

# Annual registration of PCB holders

## Guidance Notes

The Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) Regulations (Northern Ireland) 2000

**Please read these Guidance notes and the whole form carefully before you start to fill it in.**

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## Introduction

This guidance has been prepared by the Northern Ireland Environment Agency to help give you an understanding of the PCB regulations. It should assist you to give us the information we need if you are required to

- dispose of or
- register as a holder of polychlorinated biphenyls (PCBs) or other similar dangerous substances.

As well as this guidance, there is

- guidance on how to complete an application form
  - a table of charges
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## Background

At the 1990 North Sea Conference, the UK agreed with other participating states to phase out and destroy any remaining PCBs. The UK is also committed to registering and disposing of PCB holdings under the EC Directive on the disposal of PCBs, Council Directive 96/59 EC. The Department of the Environment issued the UK Action Plan for the phasing out and destruction of PCBs and dangerous PCB substitutes in March 1997. That document outlined the Department's plans for implementing both the North Sea Treaty and the EC Directive.

The Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances) Regulations (Northern Ireland) 2000 (the PCB regulations) implement the EC Directive and are designed to ensure the elimination of PCBs in Northern Ireland. Similar provision has been made for England and Wales and Scotland and separate guidance is provided from the relevant Regulators.

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## Environmental impact

PCBs have long been recognised as posing a threat to the environment. Some of the very properties, which make PCBs useful (i.e. stability and resistance to degradation), also make them more environmentally damaging because they are not easily broken down in the environment and tend to accumulate in the fatty tissues of animals and humans.

Increasingly high levels have been found in the body fats of fish, birds and mammals and are linked with harmful effects in such animals.

The PCB regulations apply to PCBs which are defined as including the following substances

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-dibromo-diphenyl methane
- monomethyl-dichloro-diphenyl methane
- monomethyl-tetrachlorodiphenyl methane

and includes any mixture containing any of these substances in total of more than 0.005% (50 parts per million) by weight.

There are four main legislative requirements to be adhered to

- registration
- labelling
- disposal and
- decontamination

Further details of each are set out below.

The requirements of the PCB regulations vary according to whether you hold PCBs or PCB-contaminated equipment and the

- amount and
- concentration levels held.

*A summary table of the main requirements can be found on Page 9.*

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## Registration

### The requirement to register

Although expressed as the registration of **contaminated equipment**, the PCB regulations require the registration of

- residual stocks of PCBs, for example oils, which are contained within a receptacle (a drum or tank) and
  - items of equipment contaminated with PCBs.
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### What you need to register

You need to register if you hold any PCBs which are at a concentration in excess of 50ppm.

These substances may be held in containers in their own right or as an integral part of a piece of equipment, for example in an electrical transformer.

If the PCBs are contained within equipment then that equipment must contain in excess of five litres (5dm<sup>3</sup>) of contaminated materials as well as having a PCB concentration of over 50ppm.

If you hold an electrical transformer that is **contaminated equipment**, you are entitled to hold it until the end of its useful life once registered, provided it is

- decontaminated to less than 500ppm of PCBs or
- already contains less than 500ppm of PCBs by 31 March 2001.

*Further details of the types of equipment, which may be affected can be found under 'Technical Guidance' on page 4.*

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### When you need to register

The PCB regulations came into operation on 7 August 2000. Holders of PCB-contaminated equipment have until 31 October 2000 to complete the registration process. Holders are strongly urged to apply as soon as possible to ensure that their registration can be dealt with before that date. It will be a criminal offence under the regulations to hold unregistered PCBs or contaminated equipment after 31 October 2000 and we may take enforcement action against offenders.

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### Keeping your registration up to date and annual renewal

Once you are a registered holder, you should provide up-to-date information about the substances or equipment you hold. This means you should let us know in writing about any changes in the holdings that you register with us.

If you are entitled to keep holdings of PCBs after the general disposal date of 31 March 2001 (for example, because of an exemption in the PCB regulations), you need to renew your registration annually before 31 October of each year.

We will send you an application form for renewal if you have not informed us that you have disposed of your registered holdings. However, it is your responsibility to ensure that you comply with the requirements of the PCB regulations and we cannot be held responsible if you do not receive nor complete your registration form.

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### Cancelling your registration

We can cancel your registration if we find that, or are notified that

- your application contained information which was incorrect or false
- you no longer hold the substances or equipment.

