



# COMPLIANCE CLIP

## POPs, PBTs and VPVBs

### Persistent Organic Pollutants, Persistent, Bio-accumulative and Toxic substances and very Persistent and very Bio-accumulative substances.

Already back in 1979 the United Nations held a Convention in Geneva on pollution and persistent organic pollutants. The presence and risks of these pollutants is still an issue today and legislation remains applicable.

The EU member states, and also Canada and the USA, signed agreements on a worldwide ban or reduction of persistent organic pollutants during United Nations meetings; such as the 1998 Aarhus Protocol and the 2001 Stockholm Convention.

#### POPs

##### Regulation (EC) 850/2004

In April 2004 the EU published its own POP Regulation on persistent organic pollutants based on prior United Nations agreements.

The Regulation has been amended several times, the latest amendment was issued in March 2016.

The objective of the POP Regulation is to prohibit and phase out persistent organic pollutants.

It also aims to minimise environmental releases of such substances, and to avoid contaminations of waste by any of these harmful substances.

#### POP, PBT and vPvB

Three groups of persistent substances are mentioned in regulations:

- **POP** Persistent Organic Pollutants;
- **PBT** Persistent, Bio-accumulative and Toxic (substances);
- **vPvB** very Persistent and very Bio-accumulative (substances).

**Persistent** means that these substances will not (bio)degrade in the environment. Because of this, they persist for a (very) long time in the environment, travel across the world via water and air and jeopardise human health and environment.

**Bioaccumulation** refers to the accumulation of chemicals in an organism. It occurs when an organism absorbs a toxic substance faster than that it is able to lose the substance.

For instance a fish swimming in polluted water will contain more and more toxins because the pollutants are added in his body and the body is not able to fight, degrade or get rid of the pollutant by itself.

#### History

The risks of persistent pollutants are known for many years, and legislation is in place for a long time too. In December 1978 the EU published Directive 79/117/EEC that prohibited eight harmful plant protection products or pesticides.

Many persistent pollutants were used as pesticides, for instance DDT. Persistent pollutants are also involved in industrial processes and used in solvents, plastics, flame retardants and more. They are created intentionally but also as an unwanted by-product.

#### Prohibited substances

**Annex I** of the POP regulation lists all prohibited substances. (See the table at the end of this document for an overview of these POPs and their common application). The production, placing on the market and use of the listed substances, whether on their own, in preparations or as constituents of articles, are prohibited.

**Annex II** lists restricted substances, but the current version has no specific entries.

The other annexes contain substances subject to release reduction provisions (Annex III), waste management provisions (Annex IV) and waste management exemptions (Annex V) and are less relevant for non-food consumer products.



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**Currently SCCPs are still causing product recalls, but also products with HCBs (in fireworks) and naphthalenes have been recalled.**

### POP and REACH Regulations

The POP and REACH regulations have similar objectives: protection of human health and environment against dangerous chemical substances. The restrictions as mentioned in Annex XVII of REACH are very similar to the restrictions and bans in the POP regulation.

The POP Regulation was written before the REACH Regulation, but it already anticipated like this: "In the future, the REACH Regulation could be an appropriate instrument by which to implement the necessary control measures on production, placing on the market and use of the listed substances and the control measures on existing and new chemicals and pesticides exhibiting persistent organic pollutants' characteristics".

At this moment both regulations apply and the possible overlap in substances has been solved in amending regulations, both for POP and REACH. For instance SCCPs (Short-Chain Chlorinated Paraffins) have been deleted as entry #42 in REACH Annex XVII because they are mentioned in the POP Regulation since amendment (EU) 519/2012.

Name	Use
Aldrin (309-00-2)	Pesticide, insecticide
Chlordane (57-74-9)	Pesticide, insecticide
Dieldrin (60-57-1)	Agricultural; Pesticide
DDT (50-29-3)	Pesticide
Endrin (72-20-8)	Pesticide
Heptachlor (76-44-8)	Pesticide, termiticide, wood treatment, underground cable boxes
Hexachlorobenzene (HCB**) (118-74-1)	Solvent in pesticides, fungicide, fireworks, by-product industrial processes
Hexachlorocyclohexanes (HCH) including lindane	Pesticide, insecticide; unintentional by-product
Toxaphene (8001-35-2)	Pesticide
Polychlorinated biphenyls (PCB) (1336-36-3 and others)	Industrial; paints, kits, oils, electrical equipment, coolant fluids, insulating fluids, plasticisers
Mirex (2385-85-5)	Insecticide, termiticide, flame-retardant
Chlordecone (143-50-0)	Pesticide
Hexabromobiphenyl (HBB, PBB**) * (36355-01-8)	Industrial, flame-retardant, electronic equipment
Tetra-bromodiphenyl ether (PBDE) *	Flame-retardants, enclosures, circuit boards
Penta-bromodiphenyl ether (PBDE) *	Flame-retardants, enclosures, circuit boards; industrial
Hexa-bromodiphenyl ether (PBDE) *	Flame-retardants, enclosures, circuit boards
Hepta-bromodiphenyl ether (PBDE) *	Flame-retardants, enclosures, circuit boards; industrial
Perfluorooctane sulfonic acid and its derivatives (PFOS)	Many applications; printed circuit boards, water repellant /stain resistant coatings, textiles, leather, carpet, coatings and paint, adhesives, paper(board) and fire fighting foams
Pentachlorobenzene (PeCB) (608-93-5)	Industrial; fire-retardant; unintentional by-product
Endosulfan	Pesticide, insecticide
Hexachlorobutadiene (HCBD) (87-68-3)	Industrial (by-product); solvents, synthetic rubbers
Polychlorinated naphthalenes (PCN)	Many industrial applications; capacitors, additives, cable insulators, preservatives
Short-chain chlorinated paraffins (SCCP**, Alkanes C <sub>10-13</sub> )	Many applications; lubricants, metalworking, (artificial) leather, flame-retardants, softeners, plasticisers, sealants, coolants, paints and coatings
Hexabromocyclododecane (HBCDD)**	Flame-retardant, most commonly used for extended polystyrene (EPS)

\* Also restricted in RoHS Directive 2011/65/EU

\*\* Also listed in REACH Regulation (EC) 1907/2006

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