPORTS, AND EXPORTS ON SUBSTANCES CONTROLLED UNDER THE MONTREAL PROTOCOL AND OF OTHER ISSUES ARISING UNDER THE RESOLUTIONS OF THE FINAL ACT AND UNDER THE MONTREAL PROTOCOL

6. It was agreed that a Scientific sub-group should be created during the meeting to consider the ozone depletion potential of Halon 2402 and other outstanding technical matters.

7. The meeting was informed of the procedure of the ratification of the Montreal Protocol in EEC, Japan, Sweden, Egypt, Kenya, USA, Norway, Canada and Finland. The representative of Australia informed the meeting about developments regarding that country's signature of the Montreal Protocol.

8. The representative of Sweden informed the meeting of a recently adopted programme for phasing out consumption of fully halogenated CFCs. The aim was a 50 per cent reduction by the end of 1990. As a second step, all consumption would cease before 1 January 1995. After that time only minor amounts would be needed, principally for service and repair purposes in refrigeration and in heating pumps.

9. The experts proposed that the issue raised in connection with Article 16 of the Montreal Protocol and Article 17 of the Vienna Convention required further consideration by the legal experts. The general feeling was that a shortcoming in the entry into force of the Vienna Convention beyond 1 January 1989, would mean a delay of entry into force of the Montreal Protocol of at least 90 days, although another interpretation might be possible, allowing the Convention and the Protocol to enter into force at the same time without a delay of an additional 90 days. The group emphazised that taking the first possibility into account, all possible efforts should be made to ensure the entry into force of the Montreal Protocol on 1 January 1989.

10. The experts agreed on a format for data and/or estimates of data (production, imports and exports of CFCs and Halons in 1986) to be submitted to UNEP for the purposes of Article 16 of the Montreal Protocol. It was agreed that States concerned with confidentiality could report the totals for Groups I and II. The experts requested the UNEP secretariat to distribute a revised format as soon as possible. (This is attached to the Report as Annex I) They agreed that the units of measurement to be used for the reporting system should be the metric tonne. It was also suggested that further clarification of Article 1 paragraph 2 of the Protocol would be needed from the legal experts with regard to the reporting period. It was also suggested that calendar year reporting be incorporated into any scheme proposed. Some experts said they understood "annual" to refer to a calendar year and not the twelve months period provided for under Article 2 of the Protocol.

11. The group agreed that, in trying to determine the figures for global consumption in 1986, the global production figures would serve as an acceptable indicator of total global consumption.

12. In relation to the clarification of definitions of exports and imports, it was agreed that the usual understanding that a shipment became an export upon departure from one country and became an import upon arrival in another country should be followed. The experts expressed the opinion that any discrepancy in accounting resulting from shipments in transit would not be large. One expert noted that the export of controlled substances for use on ships may create a problem as there will not be any corresponding import to another country. The experts agreed that it would be useful to study customs statistics carefully in that context. It was also agreed that the problem would be examined further at the next meeting of the Working Group.

One expert provided the Meeting with the "Modification of the Harmonized Commodity Description and Coding System in order to facilitate collection and comparison of data under the Montreal Protocol", which is attached as Annex II to the Report.

13. The confidentiality of data was extensively discussed and appreciable differences of view emerged among the experts. However, it was noted that, since for the purpose of the entry into force of the Protocol only the 1986 aggregated consumption data was required, the problem of confidentiality was not a major one. Several experts noted that the combined interpretation of Article 4 paragraph 1 of the Vienna Convention and Articles 7 and 12 of the Protocol should be considered by the legal group to be convened in

October 1988. Some experts suggested that an accounting firm could be asked to compile the data which some countries consider should be kept confidential, while others were of the opinion that it was necessary for each Party to report separately for each of the individual controlled substances. One expert expressed the view that according to article 12 paragraph (b) of the Protocol, no confidentiality was possible. The Group decided that the matter should be studied further by the legal experts and then discussed further at the second meeting of the Group.

