

PIC Chemicals

An introduction to the chemicals listed in the Rotterdam Convention that are subject to the international legally-binding prior informed consent (PIC) procedure



The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade



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This booklet provides basic information on the **chemicals** listed in Annex III of the **Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade**.

The **Rotterdam Convention** is a global treaty that provides an early warning to countries on a broad range of hazardous chemicals that have been banned or severely restricted in other countries to protect human health or the environment. The Convention can be used to prevent unwanted international trade in certain of these chemicals.

There are over 130 Parties to the Convention. The **Conference of the Parties** meets every two years to oversee the implementation of the Convention.

The **Chemical Review Committee**, a subsidiary body of the Conference of the Parties, consists of government-designated experts in chemicals management. The Committee reviews chemicals against criteria described in the Convention and makes recommendations to the Conference of the Parties on the addition of new PIC chemicals to Annex III of the Convention. The Conference of the Parties takes the final decision.

Information pertaining to recommendations and decisions related to the review and addition of chemicals to the Convention may be found in meeting reports of the Chemical Review Committee and the Conference of the Parties, which are published online (<http://www.pic.int>).

The inclusion of trade names for individual PIC chemicals, in this booklet, is primarily intended to facilitate the identification of chemicals. It is not intended to imply approval of any particular product or company. As it is not possible to include all trade names currently in use, only a number of commonly used and published trade names have been included.

Contact the Secretariat for more information: pic@pic.int

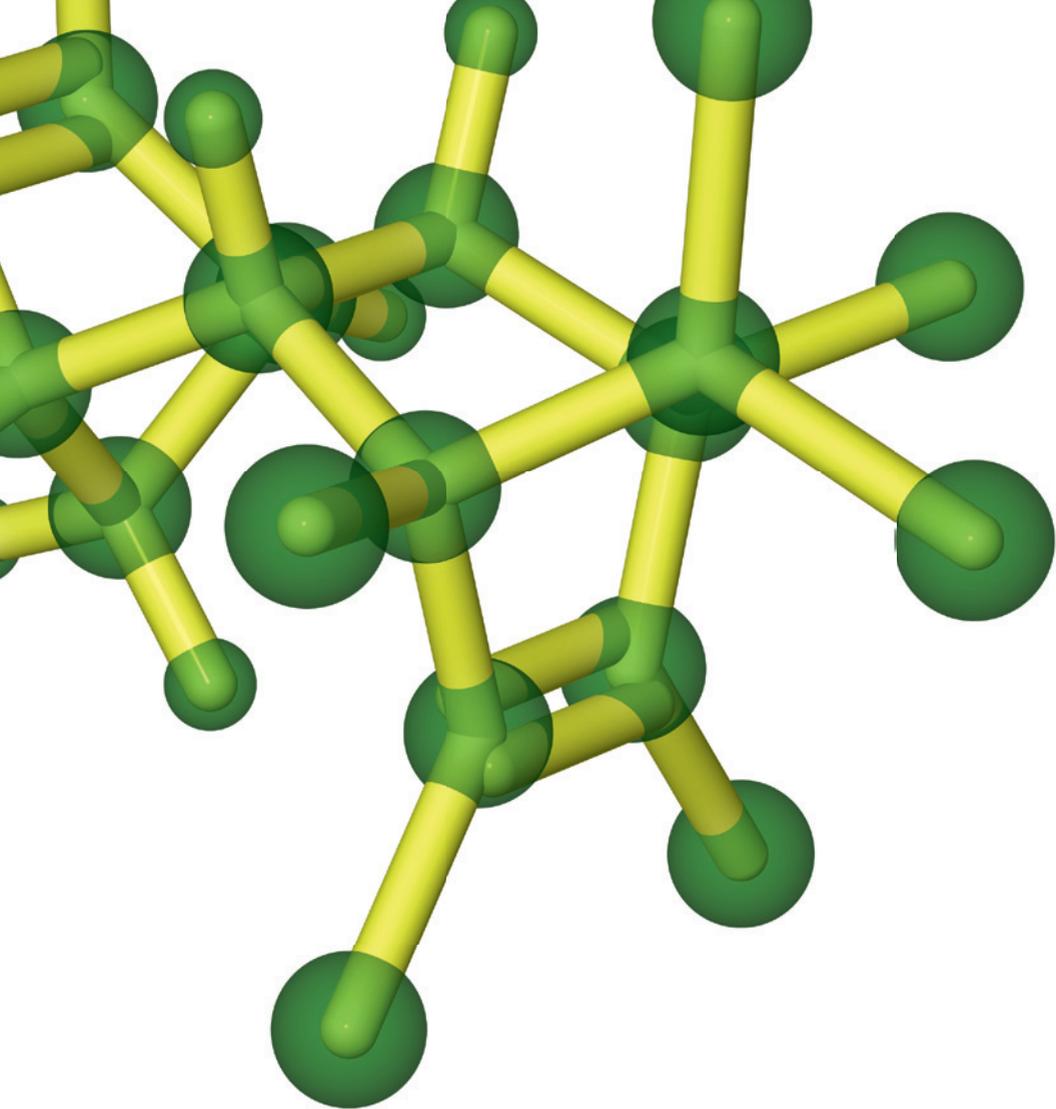


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1. Introduction

Rotterdam Convention

The **Rotterdam Convention** is a global treaty to protect human health and the environment from the potentially harmful effects of certain hazardous chemicals, including some pesticides, severely hazardous pesticide formulations and industrial chemicals. The Convention entered into force in 2004 and works by promoting shared responsibilities and cooperative efforts associated with the international trade in certain hazardous chemicals and by facilitating the exchange of information about chemicals that have been banned or severely restricted in certain countries.

What are PIC Chemicals?

PIC chemicals are those that are listed in Annex III of the Rotterdam Convention. The chemicals are categorised as:

- **Pesticides:** chemicals that are used to control a variety of pests such as algae, insects, fungi, rodents and weeds;
- **Severely hazardous pesticide formulations:** mixtures containing pesticides that are proposed for inclusion in Annex III by any Party that is a developing country or a country with an economy in transition that is experiencing human health or environmental problems within its territory caused by such a formulation; or
- **Industrial chemicals:** chemicals that are used by industry to produce a broad range of articles, products and formulations that are used by industry or the public.

Implications of Listing Chemicals in Annex III

PIC chemicals are subject to the Convention's prior informed consent (PIC) procedure, an international legally-binding procedure for formally obtaining and distributing decisions of importing countries on future shipments of PIC chemicals and for ensuring compliance with these decisions by exporting countries. The result of this procedure is that Parties to the Convention will not be able to export a PIC chemical without the prior informed consent of the importing Party.

