

## **PHASING OUT SMALL PCB HOLDINGS**

This booklet is produced for the technical and trade associations and includes an updated list of electrical equipment tested by New Zealand laboratories.

The Ministry of Health acknowledges that the list of PCB-containing equipment that follows is not an exhaustive list. Where there is any doubt, the electrician and/or the owner of the equipment should submit the equipment to a TELARC registered laboratory for positive identification prior to disposal.

While care has been taken to ensure the accuracy of the information provided, the Ministry of Health, the publisher and the laboratories that supplied the information in the booklet, do not accept responsibility for any act or omission made on the basis of the information or the test results that follow.

Local health protection staff, as listed at the back of the publication, can provide additional information that may be required.

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## ***Are PCBs harmful?***

The properties which make polychlorinated biphenyls (PCBs) so useful as an electrical insulator also make their disposal difficult. PCBs are chemically stable at high temperatures. This makes them very useful in electrical devices. When these chemicals are released into the environment they do not readily break down. Because of this, there is an added risk of PCBs entering the food chain. Were this to occur, it could have a devastating effect on the agricultural sector by affecting the exports of New Zealand's primary products.

The most likely way for people to be exposed to PCBs is through handling contaminated equipment or low-level contamination of the food chain. PCBs are fat-soluble and tend to accumulate in the fatty tissues of humans and animals. PCBs are probably carcinogenic to humans and may cause other long-term effects.

## ***What equipment is likely to contain PCBs?***

In New Zealand the prime use of PCBs has been in electrical equipment as an insulating fluid inside transformers and capacitors. The equipment involved ranges in size between very large installations used by electrical supply companies and heavy industries and very small units associated with farming equipment and commercial premises. Capacitors containing PCBs were installed into various types of equipment during the 1950s, 60s and 70s. Fluorescent light fittings installed during the same period may also contain PCBs.

## ***How can PCBs be identified?***

PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow and then black resins, depending on chlorine content. PCBs used as insulating fluids are usually mixed with organic solvents such as chlorinated benzenes which change the chemical and physical properties of the fluid.

The simplest way to identify PCB-containing equipment is to check the list of electrical equipment known to contain PCBs. Even if the equipment is not listed, it may still contain PCBs. Most of the equipment containing PCBs was installed in the 1950s, 60s and 70s. There are two simple indicative tests that can be undertaken by qualified tradespeople which may assist in the identification of PCB-containing equipment.

It should be noted that the test for the presence of chlorine (chlorinated hydrocarbons) will also identify the presence of polychlorinated naphthalene (PCN). PCNs have similar environmental effects as PCBs and should be disposed of in the same manner, however there is currently no legal requirement prohibiting their use.

### **i) Simple Density Test**

Draw a few drops of the liquid suspected to contain PCBs into a clean glass bottle and add a small amount of water. If the liquid sinks to the bottom, it is probably a PCB fluid. Any samples thought to be PCBs should be treated cautiously and disposed of as outlined in this booklet.

## **ii) Simple Test for Chlorine**

Heat one end of a length of clean uncoated heavy copper wire (preferably 2 to 3mm diameter) in a pale blue gas flame. If the wire is initially clean there will be no colouration of the flame. Allow the wire to cool, below red heat, then dip it in the unknown chemical and again heat it. There may be an initial bright yellow and smoky flame - but as the copper nears red heat, the presence of chlorine will be indicated by a bright green colouration.

If further confirmation is required appropriate samples of the PCB-containing equipment should be submitted to a TELARC registered laboratory for positive identification.

## **Why should PCBs be removed from fluorescent light fittings?**

Since January 1994 it has been illegal to use any equipment that contains PCBs, including PCBs within fluorescent light fittings. Capacitors installed in light fitting ballasts during the 1950s, 60s and mid 70s are likely to contain PCBs. This may need to be confirmed through an analytical test described in this booklet.

Most fittings that are likely to be affected are between 25 to 40 years old. According to the Energy Efficiency and Conservation Authority, considerable energy and cost savings can be achieved by replacing these older type fittings with more modern and efficient lighting. The Authority can provide further information about efficiency gains from the installation of modern fittings. (Energy Efficiency and Conservation Authority, PO Box 388, Wellington, Telephone: 04 470 2200).