14. During the discussion on Article 7 paragraphs 1 and 2 of the Protocol, it appeared that the understanding of paragraph 2 of this Article by some experts was that the reporting system provided under this paragraph does not require reporting on each of controlled substances individually. The understanding of several other experts was that paragraph 2 required reporting on each of the controlled substances individually and that this was the only practicable way of fulfilling the requirements of the Montreal Protocol, in particular in the light of its Article 8. It was decided that the matter should be forwarded to the legal experts for their opinion and, further, if necessary, be cleared at the first meeting of the Contracting Parties.

Clarification of a definition of controlled substances

15. (i) Article 1 of the Montreal Protocol excludes from consideration as a "controlled substance" any listed substance, whether alone or in a mixture, which is in a manufactured product other than a container used for the transportation or storage.

(ii) Any amount of a controlled substance or a mixture of controlled substances which is not part of a use system containing the substance is a controlled substance for the purpose of the Protocol (i.e. a bulk chemical).

(iii) If a substance or mixture must first be transferred from a bulk container to another container, vessel or piece of equipment in order to realize its intended use, the first container is in fact utilized only for storage and/or transport, and the substance or mixture so packaged is covered by Article 1, paragraph 4, of the Protocol.

(iv) If, on the other hand, the mere dispensing of the product from a container constitutes the intended use of the substance, then that container is itself part of a use system and the substance contained in it is therefore excluded from the definition.

(v) Examples of use systems [to be considered as products for the purposes of Article 4, paragraph 3,] are:

(a) An aerosol can;

(b) A refrigerator or refrigerating plant, air conditioner or air conditioning plant, heat pump, etc.;

(c) A polyurethane prepolymer or any foam containing, or manufactured with, a controlled substance;

(d) A fire extinguisher (wheeled or hand-operated) or an installed container incorporating a release device (automatic or hand-operated).

(vi) Bulk containers for shipment to users include (numbers being illustrative):

(a) Tanks installed on board ships;

(b) Rail tank cars (10-40 tons);

(c) Road tankers (up to 20 tons);

(d) Cylinders [from 14 ounces to one ton];

(e) Drums (5-300 kg).

(vii) Because containers of all sizes are used for either bulk or manufactured products, distinguishing on the basis of size is not consistent with the definition in the Protocol. Similarly, since containers for either bulk or manufactured products can be designed to be rechargeable or not rechargeable, rechargeability is not sufficient for a consistent definition.

(viii) If the purpose of the container is used as the distinguishing characteristic, as in the Protocol definition, such CFC or Halon-containing products as aerosol spray cans, and fire extinguishers, whether of the portable or flooding type, would therefore be excluded, because it is the mere release from such containers which constitutes the intended use.

16. While discussing the report on data on substances controlled by the Montreal Protocol (UNEP/WG.185/4), one expert, after examining the data and/or estimates regarding his country provided by the UNEP secretariat, expressed his concern that such data supplied by different non-official sources were not consistent among themselves. A representative of the UNEP secretariat requested all participants to provide the data and/or estimates prepared by Governments which would be treated by the UNEP secretariat as the basis for the required global accounting period. The experts agreed to the proposed action by the UNEP Secretariat presented in paragraphs 10 to 12 in the Executive Director's Note (UNEP/WG.185/3), namely that:

- The Executive Director will treat the data and/or estimates received from Governments on their production, exports and imports for 1986 as being accurate and will base further calculations for purposes of Article 16 on these data and/or estimates. In the absence of data from a Government the Executive Director will provide, during early April 1988 to the Government concerned, estimates which he has of that country's consumption.

- The Executive Director intends to convene the Second Session of the Ad Hoc Working Group in October 1988 to review the latest information regarding data and/or estimates for entry into force of the Protocol under Article 16. At that meeting he plans to provide the Working Group with data on the estimated consumption of individual countries for the purpose of determining estimated global consumption under Article 16. The Second Session of the Working Group will be followed by a meeting of a group of legal experts to finalize these matters.