Parties and their Designated National Authorities (DNAs)

Parties are countries or regional economic integration organizations that have ratified, accepted, approved or acceded to the Convention. **DNAs** are the primary contact points for matters related to the operation of the Convention and are authorized to perform the administrative functions required by the Convention.

Conference of the Parties (COP)

Implementation of the Convention is guided by the **COP**, which meets every two years and includes representatives of more than 130 Parties to the Convention.

Chemicals Review Committee (CRC)

The **CRC**, a subsidiary body of the Conference of the Parties, consists of government-designated experts in chemicals management, representing Parties to the Convention. In accordance with **Articles 5, 6 and 7** of the Convention, the Committee

reviews information on chemicals submitted by Parties against the criteria described in the Convention and makes recommendations to the COP on the addition of chemicals to Annex III. The COP takes the final decision.

Harmonized System (HS) Codes for PIC Chemicals

The **HS** is a multi-purpose international product nomenclature system developed and maintained by the **World Customs Organization (WCO)**. The system is used as the basis for customs tariffs and for the collection of international trade statistics. It is also used by governments, international organizations and the private sector for many other purposes such as internal taxes, trade policies, monitoring of controlled goods, freight tariffs, transport statistics, quota controls, etc. The HS is thus a universal economic language and code for goods and an indispensable tool for international trade.

Article 13 of the Rotterdam Convention requires that, when specific HS codes have been assigned to chemicals listed in Annex III, each Party shall ensure that the shipping document for that chemical bears the HS code when exported. The use of the specific HS codes facilitates the work of Customs Authorities and DNAs in importing and exporting Parties in identifying chemicals subject to the PIC procedure and ensuring that exports are in compliance with the decisions of importing Parties.

The WCO has assigned specific HS codes to most of the chemicals and groups of chemicals in Annex III. These codes entered into force on 1 January 2007. Codes for the remaining chemicals - and any future additions to Annex III - will be assigned by WCO as soon as practicable.

Cooperation with Other International Programs

In addition to the Rotterdam Convention, there are other international agreements in the field of chemicals management. The **Stockholm Convention** on Persistent Organic Pollutants (POPs) addresses the production, use and release of POPs. The **Basel Convention** on the Transboundary Movement of Hazardous Wastes and their Disposal ensures that strong controls are applied from the moment of generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal. Taken together, the three agreements provide an overall framework to assist countries in addressing risks from chemicals and pesticides throughout their life-cycle.

Purpose of This Booklet

This booklet is intended to provide the reader with basic information on the Rotterdam Convention and the chemicals that are subject to the PIC procedure. Comprehensive information on the Convention and individual chemicals may be obtained from the Secretariat (pic@pic.int) and from the Convention website (<http://www.pic.int>).

Disclaimer

The inclusion of **trade names** for individual PIC chemicals is primarily intended to facilitate the correct identification of chemicals. It is not intended to imply approval of any particular product or company. As it is not possible to include all trade names currently in use, only a number of commonly used and published trade names have been included in this booklet.

2. PIC Chemicals (Annex III)

Annex III

The following tables summarize the information in Annex III of the Convention.

Chemicals are listed according to three types:

- pesticides,
- severely hazardous pesticide formulations and
- industrial chemicals.

The tables include the name for PIC each chemical and its CAS number, an internationally accepted identifier that is unique for each chemical.

The next sections provide for each PIC chemical a brief summary of information including, where available, specific Harmonized System (HS) codes for each “Pure substance” and “Mixtures, Preparations containing Substance”.

PIC Pesticides

CAS Number

2,4,5-T and its salts and esters	93-76-5
Aldrin	309-00-2
Binapacryl	485-31-4
Captafol	2425-06-1
Chlordane	57-74-9
Chlordimeform	6164-98-3
Chlorobenzilate	510-15-6
DDT	50-29-3
Dieldrin	60-57-1
Dinitro-ortho-cresol (DNOC) and its salts	534-52-1
(such as ammonium salt,	2980-64-5
potassium salt and	5787-96-2
sodium salt)	2312-76-7
Dinoseb and its salts and esters	88-85-7
1,2-dibromoethane (EDB)	106-93-4
Ethylene dichloride	107-06-2
Ethylene oxide	75-21-8
Fluoroacetamide	640-19-7
HCH (mixed isomers)	608-73-1
Heptachlor	76-44-8
Hexachlorobenzene	118-74-1
Lindane	58-89-9
Mercury compounds including inorganic mercury compounds, alkyl mercury compounds and alkyloxyalkyl and aryl mercury compounds	(CAS numbers are included for 43 chemicals)
Monocrotophos	6923-22-4
Parathion	56-38-2
Pentachlorophenol and its salts and esters	87-86-5
Toxaphene	8001-35-2
All Tributyltin compounds including:	
Tributyltin oxide	56-35-9
Tributyltin fluoride	1983-10-4
Tributyltin methacrylate	2155-70-6
Tributyltin benzoate	4342-36-3
Tributyltin chloride	1461-22-9
Tributyltin linoleate	24124-25-2
Tributyltin naphthenate	85409-17-2

PIC Severely Hazardous Pesticide Formulations CAS number

Dustable powder formulations containing a combination of :

Benomyl at or above 7 per cent,	17804-35-2
Carbofuran at above 10 per cent, and	1563-66-2
Thiram at or above 15 per cent.	137-26-8

Methamidophos <i>(Soluble liquid formulations of the substance that exceed 600 g active ingredient/l)</i>	10265-92-6
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Phosphamidon
(Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)

mixture, (E) & (Z) isomers	13171-21-6
(Z)-isomer	23783-98-4
(E)-isomer	297-99-4

Methyl-parathion <i>(emulsifiable concentrates (EC) at or above 19.5% active ingredient and dusts at or above 1.5% active ingredient)</i>	298-00-0
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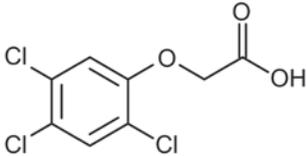
PIC Industrial Chemicals

CAS number

	CAS number
Asbestos	
Actinolite	77536-66-4
Amosite	12172-73-5
Anthophyllite	77536-67-5
Crocidolite	12001-28-4
Tremolite	77536-68-6
Polybrominated biphenyls (PBB)	
Hexabrominated biphenyls	36355-01-8
Octabrominated biphenyls	27858-07-7
Decabrominated biphenyls	13654-09-6
Polychlorinated biphenyls (PCB)	1336-36-3
Polychlorinated terphenyls (PCT)	61788-33-8
Tetraethyl lead	78-00-2
Tetramethyl lead	75-74-1
Tris (2,3-dibromopropyl) phosphate	126-72-7



3. PIC Pesticides



HS Code

2918.91 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

2,4,5-Trichlorophenoxy-acetic acid

Trade Names

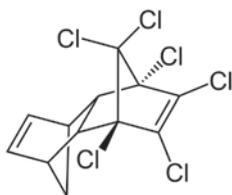
Amine 2;4;5-T for Rice; Brushwood Killer; Brush-Rhap; Brushtox; Dacamine; Ded-Weed; Esterone; Farmco Fence Rider; Forron; Fruitone A; Inverton 245; Line Rider; T-Nox; Transamine; Reddon; Spontox; Super D Weedone; Tormona; Tributon; Trinoxol; Veon 245; Verton 2T; Visko Rhap Low Volatile Ester; Weedar; Weedone.

