PCB IN OPEN APPLICATIONS: RESIDENTIAL AND PUBLIC BUILDINGS

What are PCB?

PCB (polychlorinated biphenyls) are a serious threat to human health and the environment. Among others, they are considered to be carcinogenic, immuntoxic and affect reproduction and are therefore among the chemicals listed in the group of POPs (persistent organic pollutants) regulated under the Stockholm Convention. While the Stockholm Convention prohibits production, PCB are still in use in many applications and stockpiled in many countries. Once released into the environment, PCB remobilise and enter the ecological food chain, eventually contributing to human exposure via food intake.

Why are PCB used in open applications?

Apart from the well-known applications of PCB in closed systems like transformers and capacitors, PCB were also widely used in open and partially open applications to enhance physical and chemical resistance, to act as plasticisers, flame retardants, impregnating agents, coolants, and lubricants. It is estimated that approximately 21% of PCB were used in open applications*. Many of these *open applications* are still in use today, and they are usually not defined as hazardous waste at the time of disposal. PCB in open applications often find their way into the environment. The first step to reduce human exposure is to know where to find PCB open applications.

Which buildings are the priority?

Many buildings worldwide, especially those constructed or renovated between the 1950s and the early 1980s, contain PCB in a wide variety of applications which emit PCB into the environment. In buildings, PCB can contribute directly to human exposure via indoor air evaporation and dust. PCB were used in open applications in many industrial, public and private buildings as well as in hydro power, nuclear power and water treatment plants, military installations, the car and shipbuilding as well as the mining industry.

DOs

- DO avoid skin contact with PCB suspect materials
- DO verify PCB suspect materials and have representative samples analysed
- DO enable access to accredited l aboratories qualified to analyse POPs
- DO test for indoor air contamination in case of high PCB content in the materials
- DO integrate open system applications in national PCB inventories
- DO contact the regional énvironmental authority prior to any repais or removal of suspect material

DON'Ts

- DON'T remove PCB suspect materials yourself
- DON'T reuse, recycle or sandblast PCB suspect materials
- DON'T abandon or dump PCB suspect materials
- DON'T use test kits to determine PCB content, since they are likely to provide false results
- DON'T burn PCB suspect materials (formation of dibenzo-p-dioxins and dibenzofurans)

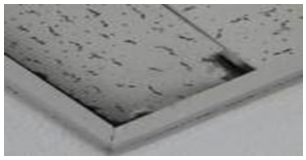
*Breivik, K., et al., *Towards a global historical emission inventory for selected OPCB congeners – A mass balance approach:3 An update*. Science of the Total Environment, 2007. 377(2-3); p. 296-307.

Where can PCB containing materials be found— indoors?

Ceilings

⇒ Caulks (sealants)

Acoustic ceiling tiles



⇒ Paint
⇒ Flame retardant

Fluorescent lamps

⇒ Small capacitors
⇒ Ballasts

Walls

⇒ Caulks (sealants)
⇒ Paint

Windows

⇒ Caulks (sealants)
⇒ Paint

Doors

⇒ Caulks (sealant)
⇒ Paint

Radiators

⇒ Paint

Pipes

⇒ Paint

Fuel oil tanks

⇒ Anti-corrposion coating

Steel constructions

⇒ Paint

Floors

⇒ Caulks (sealant)

Floors

⇒ Paint

Where can PCB containing materials be found— outdoors?

Concrete facade

⇒ Caulks (sealants)

Brick facade

⇒ Caulks (sealants)

Plaster facade

⇒ Plaster
⇒ Paint

Balconies

⇒ Caulks (sealants)
⇒ Paint

Window frames

⇒ Caulks (sealants)
⇒ Paint
⇒ Double glazing

Door frames

⇒ Caulks (sealants)
⇒ Paint

Steel constructions

⇒ Anti-corroosion coating

“Galbestos” steel

⇒ Coating

All pictures are by courtesy of Urs K. Wagner, ETI Environmental Technology Ltd.

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