

SAFETYLINE ESSENTIALS: HAZARDOUS SUBSTANCES SAFE HANDLING OF PCBs IN FLUORESCENT LIGHT CAPACITORS

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What are PCB's

"PCBs" is an abbreviation for Polychlorinated Biphenyls, a group of synthetic chlorinated organic compounds, which has played an important part in many industrial products.

PCBs are very stable chemicals that resist change from the passage of time, wide temperature variance and the influence of acids and alkalis.

Even though the importing of PCBs was banned in 1976, they can be present in transformers and capacitors in the electrical industry, and in a wide range of other products that take advantage of their great stability.

Small PCB filled capacitors are fitted to electric motors, welders and fluorescent lights.

Typically they contain about 50gm of PCBs.

Normally, PCBs are in a metal container carrying no label signifying PCB content.

Most capacitors with metal cases that are labelled "Thermonol AEE" or "Ducon" Type APS, APF, APB, APD, APU, GPU, APA, APC, or GPA do contain PCBs. There may be others not listed here.

Detailed information on [identification of capacitors](#) containing PCBs has been produced by the Australian and New Zealand Environment and Conservation Council. This information can be [searched](#) on SafetyLine: Online.

What effects can PCBs have on humans?

PCBs can enter the body in three ways:

Swallowed in contaminated food and drink.

Absorbed through the skin.

Inhaled as vapour (though vapour given off at room temperature is not significant).

PCBs tend to lodge in body fat, and stay there for a long time. The very stability that makes PCBs so useful also prevents the body from eliminating them quickly.

Excessive amounts of PCBs can cause irritation to the eyes and long term health problems with skin, hair and liver. A persistent pungent body odour may be experienced. Other health problems have been reported as a result of careless use or accidental exposure to these chemicals.

PCBs are listed as a carcinogenic substance under the 7th Schedule of the Poisons Act 1964, administered by the Health Department of WA.

NOTE:

At room temperature, PCBs do not readily vaporise. However if vapours are suspected by the characteristic burnt smell which can occur if a capacitor begins to leak and overheats excessively, then suitable respirators (twin cartridge-type suitable for chlorinated vapours) should be used.

If skin contamination occurs the liquid should be wiped off immediately and the skin washed with soap and water. Water alone is not sufficient. If clothing is contaminated it should be quickly removed and disposed of as recommended. Organic solvents like kerosene or petrol should NOT be used to wash the skin.

How can fluorescent light capacitors be handled safely?

REMOVAL

All leaking capacitors must be replaced with non PCB capacitors, and the work must be carried out by a licensed electrical worker. Metal cased capacitors usually contain PCBs. A plastic cased capacitor usually does not.

Unless accurate information on their PCB content is available, all leaking capacitors must be treated as if they do contain PCBs, and adequate personal protective equipment and clothing must be worn. Swab samples of the leaking capacitor fluid or the capacitors themselves can be sent for laboratory analysis if confirmation is needed.

Capacitors should be properly packed (See 'Safe Disposal'). Fluorescent lights in buildings built or renovated before 1980 are likely to have PCB filled capacitors.

Non-leaking PCB capacitors can be left in place, however plans should be made for their eventual replacement. Regular walk-through surveys should be made to check for oil leaks under light fittings, and leaking capacitors should be replaced.

PERSONAL PROTECTION

Personal protective equipment and clothing required for the handling of PCBs and PCB contaminated equipment in light fittings include:

- Chemically impervious disposable overalls (e.g. Tyvek).
- Mid-arm nitrile rubber gloves.
- Safety glasses.
- Rubber boots.

Safety in the Workplace

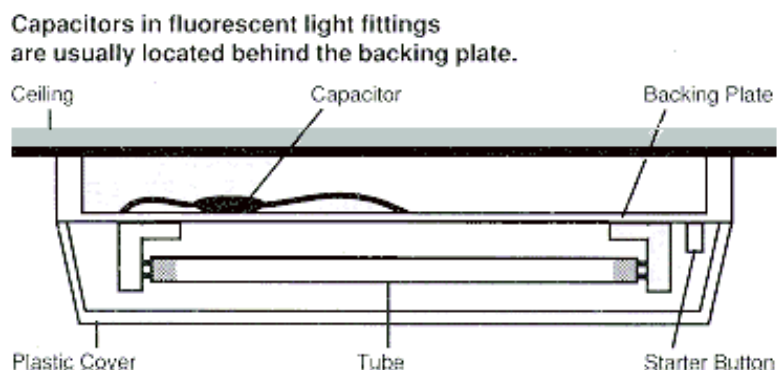
Consultation and co-operation between employers and employees must be the key to safety in the workplace. The Occupational Safety and Health Act requires employers and employees to meet to discuss hazards and formulate and put into practice effective safety and health standards.

SAFE DISPOSAL OF PCBs

Correct disposal of spills, waste PCBs and contaminated material will prevent PCBs entering the food chain and the general environment. PCBs cannot be dumped or hosed away safely because of their potential to enter the food chain.

If spilt

Soak up spilt PCB liquid with an absorbent wood, vermiculite, clay, rags, etc, as would be used for oil. Place the material in plastic bags and store in a sound steel drum. Any contaminated protective clothing should be treated the same way. The drum should be clearly labelled for easy identification, and stored in a separate, secure place where there is no risk of fire. Labels and advice on storage can be obtained from the Engineer, Waste Management, Department of Environmental Protection, phone (08) 9222 0422.



If equipment is contaminated

Contaminated equipment and tools should be cleansed with a cloth soaked in a small amount of suitable solvent. The contaminated material should then be placed in a suitable container and packed with absorbent material inside a sound steel drum.

If you have ready for disposal any PCBs, or material or solvent contaminated by PCBs, contact: Engineer, Waste Management Division phone (08) 9222 0422, or Chemist, Waste Management Division phone (08) 9222 0477 at the Department of Environmental

Protection, who will give advice on storage to ensure PCBs cannot enter the food chain. Ordinary incinerators are NOT effective and must NOT be used.

A yellow sticker (as shown below), obtained from the Department of Environmental Protection, should be attached to containers containing PCB waste.

Electricians working with capacitors and transformers should be aware of the points mentioned above.

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