Basis for Controls

Widespread production and use of this post-emergent herbicide were curtailed in the 1970's due to contamination of the commercial product with 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), a potent carcinogen.

Aldrin

CAS No. 309-00-2



HS Code

2903.52 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

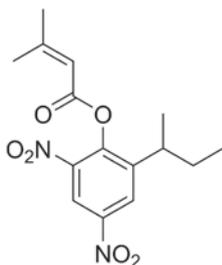
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-dimethanonaphthalene

Trade Names

Aldrec; Aldrex; Aldrine; Aldrite; Aldrosol; Alttox; Bangald; Compound 118; Drinox; HDDN; Octalene; Rasayaldrin; Seedrin Liquid.

Basis for Controls

This chlorinated chemical was produced in large quantities for use as an insecticide. Its production and use have been widely controlled because it persists in the environment, bioaccumulates in the food chain and in humans and is highly toxic to microorganisms, fish, crustaceans and many bird and animal species. Its production and use are being eliminated internationally under the Stockholm Convention.



HS Code

2916.36 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

2-(1-methylpropyl)-4,6-dinitrophenyl-3-methyl-2-butenate

Trade Names

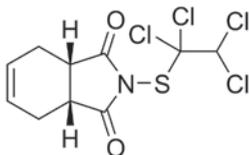
Acricid; Ambox; Dapacryl; Dinoseb methacrylate; Endosan; Morocide; Morrocid.

Basis for Controls

This chemical was used as a fungicide and miticide prior to the mid-1980's. It was controlled due to concerns about its effects on human health.

Captafol

CAS No. 2425-06-1



HS Code

2930.50 (Pure substance);

3808.50 (Mixtures, preparations containing substance)

Full Name

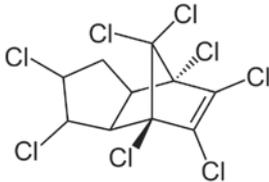
3a,4,7,7a-tetrahydro-2- ((1,1,2,2-tetrachloroethyl)thio)
H-isindole -1,3(2H)-dione

Trade Names

Crisfolatan; Difolatan; Folcid; Foltaf; Haipen; Merpafol;
Ortho 5865; Sanspor; Santar; Sulfemide.

Basis for Controls

The use of this fungicide was controlled because it caused cancer in laboratory animals and skin sensitisation in workers and exhibited very high toxicity to fish and moderate to very high toxicity to freshwater invertebrates. It also has the potential to cause reproductive effects in birds.



HS Code

2903.52 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene

Trade Names

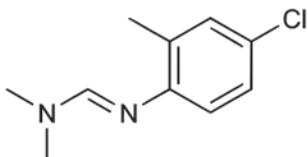
Aspon-chlordane; Belt; Chlordan; Chlor-Kil; Chlorotox; Corodane; Gold Crest C-50 and C-100; Kilex; Kypchlor; M-410; Octachlor; Octa-Klor; Ortho-Klor; Niran; Penticklor; Prentox; Synklor; Termi-Ded; Topiclor 20; Velsicol 1068.

Basis for Controls

Production and use of this insecticide were widely controlled as early as 1968 because it persists in the environment, bioaccumulates in the food chain and in humans and caused cancer in rodents in laboratory tests. Its production and use are being eliminated internationally under the Stockholm Convention.

Chlordimeform

CAS No. 6164-98-3



HS Code

2925.21 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

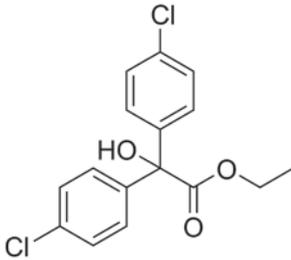
N'-(4-chloro-*o*-tolyl)-N,N-dimethylformamidine

Trade Names

Bermat; C8514; Ent 27567; EP-333; Fundal; Galecron; SN 3626.

Basis for Controls

Uses as an insecticide, acaricide, rodenticide and ovidicide were controlled as early as the mid-1970's based on animal data that showed that chlordimeform and its principal metabolites were probable human carcinogens and on human urine monitoring data, which implicated a chlordimeform metabolite with bladder cancer.



HS Code

2918.18 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

Ethyl 4-chloro- α -(4-chlorophenyl)- α -hydroxybenzeneacetate

Trade Names

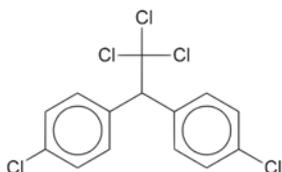
Acaraben; Akar; Benzilan; Benz-O-Chlor; Folbex; G 23992; Kopmite.

Basis for Controls

Chlorobenzilate was used as an acaricide to combat mites in deciduous fruit trees. Production and use were curtailed in the early 1980's when it was found to be a liver carcinogen in orally-exposed mice and classified as a probable human carcinogen.

DDT

CAS No. 50-29-3



HS Code

2903.62 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

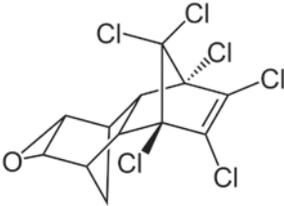
1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane

Trade Names

Anofex; Arkotine; Cazarex; Chlorophenothane; clofenotane; ddt 75% wdp; Dicophane; Didigam; Didmac; Digmar; Dinocide; ENT 1;506; Estonate; Genitox; Gesarol; Guesaphon; Guesarol; Gyron; Ixodex; Klorfenoton; Kopsol; NCI-C00464; Neocid; Neocidal; Pentachlorin; Pentech; pp'zeidane; Rukseam; Santobane; zeidane; Zerdane.

