

## List of POPs, their description and use in New Zealand

### Annex 1: POPs to be eliminated

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description	Use in New Zealand
Aldrin	2001	2004	A pesticide applied to soils to kill termites, grasshoppers, corn rootworm, and other insect pests. Aldrin can also kill birds, fish, and humans.	Introduced in 1954 for use as stock remedies in sheep sprays or dips for controlling sheep ectoparasites. Aldrin was used to control horticultural pests such as wireworm, soldier fly and blackvine weevil, and in limited quantities to control household spiders.
Chlordane	2001	2004	A pesticide used to control termites and as a broad-spectrum pesticide on a range of agricultural crops.	Broad spectrum agricultural insecticide, also used in the timber industry as a treatment against termites and borer, and as an insecticide in glues used for the manufacture of plywood, finger jointed and laminated timber.
Dieldrin	2001	2004	Used principally to control termites and textile pests. Dieldrin has also been used to control insect-borne diseases and insects living in agricultural soils. Dieldrin is highly toxic to fish and other aquatic animals.	Introduced in 1954 for use as stock remedies in sheep sprays or dips for controlling sheep ectoparasites. Dieldrin was used for controlling carrot rust fly, crickets and armyworm and was also used for timber preservation (mostly in plywood glues) and to mothproof carpets.
Endrin	2001	2004	An insecticide sprayed on the leaves of crops such as cotton and grains. It is also used to control rodents such as mice and voles.	Only small amounts of these pesticides were ever used in New Zealand.
Heptachlor	2001	2004	Primarily used to kill soil insects and termites, heptachlor has also been used more widely to kill cotton insects, grasshoppers, other crop pests and malaria-carrying mosquitoes. It is classified as a possible human carcinogen.	Only small amounts of these pesticides were ever used in New Zealand.
Hexachlorobenzene (HCB)	2001	2004	HCB kills fungi that affect food crops. It was widely used to control wheat bunt. It is also a by-product of the manufacture of certain industrial chemicals and	Used experimentally between 1970 and 1972 as a seed-dressing fungicide for cereal grain.

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description	Use in New Zealand
			exists as an impurity in several pesticide formulations.	
Mirex	2001	2004	This insecticide is used mainly to combat fire ants, and it has been used against other types of ants and termites. It has also been used as a fire retardant in plastics, rubber, and electrical goods. It is a possible human carcinogen.	Only limited quantities were used for control of public health pests.
Polychlorinated biphenyls (PCBs)	2001	2004	These compounds are used in industry as heat exchange fluids, in electric transformers and capacitors, and as additives in paint, carbonless copy paper, and plastics. PCBs are toxic to fish, suppress the immune system in wild animals and human, and are probable human carcinogens.	PCBs were imported and used (but not manufactured) in New Zealand. Uses were many and varied, including as electrical transformer oils, dielectric fluids, electrical capacitors, heat transfer fluids, hydraulic fluids, solvent extenders, flame retardants, plasticisers, some paints and printing inks, immersion oils and sealants.
Toxaphene	2001	2004	This insecticide is used on cotton, cereal grains, fruits, nuts, and vegetables. It has also been used to control ticks and mites in livestock. It is highly toxic to fish and is a possible human carcinogen.	Only small amounts of these pesticides were ever used in New Zealand.
Alpha hexachlorocyclohexane (alpha-HCH)	2009	2016	Was used as an insecticide; still produced as an unintentional by-product of lindane. Potentially carcinogenic to humans and adversely affects wildlife.	Major by-product of lindane manufacture in other countries, but not used in New Zealand.
Beta hexachlorocyclohexane (beta-HCH)	2009	2016	Was used as an insecticide; still produced as an unintentional by-product of lindane. Potentially carcinogenic to humans and adversely affects wildlife.	Major by-product of lindane manufacture in other countries, but not used in New Zealand.
Chlordecone	2009	2016	Mainly used as an agricultural pesticide. Possible human carcinogen, and very toxic to aquatic organisms.	No reported use in New Zealand.
Hexabromobiphenyl	2009	2016	Industrial chemical, used as a flame retardant. Possible human carcinogen and has other chronic toxic effects.	No significant use in New Zealand.

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description	Use in New Zealand
Hexabromodiphenyl ether (hexaBDE) and heptabromdiphenyl ether (heptaBDE)	2009	2016	Industrial chemical, used in additive flame retardants.	Not manufactured in New Zealand but used in articles imported and manufactured because was present as flame retardants in plastics (for example, casings of electronic equipment).
Lindane	2009	2016	Insecticide with broad applications such as seed, soil and wood treatment. Has toxic effects in laboratory animals and aquatic organisms. Lindane can be used as a human health pharmaceutical to treat head lice and scabies.	Before 1989, used as a broad-spectrum insecticide. Its use was more generally prohibited in New Zealand in 2011 but, until 25 August 2015, it was used in human health pharmaceuticals (medicated shampoo under prescription) to control scabies and lice under an exemption.
Pentachlorobenzene (PeCB)	2009	2016	Produced unintentionally, and used as a chemical intermediate for the production of quintozene, and formerly in dyestuff carriers, as a fungicide and flame retardant. Very toxic to aquatic organisms.	No significant use in New Zealand.
Tetrabromodiphenyl ether (tetraBDE) and pentabromodiphenyl ether (pentaBDE)	2009	2016	Potential for toxic effect in wildlife.	Not manufactured in New Zealand. Imported as flame retardants in, and for the manufacture of, flexible polyurethane foam (furniture, upholstery and packaging) and non-foam polyurethane in casings, building materials, furniture, textiles and packaging.
Technical endosulfan and its related isomers	2011	2012	Insecticide that has been used since the 1950s to control wide range of pests on a variety of crops, tsetse flies and ectoparasites of cattle and as a wood preservative.	Endosulfan was imported into New Zealand and used from 1963 to 2009 as an insecticide on a variety of crops including certain vegetable, citrus and berry fruit crops, and on ornamentals. It was also used as earthworm control on turf at golf courses, bowling clubs, parks, sports grounds, and at airports. Endosulfan has never been manufactured in New Zealand.
Hexabromocyclododecane (HBCD)	2013	2016	Flame retardant additive, very toxic to aquatic organisms, mainly used in polystyrene foam insulation.	Never manufactured in New Zealand and no records exist of it being imported as a chemical. It was imported incorporated in polystyrene resin for manufacture into expanded polystyrene (EPS) foam packaging and in various EPS construction products,