If we decide to cancel your registration we will write and tell you why and you will have the right to appeal to the Planning Appeals Commission. We will send you the relevant information on appeals if applicable.

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### Labelling

#### Equipment

The PCB regulations require that PCB-contaminated equipment must be clearly labelled in order to identify the presence of PCBs within the equipment.

The two types of labels to be used must show that the equipment

- contains PCBs (Regulation 5) or
- has been decontaminated to achieve a lower concentration of PCBs, for example **PCB contaminated less than 0.05%** (Schedule 2).

#### Access gates

Where access to a piece of contaminated equipment is controlled by a door or gate, that door or gate should also identify that the premises contain PCB-contaminated equipment.

*For further reference, the labelling requirements for decontaminated equipment are clearly set out within the PCB regulations in Schedule 2.*

*It is an offence not to label a piece of contaminated equipment.*

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## Disposal

### When you need to dispose of your holdings

The general position is that all PCBs and contaminated equipment must be disposed of by 31 March 2001. Anyone who holds PCBs after that date other than those held by disposal operators or research facilities (Regulations 4(2)) will be committing a criminal offence. We may take enforcement action and such holders could be fined.

However, some transformers will be exempt from the disposal requirement because of the level of fluid contamination they contain (less than 0.05% by weight or 500ppm).

Contaminated equipment can be subject to a Direction given by the Northern Ireland Environment Agency which will specify when disposal should take place. This must be before 1 January 2008 (Regulation 4(5)). A Direction is only available in limited circumstances where a programme for major site replacement is planned. In these circumstances you will still need to register your holdings

- make an additional application and
- pay a further charge.

*If you think this may apply to your holdings get in touch with us for further advice.*

### Transformers containing PCBs at a concentration greater than 500ppm

Electrical transformers containing fluids exceeding a PCB concentration of 500 ppm must be subject to decontamination with the aim being to reduce the concentration of PCBs within the equipment to below 500 ppm.

The transformer can then be kept until the end of its useful life when it must be safely disposed of. Any transformers which cannot be decontaminated should be disposed of prior to 31 March 2001 where the concentration of PCBs exceeds the 500 ppm limit.

### Transformers with PCB concentration less than 500ppm

Transformers that already contain fluid with a concentration of less than 500 ppm of PCBs may be kept until the end of their useful life without decontamination being required and must then be disposed of. In determining when a piece of equipment has reached the end of its useful life, the Northern Ireland Environment Agency will consider all equipment on an individual basis.

### Small components containing PCBs

Small components of equipment which are contaminated with PCBs such as fluorescent light ballasts will not be subject to the requirement to dispose as long as they do not form part of a set which could reasonably be described as one piece of equipment. These materials should be collected and removed separately when they are taken out of service so that safe disposal can be achieved.

## Decontamination

Unless it is designated for disposal, prior to 31 March 2001 an electrical transformer containing fluid in excess of 500 ppm concentration of PCBs must be decontaminated to below the 500 ppm limit. Care should be taken to ensure that sampling designed to demonstrate that this has been achieved is carried out in accordance with 'Health and safety considerations' on page 7.

The aim of decontamination should be to reduce the level of PCBs to less than 50 ppm (less than 0.005% by weight) but it is acceptable to achieve a level between 50 and 500 ppm.

There are specialist contractors who may be able to assist you in choosing whether to carry out this process or to consider replacing the equipment.

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## Other relevant information

### Making inspections

We make site visits to

- check that the information you gave in the form was correct
- monitor the disposal and decontamination you undertake.

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### Charges

When you send us your application, you have to pay for us to process your form.

We cannot deal with your application if you

- forget to send the payment with the application
- send the wrong amount.

*Please see the table of charges on the Charging Scheme- Explanatory Notes.*

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### Annual inventories

The Northern Ireland Environment Agency is also responsible for compiling annual inventories of contaminated equipment which will be used to report back to the European Community. It is important that this information is updated regularly, and so holders are encouraged to keep us informed of any changes to their holdings as soon as they occur.

*If you are concerned about the confidentiality of this information you will find further information about this under 'Making an Application'.*

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## Technical Guidance

### What are PCBs?

PCBs are a class of organic man-made chemicals consisting of two Benzene rings linked by a carbon-carbon bond. With 10 different possible locations for chlorine there are a large number of possible different PCB compounds.

They were used extensively in a wide variety of products because they are

- chemically inert
- stable at high temperatures and
- flame resistant.

