What are PCBs
PCB is the acronym for a group of toxic chemicals called PolyChlorinated Biphenyls. PCBs vary in appearance depending on the degree of chlorination, ranging from a clear to yellowish oily viscous liquid through to a sticky hard resin. PCBs are generally stable chemicals with good insulating properties and do not degrade over time. These properties led to the chemicals commercial usefulness as dielectric fluids in transformers & capacitors, and the resultant detrimental environmental health effects. Importation of PCBs into Australia was banned from 1979.

PCBs and light fittings
The chemical properties of PCBs, lend themselves for widespread use in electrical transformers, electrical capacitors, and in particular capacitors manufactured for fluorescent lights during the 1950, 60s and 70s. PCB capacitors are most likely to be found in fluorescent light fittings in all buildings pre 1980, and there existence is very common.

Health affects of PCBs
PCBs can enter the body in 3 main ways. ① Absorption, by contact with the chemical on the skin, ② Ingestion, by consuming contaminated food or drink or ③ Inhalation or breathing in of the chemical vapour.

PCBs at room temperature are not significantly volatile, but as they are heated the potential for release of vapours increases. As PCBs are relatively non-volatile, inhalation is usually not a significant route of absorption unless there is a heat source or release is within a confined space. When PCBs are exposed to heat, as in a fire, they may also form dioxins which would also be released into the air.

Exposure standards - Office of the Australian Safety & Compensation Council Australia
PCBs (54% chlorine):  TWA: 0.5 mg/m³  STEL: 1 mg/m³
PCBs (42% chlorine):  TWA: 1 mg/m³  STEL: 2 mg/m³

'Exposure standard - time-weighted average (TWA)' means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

Exposure standard - short term exposure limit (STEL)' means a 15 minute TWA exposure which should not be exceeded at any time during a working day even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.

Exposure risks to PCBs in light fittings
PCB containing capacitors within fluorescent light fittings are unlikely to pose a health risk unless they become damaged and leak. Capacitors in light fittings are small, fully sealed units that contain only a small volume of PCB material. If liquid material is discovered
leaking from a fluorescent light fitting, do not attempt to clean it up. Turn off the light, keep
persons clear of the area and contact the Division of Facilities Management for
assessment and removal of the material.

**Identification of PCB containing capacitors**
There are a number of readily available resources that can be used to identify capacitors
that are known to contain or that do not contain PCBs. As fluorescent light capacitors are
housed within the light unit itself, only qualified persons are permitted to assess these
capacitors.

**What is being done about light fittings containing capacitors with PCBs?**
As with many other organisations, we have a program to replace PCB containing
capacitors in light fittings on an ongoing basis. Audits of a number of buildings have
occurred over the years, and all high risk units have been replaced. There is little risk
from existing sealed units in good condition left in situ. Accordingly, the Division utilises
opportunities such as refurbishments to replace fluorescent lights containing PCBs with
new non PCB containing energy efficient lighting systems.

**What to do if you have concerns over PCBs in light fittings**
If have any questions or concerns over possible PCBs in light fittings, please use the
Divisions Feedback facility located at:

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**References and Acknowledgements**

Commonwealth Department of Environment and Heritage

*Facts 012 - Workers Health Centre, 2004*

*Identification of PCB containing capacitors – ANZECC, 1997*

NSW Environment Protection Authority (EPA)

*Office of the Australian Safety and Compensation Council Australia*

*PCBs in Buildings - Department of Infrastructure, 1998*

*PCB Spill Response & Disposal Procedure – University of NSW, 2000*

*Polychlorinated biphenyls management plan – Australian & New Zealand Environment &
Conservation Council (ANZECC), 2003*

*Safe Handling of Capacitors Containing PCB's – University of Western Australia*

*Safe Handling & Disposal of PCB containing Equipment (Fluorescent Light Fittings) –
Queensland University of Technology, 2002*

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