Basic domestic needs

17. In relation to the term "basic domestic needs", there was an understanding that each country would be responsible for complying with the Protocol, but any means beyond this obligation should be further discussed at the second meeting of the Working Group in October 1988 and then by the first meeting of the Contracting Parties. The position of several experts from developing as well as developed countries was that the phrase "basic domestic needs" was intended to reflect the special situation of developing countries and facilitate their development. Several experts expressed the view point that the intent of the term "basic domestic needs" was not to allow production of products containing controlled substances to expand for the purpose of supplying other countries.

Definition of "developing countries"

18. To facilitate the debate on which countries should, for the purpose of article 5 of the Montreal Protocol, be identified as a "developing country", the secretariat had provided several lists of developing countries, designed for different purposes. It was noted that five countries appeared on only one of the lists, while two member States of EEC appeared on two of the lists.

19. One expert stated that in the absence of a single generally accepted definition of "developing country", he was of the opinion that the most important thing for the purposes of the Protocol was not this term itself, but the limit of 0.3 kg per capita. He therefore proposed that this limit be accepted in general, in addition to what already had been suggested in the Executive Director's Note (UNEP/WG.185/3) for each country having an annual level of consumption of controlled substances lower than 0.3 kg per capita. Several experts noted, however, that since Article 5 in the Protocol clearly stated two separate criteria which had to be met for exemption from the regulatory timetable in Article 2 of the Protocol, the use, of only one of these criteria would be in conflict with the purpose of the Protocol. One expert considered that the question of the term "developing country" was outside the mandate of the Working Group and recommended that this should be left to the first meeting of the Contracting Parties. It was noted, however, that the issue was on the provisional agenda for the meeting which had been sent out prior to the meeting, and that experts therefore should be prepared to debate this issue.

20. It was agreed that the UNEP secretariat should send out an updated list of the Group of 77 to all members of the United Nations as an annex to this report. Some experts expressed the opinion that if a list were to be agreed upon, its elaboration should be assigned to the Group of 77 itself. Signatories who wanted to appear on the list for the purpose of Article 5 should respond accordingly to the secretariat. Signatories should also be invited to comment on other countries which should appear on the list. The Working Group should elaborate further on this issue at the next meeting.

21. It was agreed that next meeting of the Ad Hoc Working Group for the Harmonization of Data should include in its agenda the consideration of Article 9 paragraph 1 as being of great importance for developing countries.

Treatment of controlled substances for recycling

22. The definition of "production" in Article 1 paragraph 5 does not explicitly recognize that contaminated controlled substances may be purified in factories used for the production of controlled substances. Such a purified product would be indistinguishable from virgin production. Examples are used refrigerants and halons returned to producers. Possible solutions are that the Parties to the Protocol agree that the definition of production in Article 1 paragraph 5 should be interpreted to mean "net" production rather than "gross" production. That is, production is equal to sales by producers minus purchases of controlled substances for purposes of recycling. Exports and imports of used or recycled controlled substances would be treated in the same way as trade in "virgin" or "new" controlled substances. Alternatively, production could be taken to mean "gross" production. In this case, it was suggested, recycling should be encouraged by allowing production by Parties to rise by the amount of controlled substances that are recycled by the Party. This would require amendment to the Protocol. As in the first option, imports and exports of all controlled substances would be treated the same way, whether "new" or "used" or recycled. These two options should be considered at the second meeting of this Working Group.

Technology transfer

23. It was agreed that the workshop on Exchange of Technical Information to be convened in accordance with Resolution 2 of the Montreal Protocol should include in its agenda subjects of importance for developing countries in accordance with Article 9 paragraph 1 and Article 10 paragraph 1 of the Protocol. Parties were invited to submit to the secretariat suggestions with regard to appropriate arrangements to be discussed in the workshop. One expert, supported by another, said that it would be preferable to convene the workshop in the first quarter of 1989, rather than in 1988, as had been suggested. The experts said that a later meeting would allow better account to be taken of new information on technologies that would become available during the year. If the meeting were to be held in September/October 1988, the expert said, she hoped that this workshop would be considered as the first in a series of workshops on this subject. The expert asked that the workshop also consider how the partially-halogenated CFCs, such as CFC-22 and CFC-123, might be addressed in the future. If these and similar compounds were likely to be controlled at a future date, then current development work on them as possible substitutes for the fully halogenated substances would be a waste of

time. The expert said that science should give a clear indication of the role of such chemicals in ozone destruction by providing the Working Group with the best estimates of their ozone-depleting potential, together with a detailed report on the assumptions on which they based their assessments. It would also be useful, for comparison, if they could state their opinion on other chlorine and bromine-containing substances. The expert also called for better estimates of the ozone depleteing potential of controlled substances, particularly of Halon 2402, for which there is no official scientific estimate currently available.