Basis for Controls

DDT has been used since 1940 as an insecticide to control insect vectors for diseases such as malaria. Its use has been restricted since the 1970's because it persists in the environment, is toxic to a number of organisms including fish and biomagnifies in the food chain causing significant reproductive effects in birds. Health concerns arose due to bioaccumulation in humans and its potential to cause tumors. Its production is restricted for use in disease vector control programs under the Stockholm Convention.



HS Code

2910.40 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

3,4,5,6,0,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-2,3:3,6-dimethanonaph(2,3-b)-oxirene

Trade Names

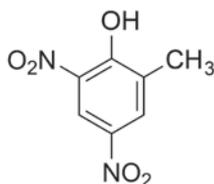
Alvit; Compound 497; Dieldrex; Dieldrine; Dieldrite; HEOD; Octalox; Panoram D-31.

Basis for Controls

This insecticide was controlled because it persists in the environment and bioaccumulates in the food chain and human tissues. It is highly toxic to fish, crustaceans, and many bird and animal species and oral doses caused liver cancer in mice. It is highly toxic to human beings, even with short-term exposure. Its production and use are being eliminated internationally under the Stockholm Convention.

Dinitro-*ortho*-cresol (DNOC) and its salts

CAS No. 534-52-1



HS Code

- 2908.99 (Pure substance)
- 3808.91 (Insecticides)
- 3808.92 (Fungicides)
- 3808.93 (Herbicides, anti-sprouting products and plant-growth regulators)

Full Name

4,6-dinitro-*o*-cresol

Trade Names

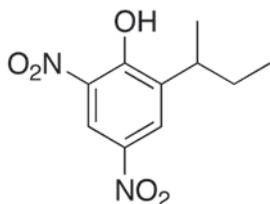
Antinonin; Bonitol; Dekrysil; Detal; Dinitrol; Dinitrosol; Effusan; Elgetol; Extar-A; Ibertox; K III; K IV; Kapsizole; Lipan; Luxan DNOC Crème 46%; Nicil; Nitrador; Prokarbol; Sandoline; Selinon 615 SC; Sinox; Supersinox SC; Technolor; Trifanex; Trifina; Trifocide SC; Trifocide 50%EC; 2;5 EC; Veraline 10.0% EC.

Basis for Controls

Produced for use in both pesticide and industrial chemical applications, DNOC was included in the PIC procedure as a pesticide following the implementation of controls in 1999 to address risks to applicators and findings that it was very toxic to terrestrial and aquatic organisms and may cause long term adverse effects in the environment.

Dinoseb acetate

CAS No. 2813-95-8



HS Code

2908.91 (Pure substance)

2915.36 (dinoseb acetate)

3808.50 (Mixtures, preparations containing substance)

Full Name

2-(sec-butyl)-4,6-dinitrophenol

Trade Names

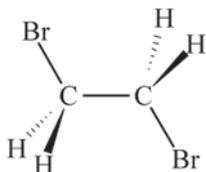
Aretit; Basanite; Caldon; Chemox; Chemsect DNBP Nitro; Dinitro-3; Dinitro-General; Dynamyte; Elgetol 318; Gebutox; Hel-fire; Kiloseb; Nitropone C; Premerge 3; Silnox General; Subitex; Unicrop DNCP; Vertac Dinitro Weed Killer 5; Vertac General Weed Killer; Vertac Selective Weed Killer; dnpb; dinitro; dinoseb/Hoe 002904; Ivosit; Phenotan.

Basis for Controls

Dinoseb and its salts and esters were used as herbicides. Bans were introduced in the 1970's and 1980's to address health concerns for applicators and others handling dinoseb as a result of animal studies that showed high acute toxicity, high risks of birth defects and male sterility.

1,2-Dibromoethane (EDB)

CAS No. 106-93-4



HS Code

2903.31 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

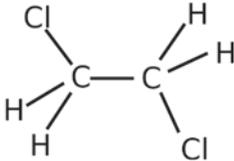
1,2-dibromoethane

Trade Names

Bromofume; Celmid; Dowfume; E-D-Bee; EDB; EDB-85; KopFume; Nephis; Soilbrom 40; Soilbrom 85; Soilbrom 90; Soilbrom 90EC; Soilbrom 100.

Basis for Controls

The use of EDB as a fumigant insecticide and nematicide was heavily controlled in the 1980's due to health concerns and contamination of groundwater aquifers. EDB exhibited high acute toxicity and was linked with reproductive, carcinogenic and genotoxic effects. It is genotoxic in both *in vivo* and *in vitro* systems and, in 1987, IARC classified EDB as a probable human carcinogen.



HS Code

2903.15 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

1,2-Dichloroethane

Trade Names

Borer-Sol; Brocide; Destruxol; Dichlor-emulsion;
Dichlor-mulsion; Dutch Liquid; Dutch Oil; ENT 1656;
Gaze Olefiant.

Basis for Controls

This chemical was produced for use as an industrial chemical and as a pesticide. It was included in the PIC procedure as a pesticide as its production for use as a pesticide was controlled as early as 1984, due to health risks. In 1999, IARC classified this chemical as a possible human carcinogen based on animal studies.

Ethylene Oxide

CAS No. 75-21-8



HS Code

2910.10 (Pure substance)

3808.50; 3824.81 (Mixtures, preparations containing substance)

Full Name

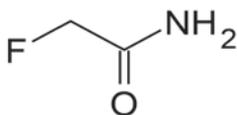
Oxirane

Trade Names

Anprolene; Melgas; Merpal; SterigasP (pure products); Carboxide; Cartox; Etox; Oxyfume 20; 30; Sterigas 90/10; Steroxide 20; T-gas (formulations with carbon dioxide); Oxyfume 12; Sterigas 12/88; Steroxide 12/88 (formulations with fluorocarbons); Etoxiat; Anprolene; Anproline.

Basis for Controls

This chemical was produced for use as an industrial chemical, a sterilant and a pesticide. It was included in the PIC procedure as a pesticide as its production and use as an agricultural pesticide were controlled as early as 1981, due to health risks. In 1994, IARC classified this chemical as a human carcinogen.



HS Code

2924.12 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

2-Fluoroacetamide

Trade Names

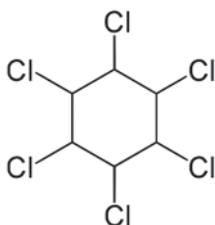
Baran; Compound 1081; Fluorokil 100; Fussol;
Megatox; Navron; Rodex; Yanock.