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description	Use in New Zealand
				and in manufactured EPS and extruded polystyrene (XPS) products from the 1990s until 2016.
Hexachlorobutadiene (HCBD)	2015	2016	Used as a solvent for other chlorine-containing compounds.	Never produced or used significantly in New Zealand.
Pentachlorophenol (PCP) and its salts and esters	2015	2016	Used as a herbicide, insecticide, fungicide, algaecide, disinfectant and as an ingredient in antifouling paint	Previously used as a herbicide, insecticide, fungicide, algaecide, disinfectant and in antifouling paint. In particular, it was used as a timber treatment product from the 1950s to 1980s. Use as a timber preservative and timber anti-sapstain treatment in New Zealand ceased in 1988. Its pesticide registration ceased in 1991, and approval of all other uses was revoked in 2008.
Polychlorinated naphthalenes (PCNs)	2015	2016	Used in insulating coatings for electrical wires, as wood preservatives, rubber and plastic additives, in capacitor dielectrics and in lubricants. Also produced unintentionally during high-temperature industrial processes in the presence of chlorine.	Never produced or used significantly in New Zealand.
Decabromodiphenyl ether (decaBDE) (commercial mixture, c-decaBDE)	2017	2018	Used mainly as an additive flame retardant and has a variety of applications.	Never produced in New Zealand. Included as a component in products imported from other countries. Products include plastics in vehicles, electrical equipment and textiles. Limited import of flame retardant master batches containing decaBDE took place until 2017.
Short-chain chlorinated paraffins (SCCPs)	2017	2018	Used as a plasticizer in rubber, paints, adhesives, flame retardants for plastics as well as an extreme pressure lubricant in metal working fluids.	Never produced in New Zealand. SCCPs were used in the production of flame-resistant, water-repellent and rot-preventing textile finishes.

## Annex 2: POPs to be restricted to uses contained in the Annex

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description	Use in New Zealand
1,1,1-trichloro-2, 2-bis (4-chlorophenyl) ethane (DDT)	2001	2004	Restricted to use as a control of disease vector. DDT was used to protect people from diseases spread by insects, and was sprayed on a variety of agricultural crops, especially cotton. Its stability, its persistence (as much as 50% can remain in the soil 10-15 years after application), and its widespread use have meant that DDT residues can be found everywhere; residual DDT has even been detected in the Arctic.	Used mainly as a pasture insecticide to control grass grub ( <i>Costelytra zealandica</i> ) and porina ( <i>Wiseana sp.</i> ) caterpillars. It was frequently mixed with fertiliser or lime and applied to agriculture pastures, as well as to lawns, market gardens and parks.
Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOS-F)	2009	2016	Restricted to a number of acceptable purposes, and also has specific exemptions. Wide spread use in electric and electronic parts, firefighting foam, photo imaging, hydraulic fluids and textiles. Binds to proteins in the blood and liver – as opposed to other POPs which partition into fatty tissues. PFOS is also an unintended degradation product of related anthropogenic chemicals.	Intentional use of PFOS was widespread globally and included: the electronic and semi-conductor industry, electroplating industry, certain medical devices, firefighting foams, photo imaging, aviation hydraulic fluids, and coatings for textiles, carpets, leather, upholstery, paper and packaging, rubber, and plastics, and insect baits for control of ants and termites. Many of the known intentional applications of PFOS products were used in New Zealand, including in firefighting foams. All known PFOS-based firefighting foams were prohibited in 2006 by the HSNO Act Fire Fighting Chemicals Group Standard. In 2017, PFOS was found in soil and groundwater at some New Zealand air force bases and airports, likely originating from the historic use of firefighting foams. Further investigations are being undertaken at all commercial airports, petroleum production and storage facilities, chemical plants, ports and local shipping.

**Annex 3: POPs produced and released as unintentional by-products of specific processes.**

Chemical	Year listed under Stockholm Convention	Date entered into force in New Zealand	Description
Hexachlorobenzene (HCB)	2001	2004	By-product of the manufacture of certain industrial chemicals and exists as an impurity in several pesticide formulations.
Polychlorinated biphenyls (PCBs)	2001	2004	By-product of certain manufacturing processes, such as the synthesis of certain pigments that go into dyes, inks and paints.
Polychlorinated dibenzo-p-dioxins (PCDDs)	2001	2004	Produced unintentionally due to incomplete combustion, as well during the manufacture of pesticides and other chlorinated substances. Classified as possible human carcinogens.
Polychlorinated dibenzofurans (PCDFs)	2001	2004	Produced unintentionally from many of the same processes that produce dioxins, and also during the production of PCBs. Classified as possible human carcinogens.
Pentachlorobenzene (PeCB)	2009	2016	Produced unintentionally during combustion, thermal and industrial processes and present as impurities in products such as solvents or pesticides
Polychlorinated naphthalenes (PCNs)	2015	2016	Unintentionally generated during high-temperature industrial processes in the presence of chlorine.
Hexachlorobutadiene (HCBd)	2017	2018	Created as a by-product in the manufacture of chlorinated aliphatic compounds.