Ozone-depleting potential of Halon 2402

24. One expert stated that unfortunately, the Working Group had been unable to obtain even the references to scientific publications or the reports issued for the information of experts. In order to meet the requirements of Articles 2, 3 and 7 of the Protocol and to ensure the comparability of the data submitted to the secretariat of the Vienna Convention, he suggested that Halon 2402 should be excluded from the list of controlled substances in Annex A to the Protocol until the required scientific information had been obtained and agreed upon. Several representatives expressed the view that the question of including or not including Halon 2402 in the Protocol lay outside the mandate of the Working Group and suggested that adequate time still existed for clarifying the ozone depleting potential of Halon 2402 before the entry into force target date of January 1 1989.

25. The secretariat informed the meeting that a scientific panel would be convened in October to review new scientific information regarding the ozone-layer. This panel would also provide as best it could the information on the ozone depleting potential of the controlled substances and the role of partially halogenated CFCs as potential depleters of the ozone layer.

Controlled substances destroyed by approved technologies

26. The meeting sought clarification of what was meant, in the Protocol, by controlled substances destroyed by approved technologies. If such technologies were to be approved by the Contracting Parties, the matter would have to be considered at the first meeting of the Parties and Parties wishing to claim credits for CFC destruction would be obliged to provide details of their destruction process in good time in order for the Parties to determine their acceptability as approved technologies for which production credits might be obtained. It was suggested that the definition of "destruction" and "transformation" should be developed.

Clarification of definition of production

27. A number of experts recommended that the reporting of production be understood to exclude the manufacture of controlled substances that are used as intermediates and transformed in the production of other controlled substances or are used and transformed into non-controlled substances except for those controlled substances that are exported from one Party to another Party before the transformation is performed. Referring to controlled substances used as intermediate products, some representatives expressed the

view that no distinction was drawn between them in Article 1 of the Protocol on the basis of the purpose for which they were to be used and that, consequently, their conversion into other products constituted a form of destruction. Accordingly, the measures required to ensure their destruction should be approved at the first meeting of the Contracting Parties. The possibility of providing exclusion for transformation of products after shipment to other Parties should be considered at the first meeting of the Parties, in the same context as methods for destruction. One expert expressed the view that in this context, the technology for the production of other substances should not allow significant atmospheric emissions of chemical compounds controlled by the Protocol. The question of calculation of the production level of controlled substances should be examined at subsequent meetings of this Working Group and the first meeting of the Parties.

## E. CLOSURE OF THE MEETING

28. Due to time constraints, the experts adopted only the first 14 paragraphs on the draft report, although most of the remaining text for the remaining paragraphs already had been agreed upon in the context of Conference Room Papers. The Rapporteur, with the assistance of the UNEP secretariat, was entrusted with completing the draft report and having it circulated to all the experts for final adoption.

29. The chairman, Mr. William A. Nitze, thanked the participants for their hard work and concluded by wishing all delegates a safe journey home. He closed the meeting at 5.45 pm on Friday 11 March 1988.