Basis for Controls

The production and use of this chemical as a rodenticide were banned or severely restricted as early as 1982, due to its high acute toxicity to man and to wildlife.

HCH (mixed isomers)

CAS No. 608-73-1



HS Code

2903.51 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

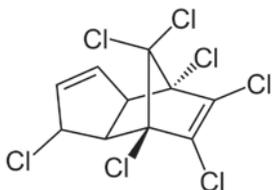
1,2,3,4,5,6-Hexachlorocyclohexane

Trade Names

Benzex; Dol; Dolmix; FBHC; Gammexane;
Gexane; HCCH; Hexablanc; Hexafor; Hexamul;
Hexapoudre; Hexyclan; Hillbeech; Koto; Lindacol;
Perchlorobenzene; Soprocide; Submar.

Basis for Controls

Technical HCH is a mixture that consists primarily of alpha- (53-70%), beta- (3-14%), gamma- (11-18%) and delta-HCH (6-10%). Gamma-HCH, also known as Lindane, is listed separately in Annex III. The production of technical HCH for use as an insecticide was controlled as early as 1971 due to its persistence, bioaccumulation potential and dietary cancer risk in laboratory animals, accompanied by concerns for the health of applicators. In 1979, IARC concluded that technical HCH was carcinogenic in mice. The production and use of alpha-HCH, beta-HCH and gamma-HCH are being eliminated internationally under the Stockholm Convention.



HS Code

2903.52 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanol-1H-indene

Trade Names

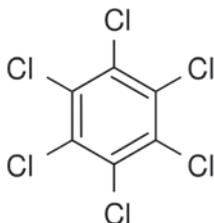
Aahepta; Agroceres; Curasemillas; Drinox; E 3314; ENT 15152; GPKh; H34; Heptachlorane; Heptacur; Heptaf; Heptagran; Heptamul; Heptox; Heptrex; Rhodiachlor; Velsicol 104.

Basis for Controls

The production and use of heptachlor as an insecticide were controlled as early as 1958 based on its toxicity to man, other mammals, birds, fish and other aquatic organisms, as well as concerns for its persistence in the environment and bioaccumulation in the food chain. In 1979, IARC concluded that it caused cancer in laboratory rodents. The production and use of heptachlor are being eliminated internationally under the Stockholm Convention.

Hexachlorobenzene

CAS No. 118-74-1



HS Code

2903.62 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

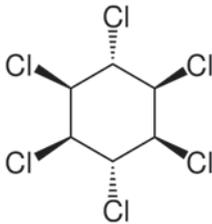
Hexachlorobenzene

Trade Names

Anti-Carie; Ceku C.B.; hexachlorobenzol;
hexachlorobenzene; HCB; perchlorobenzene; No Bunt.;
Bent-cure; Bent-no-more.

Basis for Controls

HCB was used as an industrial chemical and as a pesticide. It was included in the PIC procedure as a pesticide as such uses were controlled as early as 1972 based on toxicity, persistence in the environment and bioaccumulation in the food chain. In 1987, IARC concluded that HCB caused cancer in laboratory rodents. Its production and use as both a pesticide and an industrial chemical are being eliminated internationally under the Stockholm Convention.

**HS Code**

2903.51 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

Gamma isomer of 1,2,3,4,5,6-hexachlorocyclohexane

Trade Names

666; Aalindan; Africide; Agrocide; Agrocide III; Agrocide WP; Ameisenmittel Merck; Ameisentod; Aparasin; Aphtiria; Aplidal; Arbitex; BBH; Ben-Hex; Bentox; Bexol; Celanex; Chloresene; Codechine; DBH; Detmol-Extrakt; Devoran; Dol; Drill Tox-Spezial Aglukon; ENT 7796; Entomoxan; Exagamma; Forlin; Gallogama; Gamaphex; Gammalin; Gammalin 20; Gammex; Gammexane; Gammaterr; Gexane; Grammapox; Hecltox; Hexa; Hexachloran; y-Hexachloran; Hexachlorane; Hexaverm; Hexicide; Hexyclan; HGI; Hortex; Inexit; Isotox; Jacutin; Kokotine; Kwell; Lacca Hi Lin, Lacca Lin-O-Mulsion; Lendine; Lentox; Linafor; Lindafor; Lindagam; Lindagrain; Lindagam; Lindagram; Lindatox; Lindasep; Lin-O-Sol; Lindagranox; Lindalo; Lindamul; Lindapoudre; Lindaterra, Lindex; Lindust; Lintox; Lorexane; Milbol 49; Msycol; Neo-Scabidol; Nexen FB; Nexit; Nexit-Stark; Nexol-E; Nicochloran; Novigam; Omnitox; Ovadziak; Owadizak; Pedraczak; Pflanzol; Quellada; Sang-gamma; Silvanol; Spritz-Rapidin; Spruehpflanzol; Streunex; TAP 85; Tri-6; Vitron

Basis for Controls

Lindane was widely produced for use as an insecticide and acaricide. Its use was controlled as early as 1979 based on toxicity, persistence in the environment, bioaccumulation in the food chain and toxicity to humans, aquatic and terrestrial species. In 1987, IARC concluded that lindane caused cancer in laboratory rodents. Its production and use are being eliminated internationally under the Stockholm Convention.

Mercury Compounds

including:



Inorganic compounds

e.g., Mercuric Chloride

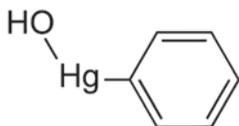
CAS No. 7487-94-7



Alkyl compounds

e.g., methylmercury hydroxide

CAS No. 1184-57-2



Alkyloxyalkyl and aryl compounds

e.g., phenylmercuric hydroxide

CAS No. 100-57-2

HS Code

2852.00 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

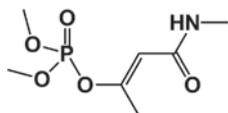
Basis for Controls

This group includes 43 mercury-containing compounds that were used in numerous pesticidal applications. Controls were implemented as early as 1966 as both organic and inorganic forms of mercury are toxic to man and to aquatic organisms and residues that accumulate in aquatic biota can reach potentially dangerous levels in aquatic foods, such as fish and shellfish, which are consumed by man.

HS Code

2924.12 (Pure substance)

3808.50 (Mixtures, preparations containing substance)



Full Name

Dimethyl (*E*)-1-methyl-2-(methylcarbamoyl)vinyl phosphate

Trade Names

Azodrin; Bilobrin; Crisodrin; Crotos; Glore
Phos36; Harcros Nuvacron; Monocil; Monocron;
Monocrotophos 60 WSC; More-Phos; Nuvacron 600
SCW; Plantdrin; Phoskil 400; Red Star Monocrotophos;
Susvin.

