

PCBs - Issues & legislation

PUBLIC INFORMATION

April 2016

Substances from the past and handling them in the present

Polychlorinated biphenyls (PCBs) have been produced on an industrial scale since 1930, with particularly large volumes made in the 1950s-1970s. Major applications were insulating and cooling agents for electrical transformers and rectifiers, hydraulic fluids for underground mining, lubricants, printing inks, adhesives and plasticisers for plastics, coatings and resins. Today PCBs are no longer manufactured or marketed in the EU.

What are PCBs?

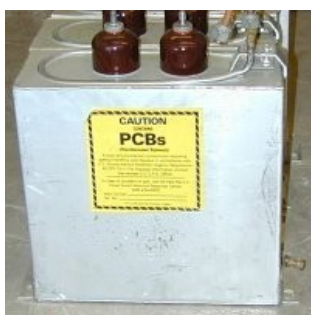
PCBs are organochlorines; organic chlorinated substances. A total of 209 compounds belong to this group. Their advantages for industrial use included chemical stability, non-flammability and ready solubility.

The issue

About 130 of the 209 PCBs have been detected in the environment. They are found globally, in the lower atmosphere and in the oceans.

As a result of this widespread occurrence in the environment, coupled with carcinogenicity to laboratory animals, PCBs continue to be the subject of public and scientific concern.

The chemical stability which gave useful industrial properties is also a major disadvantage; PCBs are persistent, toxic and tend to bioaccumulate (PBTs). They are also persistent organic pollutants (POPs), prone to long-range transport.



Before their replacement and recycling, capacitors and transformers were clearly labelled if they contained PCBs

Concern about the health effects of PCBs was triggered by an incident in 1968 when 1,850 people in Yusho, Japan, became ill after eating rice oil that was heavily contaminated with PCBs.

PCBs had been used as heat-exchangers in machinery used to refine the rice oil; they are thought to have entered the oil accidentally via a leak. A similar outbreak of illness occurred later in Taiwan.



Modern electric transformers are PCB free

Environmental concerns first surfaced in the late 1960s, some 30 years after PCBs were introduced.

A Swedish scientist found egg-shell thinning among seabirds due to suggested bioaccumulation of PCBs, leading to reduced reproductive capacity.

High levels of PCBs in the environment have also been linked to the death of wildlife such as guillemots in the North Sea.

Regulation

The use of PCBs in open applications such as printing inks and adhesives was banned in the European Community in 1976 (Directive 76/403/EEC).

Use of PCBs as a raw material or chemical intermediate has been banned in the EU since 1985. In 1996 the directive was replaced by Directive



96/59/EC, which set a deadline of 2010 for completely phasing-out or decontaminating any equipment containing PCBs.

However, the United Nations Environment Programme (UNEP) global treaty (Stockholm Convention) on Persistent Organic Pollutants (May 2001) stipulates that the use in equipment shall be eliminated by 2025.

This date is a minimum requirement and does not prevent individual governments, or groups of governments, from maintaining earlier phase-out dates.

The Stockholm Convention came into force in May 2004 after initial ratification by 128 states. As of December 2008, 168 states were party to the Convention. The Basel Convention (May 1992) adopted Technical Guidelines for PCB handling, disposal and destruction.

Euro Chlor position

No Euro Chlor members manufacture PCBs. Euro Chlor has, from the beginning, supported the POP negotiations and welcomes the balanced and workable regime set up by the Stockholm Convention and any science-based approach to fully protect public health and the environment.

Euro Chlor welcomes the reference to Best Available Techniques for destruction of POP wastes and believes that the rapid destruction of withdrawn PCBs should be mandatory.

The main destruction method is incineration; a number of specialised chemical waste disposal companies have approved high-temperature incineration processes suitable for safe destruction of PCBs.

Much more about chlorine on www.eurochlor.org.

Chlorine chemistry applications: www.chlorinethings.eu