## Annex I

DATA OR ESTIMATES OF PRODUCTION, IMPORTS AND EXPORTS OF CFCs AND HALONS, 1986 (METRIC TONNES) FOR THE PURPOSE OF ARTICLE 16 OF THE MONTREAL PROTOCOL

COUNTRY

| | PRODUCTION | IMPORTS | EXPORTS |
|---|---|---|---|
| | UNWEIGHTED | UNWEIGHTED | UNWEIGHTED |
| COMBINED TOTAL FOR CFCs | | | |
| TOTAL GROUP I | | | |
| COMBINED TOTAL FOR HALONS | | | |
| TOTAL GROUP II | | | |
| GRAND TOTAL (Group I and Group II) | | | |

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## Annex II

## MODIFICATION OF THE HARMONIZED COMMODITY DESCRIPTION AND CODING SYSTEM IN ORDER TO FACILITATE COLLECTION AND COMPARISON OF DATA UNDER THE MONTREAL PROTOCOL

(Suggestion submitted by Sweden)

1. Implementation of articles 4 and 7 of the Montreal Protocol would be greatly facilitated if the regular system for reporting of imports and exports could be used.

2. The Harmonized Commodity Description and Coding System, developed under the auspices of the Customs Cooperation Council, provides an opportunity for countries to report import and export information through an international trade record-keeping system. Both imports and exports will be classified under the same nomenclature. Under the system, the classification for a product can be composed of 8 to 10 digits. All developed countries must have the same six digits for a group of products. Developing countries are required to have the same first four digits.

3. Under the system all the controlled substances fall under the following heading (see Annex II A):

> "2903.40 Halogenated derivatives of acyclic hydrocarbons containing two or more different halogens."

This heading, however, also includes many other substances, inter alia, the non-fully-halogenated CFCs.

4. The system is so designed that the two last digits ("40" in this case) can be further broken down into different subgroups (by using the digits "41", "42", etc.). This possibility is used, for instance, for hexachlorobensene and DDT. It has so far not been used for the heading 2903.40.

5. By making use of this possibility, at least to separate the two groups of substances controlled under the Montreal Protocol from other substances, data from Custom authorities could be used for the annual collection of data to the Secretariat. This could be done, for instance, by introducing the following subheadings:

"Halogenated derivatives of acyclic hydrocarbons containing two or more different halogens."

2903.41 trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114) and chloropentafluoroethane (CFC-115).

2903.42 mixtures containing one or more of the substances referred to under 2903.41.*

2903.43 bromochlorodifluromethane (halon-1211), bromotrifluoromethane (halon-1301) and dibromotetrafluoroethane (halon-2402).

2903.44 mixtures containing one or more of the substances referred to under 2903.43.

2903.49 other

6. Although it may be desirable, it does not seem achievable to get one subheading for each of the controlled substances - insufficient numbers will be available. It is, however, possible for individual countries to build further on the HS-system by adding more figures after the agreed six digits (as is normally done to serve internal statistic needs) for a further break-down into the individual substances.

7. We suggest that the Ad Hoc Working Group should request the Executive Director of UNEP to bring this matter to the attention of the international authority which is responsible for the Harmonized Commodity Description and Coding System, the Custom Co-operation Council.

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*/ The question of how to classify mixtures (such as CFC-500 and CFC-502) under the HS-system will need further consideration as they may fall under headings other than 2903.40. CFC-500 and CFC-502 are not on the list of controlled substances in the Protocol. However, they contain, partly, substances on the list which have to be reported to the secretariat. Specific subheadings for such mixtures will therefore be necessary under whatever heading of the HS-system that may be applicable.

Annex II.A

EXTRACT FROM THE HARMONIZED COMMODITY DESCRIPTION AND CODING SYSTEM

(d) **Terphenyls**. The mixed terphenyl isomers are used as coolants and as moderators in nuclear reactors.

**(III) Hydrocarbons with two or more benzene rings fused**, i.e., joined by one or more common sides.

(a) **Naphthalene** ($C_{10}H_8$). Results from the fusion of two benzene rings. It occurs in coal tar, in petroleum oils, in coal gas, in lignite tar, etc. It crystallises in fine white flakes, with a characteristic odour.

To fall in this heading, naphthalene must have a crystallising point of 79.4 °C or more. Naphthalene of lower purity is **excluded (heading 27.07)**.

(b) **Phenanthrene** ($C_{14}H_{10}$). Results from the fusion of three benzene rings. One of the products of the distillation of coal tar; fine, colourless, fluorescent crystals.

Phenanthrene falls here only when it is a separate chemically defined compound in the pure or commercially pure state. When crude, it is **excluded (heading 27.07)**.