## **How can PCBs be removed from fluorescent light fittings?**

Fluorescent light fittings installed in the 1950s, 60s and 70s, may contain PCBs. The PCBs are contained in capacitors either in side or external to the ballast unit. 'Resonant Start' ballast units with either internal or (to a lesser degree) external capacitor are the most likely to contain PCBs.

Importers and manufacturers of fluorescent light fittings have been unable to provide a comprehensive list of equipment containing PCBs. For this reason a list of PCB-containing equipment is included in this booklet is incomplete.

As a basic checklist PCB-containing equipment within fluorescent light fittings is likely to have one or more of the following characteristics:

- i) A resonant start;
- ii) A date mark from the 1950s, 1960s or 1970s;
- iii) A capacitor that is round, cylindrical or rectangular, encased in an aluminium container with a weld running all the way round the top edge with two terminals with quick connect tags;
- iv) A capacitor encased in a rectangular tin container with soldered seams;
- v) A slightly heavier capacitor (compared to similar types of capacitors manufactured after the 1970s);
- vi) A positive outcome to one of the tests for PCBs described in this booklet.

Positive identification of PCBs can be obtained through a TELARC registered laboratory.

### **What part of the ballast fitting is required to be disposed of?**

Disposal costs increase proportionally with the weight of the equipment. Considerable savings can be made if only the portion of the fluorescent light fitting that contains PCBs is exported for safe destruction overseas. Within older fluorescent light fittings only the capacitor contains PCBs and this is the only part of the equipment which needs to be disposed of according to the procedure outlined in this booklet. PCB-containing equipment must not be disposed of at the local rubbish tip. Once the capacitor has been removed from the ballast fitting, the remainder of the ballast and the light fitting can be disposed of in the normal manner.

### **What are the legal requirements for using PCBs?**

The *Hazardous Substances and New Organisms (HSNO) Act 1996* is the principal piece of legislation that regulates the use of chemicals in New Zealand. Specifically, the Act regulates the importation, manufacture and use of hazardous substances and imposes life-cycle controls on those substances. The Act was amended in 2003 to bring it into line with the legal requirements of the Stockholm Convention. The *HSNO (Stockholm Convention) Amendment Act 2003* prohibited or restricted imports and the use of certain Persistent Organic Pollutants (POP) substances, including PCBs. The amendment came into force on 23 December 2004, the same day the Stockholm Convention came into force for New Zealand. This means that:

- Pesticides and industrial chemicals specified as POPs under the Stockholm Convention (including PCBs) are banned from importation, production and use in New Zealand,
- New Zealand has adopted a timetable to monitor and phase out, by 2016, any PCBs still in use, such as PCBs in electrical transformers, ballasts and capacitors (this timetable is in advance of the Convention deadline of 2025), and
- Exemptions allow for the importation of POPs for small-scale research and the laboratory use of analytical standards, as provided for under the Stockholm Convention.
- Exemptions also allow for the storage of PCBs for a limited time. Exemptions for storage or usage of PCBs may be extended by MoH, provided they are done so before they expire. If an exemption expires the PCB holder must come under the requirements (*Hazardous Substances (Storage and disposal of PCBs) Notice 2007*) by submitting a management plan.
- An approved Management Plans is the current requirement for the storage and use of PCBs. If the PCB holder does not hold a current exemption, then a management plan should be submitted to the local PHU for approval. See the ERMA website for more details and a guide to writing your management plan:

[http://www.ermanz.govt.nz/resources/hs-pubs\\_other2.html](http://www.ermanz.govt.nz/resources/hs-pubs_other2.html)

### **Can I get an exemption?**

If the PCB holder has a current exemption, they may apply to have this extended for a short time.

The PCB holder should apply to the local PHU for an exemption extension.

### **What if I don't have a current exemption?**

If your exemption expires, or if you have recently found PCB-containing equipment, a management plan will need to be submitted to your local PHU for approval by MoH. The management plan will outline what steps you plan to take to remove the PCBs within a reasonable timeframe, and will ensure that they are stored safely during this time.