Basis for Controls

Monocrotophos was produced for use as a broad-spectrum insecticide and acaricide on a wide range of crops. Action was taken as early as 1996 to eliminate its use because of its acute toxicity to invertebrates, birds and mammals and concerns for impacts on human health under conditions of use in developing countries.

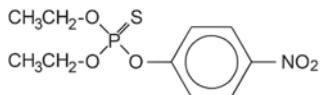
Parathion

CAS No. 56-38-2

HS Code

2920.11 (Pure substance)

3808.50 (Mixtures, preparations containing substance)



Full Name

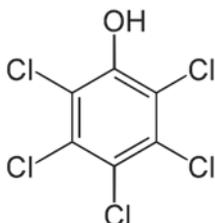
O,O-diethyl-*O*-(4-nitrophenyl)phosphorothioate

Trade Names

Ethyl parathion 100 EC; Ethyl parathion 500 EC; Farnoz; Pacol 4.5; Parathion E Insecticide; Novafos E Insecticide; Oléon Bladan; Oléopariator; Parafor ethyl; Paretox 10; Rhodiatox liquide 10%; Tebing Parathion Insecticide; Ugécoil 10; Ugécoil P.

Basis for Controls

This broad spectrum insecticide and acaricide was applied by aerial or ground spraying to a wide range of crops. It was removed from use as early as 1999 due to high risks for workers, bees, birds, aquatic invertebrates and fish after acute and/or chronic exposures.



HS Code

2908.11 (PCP)

2908.19 (salts of PCP)

3808.50 (only pesticides containing PCP)

3808.91, 92, 93, 94, 99 (Pesticides containing PCP salts or esters)

Full Name

2,3,4,5,6-Pentachlorophenol

Trade Names

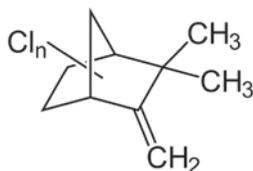
Block Penta; Chem-Tol; Cryptogil oil; Dowcide 7/ EC-7/G; Dowicide G; Dirotax; EP 30, Fungifen; GLAZD Penta; Grundier Arbezol; Lautor A, Lauxtol; Lauxtrol A; Lipoprem; Pentchloral; Pentacon; Penta C 30; Penta-Kil; Penta Plus 40; Penta Pres 1-10; Penta WR1-5 Penwar; Peratox; Permicide; Permagard; Permatox; Permite; Persasan; Santobrite; Santophen; Santophen 20; Sautox, Sinituho; Term-i-Trol; Thompson's Wood Fix.

Basis for Controls

PCP was used as a wood preservative, general disinfectant, herbicide and insecticide. Its uses were curtailed as early as 1978 due to wide-spread environmental contamination, its high toxicity to humans, animals and wildlife, and the presence in the technical product of highly toxic and carcinogenic chlorinated dioxins as micro-contaminants.

Toxaphene

CAS No. 8001-35-2



HS Code

3808.50 (Mixtures, preparations containing substance)

Full Name

Toxaphene is a mixture of ~200 chlorinated camphene derivatives that contain 5-12 chlorine atoms per molecule, with an average of 8 chlorine atoms.

Trade Names

Agricide maggot killer (f); alltex; Alttox; attac 4-2; attac 4-4; attac 6; attac 6-3; attac 8; camphochlor; camphofène huileux; chem-phène; Chem-Phène M5055; Chlor Chem T-590; Chlorocamphene; compound 3956; Crestoxo; cristoxo; cristoxo 90; Estonox; Fasco-Terpene; Geniphene; Gy-Phene; Hercules 3956; hercules toxaphene; Huilex; kamfochlor; m 5055; melipax; Motox; octachlorocamphene; Penphene; Phenacide; Phenatox; Polychlor-camphen; Strobane-T; toxadust; Toxakil; Toxaphene; Toxon 63; toxyphen; vertac toxaphene 90.

Basis for Controls

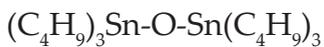
The uses of Toxaphene as an insecticide, acaricide and rodenticide were curtailed in the 1970's due to its toxicity, persistence in the environment, bioaccumulation in the food chain and toxicity to humans, aquatic and terrestrial species. In 1987, IARC concluded that it caused cancer in laboratory rodents. Its production and use are being eliminated internationally under the Stockholm Convention.

Tributyltin Compounds

including:

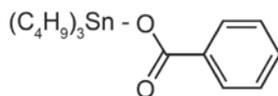
Tributyltin oxide

CAS No. 56-35-9



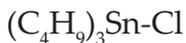
Tributyltin benzoate

CAS No. 4342-36-3



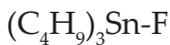
Tributyltin chloride

CAS No. 1461-22-9



Tributyltin fluoride

CAS No. 1983-10-4

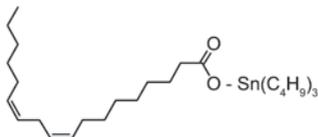


Tributyltin Compounds

including:

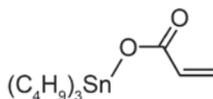
Tributyltin linoleate

CAS No. 24124-25-2



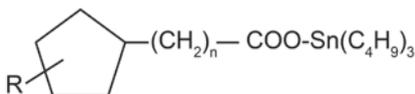
Tributyltin methacrylate

CAS No. 2155-70-6



Tributyltin naphthenate

CAS No. 85409-17-2



Trade Names:

Intersmooth Hisol BFA253 SPC; Interswift BKA007; Tri-Lux II T copolymer anti-fouling paint; BIOMET Anti-fouling agents 300/60, 303/60 and 304/60.

Basis for Controls:

These compounds were used in industrial applications as well as in non-agricultural pesticidal products, including anti-fouling paints for ship hulls and for appliances and equipment submerged in coastal and marine aquatic environments, in material and wood preservatives and as a slimicide. The pesticidal uses were banned as early as 2002 due to concerns for human health as a result of occupational exposure, the consumption of contaminated food and risks to non-target aquatic organisms. Effective 1 January 2008, the International Convention on the Control of Harmful Anti-fouling Systems on Ships prohibited the use of harmful organotin in anti-fouling paints used on ships.



4. PIC Severely Hazardous Pesticide Formulations

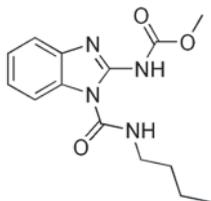
Basis for Controls:

The following four severely hazardous pesticide formulations are included in the PIC procedure because of their acute hazard classification and concern for their impact on human health under conditions of use in developing countries.