You may recognise some of the PCB substances by their trade names which include

- Aroclor
- Diaclor
- No-flamol
- Pyranol or Pyroclor.

*Further common trade names for PCBs of which we are aware are given on page 9.*

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### PCB usage

PCBs have been commercially available since the 1930s and because of their stability, excellent dielectric (insulating) and heat transfer properties they have been used in a wide range of industrial applications and have also been incorporated into manufactured products for commercial and domestic use.

### Use in equipment

The main properties of PCBs, such as their fire resistance, lead to their main application in electrical equipment, as fluids in electrical capacitors and transformers. Other historical applications have included wire/cable coatings and insulating materials. These have been defined as *closed* applications and their use in new equipment and their sale has been banned in Northern Ireland.

The PCB regulations require any equipment which it is reasonable to assume may contain PCBs to be treated as containing PCBs. Equipment includes

- electrical transformers
- power factor capacitors
- heat transfer equipment
- pole-mounted transformers
- process heating equipment
- vacuum pumps
- high temperature hydraulic systems
- electrical resistors
- bushings and other high voltage equipment
- fluorescent light bulbs
- hospital diagnostic equipment

### Other uses

Other uses for PCBs have included a wide range of products to improve performance characteristics, for example

- high temperature and high pressure lubricants
- cutting oils
- sealing compounds
- adhesives
- plastics and rubbers

Sales for those types of applications, (known as *open* applications) ceased in 1972 apart from those used in hydraulics.

Today, there remains a legacy of PCB equipment and materials that arise largely from the use of *closed* applications (for example transformer and electrical capacitors) which are now subject to the new controls in order to achieve the aim of the legislation to see PCBs removed from use.

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## Do I hold PCB contaminated equipment?

PCB contaminated equipment (which can include PCBs contained in a receptacle such as a drum) must reach the 50 ppm concentration limit of PCBs and also contain a volume of more than 5dm<sup>3</sup> (litres) in order to come within the regime. It will then be subject to both the registration and disposal requirements. If a piece of equipment has any components or series of components, liquid or solid, which are individually contaminated with PCBs and which collectively take up a volume of more than 5 litres then this may also be contaminated equipment.

### Calculating the PCB concentration for equipment

In the absence of laboratory analysis, it may not be possible to accurately determine whether your equipment contains PCBs nor what the concentration of PCBs in the equipment is. The following table provides a checklist you may want to use as a template. It may help you to identify the relevant issues and assist you in making your decision to register.

Question	Answer	Comments
Does your equipment predate 1994?		
Are there labels identifying PCB-based oils?		
Does the manufacturer have any information to suggest that the unit would have been filled or inadvertently contaminated with PCBs?		
Does the labelling on the equipment indicate a volume of dielectric or unit weights which lead to the conclusion that the specific gravity of the original dielectric was greater than 1?		
Does evidence exist that the specific gravity of the current dielectric fluid is greater than 1?		
Are there records or other evidence to indicate the unit may have been retrofilled with PCBs?		
Have previous samples been taken which indicate a higher concentration of PCBs?		
Are there any other reasonable steps to take to investigate each of the above factors?		

No answers to all of the above questions indicates it is reasonable to assume that the equipment contains no PCBs.

Any Yes answers indicate that equipment does contain PCBs

The questions should be asked in relation to each piece of equipment.

*If you are in any doubt, however, please contact the Northern Ireland Environment Agency or a specialist contractor for further information.*

*Please go to page 8 for a list of organisations that may be able to help you*

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### Calculating the volume requirement for contaminated equipment.

Where there are no specific volumes stated for PCB contaminated equipment, it is possible to estimate the quantities of PCBs that you hold using the simple methods outlined below.

#### Transformers or other fluid holdings

Total volume of fluid in litres. In determining whether or not the electrical equipment that you hold will exceed the 5dm<sup>3</sup> limit of contaminant you must include ancillary equipment such as

- bushings
- cooling fins
- breakers
- other equipment which forms an integral part of the equipment.

#### Electrical power factor capacitors

As these are often sealed units the best way to determine the volume is to estimate the total volume of equipment by using its external dimensions.

#### Other contaminated equipment

Individual pieces of equipment should be considered separately and where access is possible you should base your calculations on the external dimensions of the equipment.

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### Commonly affected equipment

#### High voltage electrical transformers

These were often filled with PCB oils in order to reduce the chance of fire. These oils had a variety of formulations but were typically made up of about 75% of a mixture of PCBs with the remainder being a solvent such as trichlorobenzene to allow them to flow more freely.