### **Should PCB holdings be notified?**

Yes; owners of PCBs and PCB-containing equipment need to inform their local District Health Board's Public Health Unit of their holdings, including contaminated material. Changes to the ownership and status of PCB materials, including removal of PCBs from the owners' premises either to storage or for disposal, must also be notified to the local Public Health Unit.

### **Are PCBs safe to handle?**

Small holdings of PCBs are usually found in sealed containers known as capacitors. In this state they should not create any health risk unless the capacitor is damaged or leaking. Care must be taken when handling capacitors which are damaged to ensure that spillage does not occur. The person handling the damaged capacitor should wear protective clothing including gloves, overalls, chemical safety goggles and gumboots.

Liquid PCBs should be collected and absorbed either using diatomaceous earth (kitty litter), sand or rags. The damaged capacitor including any contaminated material needs to be carefully stored in suitable drums with absorbent material so that any leaks are absorbed. The drums must be adequately labelled "PCB material" and the name of the equipment. As a precaution, information identifying the contents of the drum should be sealed inside a plastic bag and put inside the top of the drum. Information about the handling of PCB spills and leaks can be obtained from a Public Health Unit or the Regional Council. Should any spillage occur, the Public Health Unit and the Regional Council should also be notified.

### **How should PCBs be stored?**

When PCB-filled capacitors and fluorescent light ballasts are taken out of service, they should not be drained unless they are leaking. In no circumstances should drained containers, which formerly held PCBs, be reused for any other purpose.

PCB-containing equipment should be wrapped in heavy plastic bags and placed with the terminals upwards in steel drums with removable steel lids that can be resealed. As many of the fittings as space allows can be placed in one drum packed with absorbent material (soil or sand) so any leaks are absorbed. The drums must be adequately labelled "PCB material" and with the name of the equipment. As a precaution, information identifying the contents of the drum should be sealed inside a plastic bag and put inside the drum.

### **How should PCBs be transported?**

All transport operations involving PCBs should comply with the requirements of the Land Transport Rule - Dangerous Goods 2005 (Rule 45001/1) which also refers to the NZS 5433: 1999 Transport of Dangerous Goods on Land. Appropriate packing materials for PCBs are also specified in NZS 5433. The *Safe Management of PCBs: Code of Practice* also contains further information on transportation. If the goods are being transported to a storage site, the owner must ensure that personnel at the destination are prepared to receive the PCBs.

### **Can PCBs be disposed of in New Zealand?**

PCBs must be disposed of in an environmentally sound manner, as per clause 5 in the *Hazardous Substances (Storage and Disposal of Persistent Organic Pollutants) Notice 2004*. (December 2004, Gazette Notice 174. see [www.gazette.govt.nz](http://www.gazette.govt.nz) )

There is no approved means of disposing of PCBs in New Zealand. PCBs are currently being disposed of by export for high temperature incineration. To find out about storage and disposal arrangements, contact the local Public Health Unit.

### **Who pays?**

The cost of replacing PCB holdings, the storage of PCB-containing equipment, transportation and final disposal is met by the owner. Ownership of PCBs and PCB-containing equipment continues until the PCBs have been safely destroyed unless other arrangements have been made to transfer ownership. The Public Health Unit must be notified of any transfer of location or change in ownership.

## SAFE DISPOSAL OF PCBs

It is now illegal to use or process equipment which contains PCBs. If you are in possession of PCBs, they must be safely disposed of immediately. PCBs must not be dumped at the local refuse tip.

Your local Public Health Unit can provide additional information in respect to this publication.

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Material for this bulletin was obtained from *Safe Management of PCBs - Code of Practice* and test results of electrical equipment undertaken to identify PCBs.

A 2008 version of the *Safe Management of PCBs - Code of Practice* is available at the ERMA NZ website ([ermanz.govt.nz](http://ermanz.govt.nz)) and the Ministry of Health website ([www.moh.govt.nz](http://www.moh.govt.nz))

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