Dustable powder formulations containing a combination of:

Benomyl at or above 7%,

CAS No. 17804-35-2

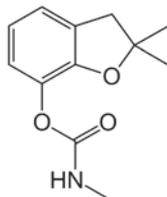


Full Name

Carbamic acid, [1-(butylamino)carbonyl]-1H-benzimidazol-2-yl-, methyl ester

Carbofuran at or above 10%, and

CAS No. 1563-66-2

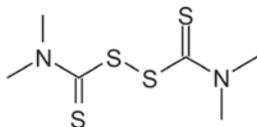


Full Name

2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate

Thiram at or above 15%

CAS No. 137-26-8



Full Name

Tetramethylthioperoxy-dicarbonic diamide

HS Code

3808.50 (Mixtures, preparations containing substance)

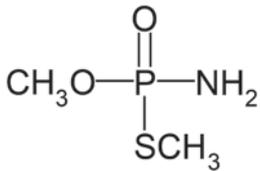
Trade Names

GRANOX TBC; SPINOX T.

Methamidophos

(Soluble liquid formulations of the substance that exceed 600 grams active ingredient/litre)

CAS No. 10265-92-6



HS Code

2930.50 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

O,S-dimethyl phosphoramidothioate

Trade Names

Filitox; Metamidofos Estrella; Methamidophos 60 WSC; Methedrin 60; Monitor; Morithion; Patrole; Red Star Alloran; Tam; Tamanox; Tamaron.

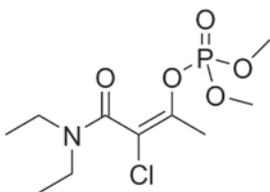
Phosphamidon

(Soluble liquid formulations of the substance that exceed 1000 grams active ingredient/litre)

CAS No. 13171-21-6
mixture of (E) and (Z) isomers

CAS No. 23783-98-4
(Z)-isomer

CAS No. 297-99-4
(E)-isomer



HS Code

2924.12 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

2-chloro-2-diethylcarbamoyl-1-methylvinyl dimethyl phosphate

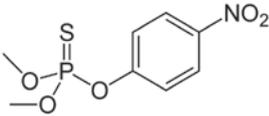
Trade Names

Apamidon; D-Cron; Dimecron; Dixon; Phosron; Pillarcron; Umecron; Swat.

Methyl-parathion

(emulsifiable concentrates (EC) at or above 19.5% active ingredient
and dusts at or above 1.5% active ingredient)

CAS No. 298-00-0



HS Code

2920.11 (Pure substance)

3808.50 (Mixtures, preparations containing substance)

Full Name

O,O-Dimethyl-O-4-nitrophenylthiophosphate

Trade Names

A-Gro; Azofos; Azaophos; Bladan-M; Cekumethion; Dalf; Devithion; dimethyl parathion; Drexel Methyl parathion 4E & 601; Dygun; Dypar; E-601; Ekatox; Folidol M; M40 & 80; Fosferno M; Fostox Metil; Gearphos; Kilex Parathion; Kriss Liquide M; Metaphos; methyl parathion; Methyl-bladan; Methyl Fosferno; Methylthiophos; Metron; Mepaton; Mepatox; Metacide; Niletar; Niran M-4; Nitran; Nitrox; Nitrox 80; Oleovofotox; Parapest M50; Parataf; Paratox; Paridol; Partron M; Penncap M & MLS; Penntox MS; Sinafid M-48; Sixty-Three Special EC; Tekwaisa; Thiophenit; Thylpar M-50; Toll; Thylpar M-50; Unidol; Vertac Methyl parathion; Wofatox; Wolfatox.



5. PIC Industrial Chemicals

Full Name

The term 'asbestos' includes six naturally-occurring, hydrated silicate minerals that exist as long, thin, fibrous crystals: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite. With the exception of chrysotile, these forms are included in Annex III.

Different HS codes have been established for 'asbestos', crocidolite, and the group which includes actinolite, amosite, anthophyllite and tremolite. The information below is presented in that order.

HS Code

(Mixtures, preparations containing substance)

Articles of asbestos-cement, of cellulose fibre-cement or the like.

6811.40 Containing asbestos: Fabricated asbestos fibres; mixtures with a basis of asbestos or with a basis of asbestos and magnesium carbonate; articles of such mixtures or of asbestos (e.g., thread, woven fabric, clothing, headgear, footwear, gaskets), whether or not reinforced, other than goods of heading 68.11 or 68.13.

6812.91 Clothing, clothing accessories, footwear and headgear.

6812.92 Paper, millboard and felt.

6812.93 Compressed asbestos fibre jointing in sheets or rolls.

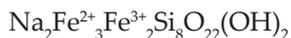
6812.99 Other: Friction material and articles thereof (e.g., sheets, rolls, strips, segments, discs, washers, pads), not mounted, for brakes, for clutches or the like, with a basis of asbestos, of other mineral substances or of cellulose, whether or not combined with textile or other materials.

6813.20 Containing asbestos.

Asbestos

Crocidolite

CAS No. 12001-28-4



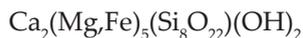
HS Code

2524.10 (Pure substance);

6812.80 (Mixtures, preparations containing substance)

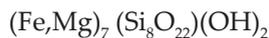
Actinolite

CAS No. 77536-66-4



Amosite

CAS No. 12172-73-5



Anthophyllite

CAS No. 77536-67-5



Tremolite

CAS No. 77536-68-6



HS Code

2524.90 (Pure substance).

(Mixtures, preparations containing substance):

Fabricated asbestos fibres; mixtures with a basis of asbestos or with a basis of asbestos and magnesium carbonate; articles of such mixtures or of asbestos (for example, thread, woven fabric, clothing, headgear, footwear, gaskets), whether or not reinforced, other than goods of heading 68.11 or 68.13.

6812.91 Clothing, clothing accessories, footwear and headgear.

6812.92 Paper, millboard and felt.

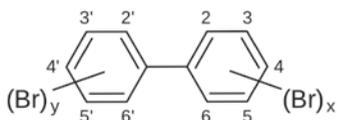
6892.93 Compressed asbestos fibre jointing in sheets or rolls.