Equipment which was filled with large volumes of these PCB products frequently have their trade names engraved on their ID plates. However, standard mineral oil-filled units were often contaminated with relatively low concentrations of PCBs through normal servicing. This is because the servicing equipment itself would have been contaminated by previously serviced equipment.

## **High voltage power factor capacitors**

These are sealed units which are unlikely to have ever been serviced or re-manufactured. Typically, they contain PCBs at a concentration of 100% and are seldom labelled with a PCB trade name.

Contacting the original manufacturer may help in determining whether individual units are filled with PCBs but in the absence of any information to the contrary, holders should assume that the unit is filled with PCBs if they date from before 1986.

Power factor capacitors typically contain less than the 5 litre limit individually but are normally used in multiples of three (for three-phase supply) and the PCB regulations require that these banks (or sets) of capacitors should be considered collectively.

## **Smaller equipment**

Smaller items of equipment, such as ballasts/starting capacitors used in fluorescent lighting in offices or street lighting, may be viewed as discrete equipment and not as a combined set within the overall lighting circuit. In the majority of cases, each individual ballast will contain less than 5 litres of materials contaminated with PCBs and will therefore be exempt from the registration requirements.

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## Do I hold other PCB materials?

Other materials which contain PCBs at a concentration in excess of 50ppm are subject to the disposal requirements of the regime. There are no limits to be applied in respect of volume and so it is possible that very small amounts of PCBs will need to be considered provided they exceed the concentration requirement.

## Assessing PCB concentration in solid materials

Assessment of solid materials which may contain PCBs is more difficult than with oil or equipment due to the frequently uneven distribution of PCBs in the materials. Manufactured materials such as building sealants where PCBs were added to the formulation are much more likely to have uniform concentrations and are unlikely to exceed the concentration and volume limits.

Specialist contractors should be consulted if you think you have holdings of PCB-contaminated solid materials.

*Please go to page 8 for a list of organisations that may be able to help you.*

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## Waste Management

The Northern Ireland Environment Agency does not endorse any particular disposal process or disposal contractor. PCBs become hazardous waste once you have decided to, or are required to, dispose of them. Specialist disposal contractors should be employed.

Under the Controlled Waste Duty of Care Regulations (NI) 2002, as a holder of waste PCBs you have a legal obligation to arrange their proper disposal, by ensuring that anybody who offers to

- transport PCBs- holds a waste carriers registration
  - move hazardous waste – uses a consignment note
  - dispose of PCBs – holds a waste disposal licence.
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## Health and safety considerations

When investigating electrical equipment to determine PCB contamination there are two primary hazards

- electric shock
- PCB exposure.

Under no circumstances should intrusive investigations, such as the sampling of oil, be attempted with electrical equipment in place, unless undertaken by a person trained as a high-voltage electrical engineer.

In laboratory animals, PCBs can

- disturb liver metabolism
- affect the endocrine, immune and reproductive systems
- cause cancer

with such effects often seen at relatively low doses.

In contrast, the only consistent clinical finding seen in humans after severe PCB exposure is chloracne, a disfiguring skin condition. Although there is inadequate evidence for effects other than chloracne in humans, the pattern of animal evidence and the marked ability of PCBs to accumulate in the body does give rise to concern for human health following high exposure to PCBs.

The primary exposure route for workers will be through direct absorption through the skin.

Protective clothing such as

- gloves
- overalls
- footwear
- eye protection

should be chosen with care, since PCBs will penetrate most materials. For example, latex surgical gloves appear to offer no protection at all as PCBs can migrate through to the inside surface and expose the worker. Chemical resistant fluorinated rubbers or elastomers are more suitable and laminated materials offer the best protection. Care must also be taken to avoid the spread of PCBs through contact with gloves, shoes and other protective equipment.

Manufacturers of personal protective equipment will be able to provide information on the suitability of their products for use with PCBs and the duration and frequency of contact for the equipment to remain effective.

**The Control of Substances Hazardous to Health Regulations (COSHH) require employers to make an assessment of the likely risks working with PCB-contaminated equipment may cause.**

*Further information about the handling of PCBs is available from the Health and Safety Executive. For details please go to 'Sources of further information'.*

## Sources of further information

The following publications are available.