(c) **Anthracene** ($C_{14}H_{10}$). Also results from the fusion of three benzene rings, and is found in coal tar. Colourless crystals or yellowish powder, and is purple-blue fluorescent.

To fall in this heading, anthracene must have a purity of 85 % or more by weight, calculated on the anhydrous product. Anthracene of lower purity is **excluded (heading 27.07)**.

This group also includes the following hydrocarbons:

(1) **Acenaphthene**.

(2) **Methylanthracenes**.

(3) **Fluorene**.

(4) **Fluoranthene**.

(5) **Pyrene**.

This heading excludes those dodecylbenzenes and those nonylnaphthalenes which are mixed alkylarenes (heading 38.17).

## 29.03 - HALOGENATED DERIVATIVES OF HYDROCARBONS.

- **Saturated chlorinated derivatives of acyclic hydrocarbons:**

2903.11 -- **Chloromethane (methyl chloride) and chloroethane (ethyl chloride)**

2903.12 -- **Dichloromethane (methylene chloride)**

2903.13 -- **Chloroform (trichloromethane)**

2903.14 -- **Carbon tetrachloride**

2903.15 -- **1,2-Dichloroethane (ethylene dichloride)**

2903.16 -- **1,2-Dichloropropane (propylene dichloride) and dichlorobutanes**

2903.19 -- **Other**

- **Unsaturated chlorinated derivatives of acyclic hydrocarbons:**

2903.21 -- **Vinyl chloride (chloroethylene)**

2903.22 -- **Trichloroethylene**

2903.23 -- **Tetrachloroethylene (perchloroethylene)**

2903.29 -- **Other**

2903.30 - **Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons**

**Halogenated derivatives of acyclic hydrocarbons containing two or more different halogens**

- **Halogenated derivatives of cyclanic, cyclenic or cycloterpenic hydrocarbons:**

2903.51 -- **1,2,3,4,5,6-Hexachlorocyclohexane**

2903.59 -- **Other**

- **Halogenated derivatives of aromatic hydrocarbons:**

2903.61 -- **Chlorobenzene, *o*-dichlorobenzene and *p*-dichlorobenzene**

2903.62 -- **Hexachlorobenzene and DDT (1,1,1-trichloro-2,2-bis(*p*-chlorophenyl)ethane)**

2903.69 -- **Other**

These are compounds obtained by the substitution in the structural formula of a hydrocarbon of one or more halogen atoms (fluorine, chlorine, bromine, iodine) for an equal number of hydrogen atoms.

## (A) SATURATED CHLORINATED DERIVATIVES OF ACYCLIC HYDROCARBONS

(1) **Chloromethane (methyl chloride).** Colourless gas, usually presented liquefied in steel cylinders. Used as a refrigerant, as an anaesthetic and in organic synthesis.

(2) **Dichloromethane (methylene chloride).** A toxic, colourless, volatile liquid; used in organic synthesis.

(3) **Chloroform (trichloromethane).** A colourless volatile liquid, with a characteristic odour; used as an anaesthetic, as a solvent and in organic synthesis.

(4) **Carbon tetrachloride.** Colourless liquid; used in fire-extinguishers, and as a solvent for sulphur, oils, fats, varnishes, petroleum, resins, etc.

(5) **Chloroethane (ethyl chloride).** Gaseous, liquefied in special containers; used as an anaesthetic.

(6) **1,2-Dichloroethane (ethylene dichloride).** Toxic, colourless liquid; used as a solvent.

(7) **1,2-Dichloropropane (propylene dichloride).** Colourless, stable liquid. Chloroform-like odour. Used in organic synthesis, and as a solvent for fats, oils, waxes, gums and resins.

(8) **Dichlorobutanes.**

This heading excludes:

(a) Chloroparaffins if they are mixtures of chlorinated derivatives; solid chloroparaffins having the character of artificial waxes are classified in heading 34.04, while liquid chloroparaffins are classified in heading 38.23.

(b) Products put up as charges for fire-extinguishers or put up in fire-extinguishing grenades, of heading 38.13.

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