6892.99 Other

Basis for Controls

The five forms of asbestos in Annex III were used in a wide range of building materials because of their desirable physical and chemical properties. Increasingly severe restrictions have been implemented on them, beginning in the late 1970's, based on evidence that all forms of asbestos cause human health effects, including asbestosis, lung cancer and mesothelioma when inhaled. In 1987, IARC concluded that inhalation of any form of asbestos caused cancer in humans and laboratory animals. Of particular attention is the need to reduce the exposure of workers during: the manufacture, handling and installation of asbestos and asbestos-containing products; the demolition of products and buildings containing asbestos products; and the disposal of asbestos-containing waste materials.

Polybrominated biphenyls (PBB)



HS Code

3824.82 (Mixtures, preparations containing substance)

Trade Names

Adine 0102; BB-8; Berkflam B₁₀; Bromkal 80; Firemaster BP-6; Firemaster FF-1; Flammex B-10; hbb; hexabromobiphenyl; HFO 101; obb.

Full Name

PBB are mixtures of brominated biphenyls that may contain up to 10 bromine atoms per molecule. The following three commercial formulations were produced.

Hexabrominated biphenyls

CAS No. 36355-01-8

Octabrominated biphenyls

CAS No. 27858-07-7

Decabrominated biphenyls

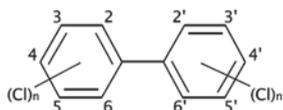
CAS No. 13654-09-6

Basis for Controls

The production of PBBs began in 1970 for use as fire retardants for synthetic fibres, moulded thermoplastic parts, plastics, coatings and lacquers. Their use was curtailed in the late 1970's because PBBs were found to be highly persistent in environmental media, bioaccumulative in food chains and toxic to various species after chronic exposure. In 1986, IARC concluded that PBB caused cancer in laboratory animals. Action to eliminate the production and use of hexabrominated biphenyls is being taken internationally under the Stockholm Convention.

Polychlorinated biphenyls (PCB)

CAS No. 1336-36-3



HS Code

3824.82 (Mixtures, preparations containing substance)

Full Name

PCB are mixtures of chlorinated biphenyls that may contain up to 10 chlorine atoms per molecule. A total of 209 possible isomers can exist.

Trade Names

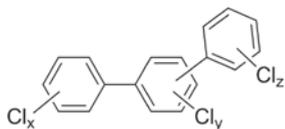
Aroclor; Chlorextol; chlorinated biphenyl; chlorinated diphenyl; chlorobiphenyl; Clophen; Dykanol; Fenclor; Inerteen; Kanechlor; Noflamol; Phenoclor; polychlorobiphenyl; Pyralene; Pyranol; Santotherm; Sovol; Therminol.

Basis for Controls

Commercial production of PCB began in 1930. They were produced for use in coolant systems, electrical capacitors and transformers, sealants for wood and cement surfaces, hydraulic fluids and cutting oils. PCB were controlled as early as 1973 because they persist in the environment, bioaccumulate in the human food chain, contain extremely toxic impurities, form extremely toxic substances on thermal decomposition, and are toxic to humans and wildlife. In 1978, IARC concluded that PCB caused cancer in laboratory animals and in 1987 determined that PCB was probably carcinogenic for humans. Action to eliminate the production and use of PCB is being taken internationally under the Stockholm Convention.

Polychlorinated terphenyls (PCT)

CAS No. 61788-33-8



HS Code

3824.82 (Mixtures, preparations containing substance)

Full Name

PCT are mixtures of chlorinated terphenyls that may contain up to 14 chlorine atoms per molecule. A total of over 8,000 different molecules is theoretically possible.

Trade Names

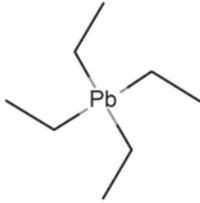
Aroclor (series 54); Clophen Harz (W); Cloresil (A;B;100); Electrophenyl T-60; Kanechlor C; Leromoll; PCT; Phenoclor.

Basis for Controls

PCT were produced for use as waxes for metal parts, fire retardants, plasticizers, hydraulic fluids and lubricants (as PCB-substitutes). Uses of PCT were curtailed as early as 1979 because they persist in the environment, bioaccumulate in the food chain, cause liver cancer in laboratory animals and are toxic to humans and wildlife. Thermal decomposition at temperatures between 300°C and 800°C leads to highly toxic chlorinated dibenzodioxins and dibenzofurans.

Tetraethyl lead

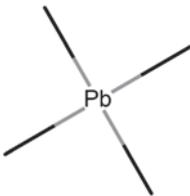
CAS No. 78-00-2



Full Name
Tetraethylplumbane

Tetramethyl lead

CAS No. 75-74-1



Full Name
Tetramethylplumbane

HS Code

2931.00 (Pure substance)

3824.82 (Mixtures, preparations containing substance)

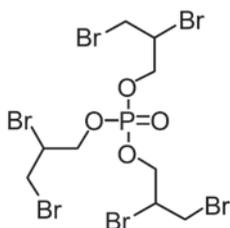
e.g., Anti-knock preparations based on lead compounds.

Basis for Controls

Both chemicals were produced for use as octane enhancers for motor gasoline. While the compounds themselves are toxic to humans, this was not the basis for controlling them. Their use was controlled because combustion of fuels containing these chemicals resulted in the atmospheric release of inorganic lead compounds in vehicle exhaust as fine particulate matter. This inhalable form of lead presented a risk to whole populations, especially in highly populated centres, and resulted in the elevation of blood lead levels, especially in young children. Controls to reduce the use of these chemicals in gasoline began in the 1970's and became more stringent with time, with the result that unleaded fuel is now predominant in most countries.

Tris(2,3-dibromopropyl)phosphate

CAS No. 126-72-7



HS Code

2919.10 (Pure substance)

3824.83 (Mixtures, preparations containing substance)

Full Name

2,3-Dibromo-1-propanolphosphate (3:1)

Trade Names

Anfram 3PB; Apex 462-5; Bromkal P 67-6HP; ES 685; Firemaster LV-T 23P; Firemaster T23; Firemaster T23 P; Firemaster T23P-LV; Flacavon R; Flamex T 23P; Flammex AP; Flammex LV-T 23P; Flammex T 23P; Fyrol HB32; phosphoric acid, tris(2,3-dibromopropyl)ester; T 23P; Tris; tris-BP; tris(dibromopropyl)phosphate; USAF DO-41; Zetofex.

Basis for Controls

This chemical was produced in the early 1970's for use as a flame-retardant additive for synthetic textiles and plastics, phenolic resins, paints, paper coatings and rubber. Based on animal studies, IARC concluded that it was carcinogenic to animals and probably carcinogenic to humans. Control actions were taken as early as 1978 to curtail its use to prevent contact with human skin from treated textile products, especially children's sleepwear.

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