*The Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) Regulations (Northern Ireland) 2000 S.R. No.232* Price £3.00, ISBN 0-3379370-2-6

Waste Management Paper No.6, 2nd edition, *Polychlorinated biphenyls*, Price £11.00, ISBN 0-1 1-752952-6

The Stationery Office Bookshop,  
16 Arthur Street, Belfast BT1 4GD  
Tel 028 9023 8451  
Website: [www.tsoshop.co.uk](http://www.tsoshop.co.uk)

*United Kingdom action plan for the phasing out and destruction of polychlorinated biphenyls and dangerous PCB substitutes.*  
Website: [www.defra.gov.uk/environment/marine/pcb/](http://www.defra.gov.uk/environment/marine/pcb/)

*Health and Safety Executive guidance note EH69- How to handle PCBs without harming yourself and the environment.* Health and Safety Executive Books, 123 Kingsway, London WC2B 6PQ, Tel 0207 242 6393 or 0207 242 6394, Price £5.00, ISBN 0-7176-0789-51

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## Disposal and Decontamination Methods

The Directive and the Regulations limit methods of disposal to the following;

- Biological Treatment (D8)
- Physico-chemical (D9)
- Incineration on land (D10)
- Permanent storage (D12)(but only in safe, deep, underground storage in dry rock formations and only for equipment containing PCBs which can not be decontaminated)
- Temporary storage at the disposal site (D15) (while awaiting one of the above methods)

However, in the UK there are only facilities for incineration of PCBs and equipment. Whilst the Agency cannot recommend or endorse any particular contractors who may carry out PCB decontamination or disposal operations, the following organisations may be able to offer further assistance.

### For the identification of PCBs in transformers in

- transformers
- capacitors

BEAMA Power Ltd  
Westminster Tower  
3 Albert Embankment  
London, SE1 7FL  
Tel 0207 793 3042, Fax 0207 793 3003  
Email: [betts@beama.org.uk](mailto:betts@beama.org.uk)  
Website: [www.beama.org.uk/](http://www.beama.org.uk/)

### For the identification of accredited analytical laboratories

United Kingdom Accreditation Service (UKAS)  
21-47 High Street  
Feltham  
Middlesex, TW13 4UN  
Tel 0208 917 8400, Fax 0208 917 8500  
Email: [info@ukas.org](mailto:info@ukas.org)  
Website: [www.ukas.org](http://www.ukas.org)

### For waste management advice

Environmental Services Association (ESA)  
154 Buckingham Palace Road  
London, SW1 9TR  
Tel: 0207 824 8882, Fax 0207 824 8753  
Email: [info@esauk.org.uk](mailto:info@esauk.org.uk)  
Web: [www.esauk.org](http://www.esauk.org).

*To avoid confusion, please make it clear when requesting a list of UK companies or laboratories who are licensed to test for or dispose of PCB's you are referring to 'polychlorinated biphenyls' and not 'printed circuit boards'.*

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## Known trade names

Trade name	Country of origin
Aceclor	France
Apirolio	Italy
Aroclor	UK and USA
Asbestol	USA
Askarel*	UK and USA
Bakola 131	USA
Chlorextol	USA
Clophen	Germany
Diaclor	USA
DK	Italy
Ducanol	UK
Dykanol	USA
Elemex	USA
Fenclor	Italy
Hydol	USA
Inerteen	USA
Kaneclor	Japan
No-flamol	USA
Phenoclor	France
Plastivar	UK
Pydraul	USA
Pyralene	France
Pyranol	USA
Pyroclor	UK
Saf-T-Kuhl	USA
Santotherm	France
Solvol	Russia
Therminol	France

\*Generic name implying PCB present in mix.

## Summary of the main requirements

PCB Holding	Registration	Labelling	Action
Stocks for example PCB products, oils	Yes	No	Dispose by 31 March 2001
Used PCBs for example waste PCBs	Yes	No	Dispose or decontaminate by 31 March 2001
Contaminated Transformers between 50-500 ppm	Yes	Yes	Keep until end of useful life and then dispose.
Other contaminated equipment above 50 ppm	Yes	Yes	Dispose by 31 March 2001
All equipment containing PCBs at a volume of less than 5 litres (5dm <sup>3</sup> ) which is attached to other non-contaminated equipment.	No	No	Keep until the end of useful life and then dispose
All equipment containing PCBs at a volume of less than 5 litres (5dm <sup>3</sup> ) held as a separate item	No	No	Dispose by 31 March 2001

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[www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)

Our aim is to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations.



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**Environment**  
[www.doeni.gov.uk](http://www.doeni.gov.uk)



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