



The Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) Regulations 2000.

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

Introduction

This guidance has been prepared by the 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 we have sent you

- *Form WMB1 – annual registration of PCB holders*
- guidance on how to make an application, printed inside the folder
- a table of charges for the financial year 2001–2002.

Background

At the 1990 North Sea Conference, the UK agreed with other participating states (PARCOM Decision 92/3) 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 PARCOM Decision and the EC Directive.

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

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 a 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

and 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 8.

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

where the total PCB content exceeds 5 litres (5dm³).

What you need to register

You need to register if you hold any *contaminated equipment*, which means any equipment including

- any transformer
- capacitor
- receptacle containing residual stocks

which

- contains PCBs or
- having contained PCBs has not been decontaminated and in which the total volume of PCBs exceeds 5 litres (5dm³).

PCBs are

- polychlorinated biphenyls (PCB)
- polychlorinated terphenyls (PCT)
- monomethyl-dibromo-diphenyl methane
- monomethyl-dichloro-diphenyl methane
- monomethyl-tetrachlorodiphenyl methane
- any mixture containing any of the above substances totalling more than 0.005% by weight.

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

When you need to register

The PCB regulations came into force on 4 May 2000 and all holders of PCB-contaminated equipment had until 31 July 2000 to complete the registration process. It is a criminal offence under the regulations to hold unregistered PCBs or contaminated equipment after 31 July 2000. In accordance with our published Enforcement and Prosecution Policy, we may take actions that range from a warning to a criminal prosecution against people who have contravened the regulations.

Keeping your registration up to date and annual renewal

Once you are a registered holder, you should provide up-to-date information about the contaminated 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 December 2000 (for example, because of an exemption in the PCB regulations), you will need to renew your registration annually before 31 July 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 or complete your registration form.

Labelling

We can cancel your registration if you

- supplied false information about your registration
- fail to provide information about renewing your registration.

We must cancel the registered details about a particular location if we find you do not hold contaminated equipment there.

If we decide to cancel your registration we will write and tell you why (unless we are just amending the register to reflect changes you have notified us of when applying to renew your registration). You have the right to appeal against the cancellation to

- the Secretary of State (for equipment held in England) or
- the First Secretary, National Assembly for Wales (for equipment held in Wales).

We will send you the relevant information on appeals if applicable.

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 is

- contaminated or
- a transformer that has been decontaminated to reduce the content of PCBs in the fluid to a maximum of 0.05% by weight (*Regulation 4(4)(d) and Schedule 2*).

Access doors

Where access to a piece of contaminated equipment is controlled by a door or gate, a sign must be fixed to that door or gate to show 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.

Disposal

When you need to dispose of your holdings

The general position is that all PCBs and equipment containing PCBs should have been disposed of by 31 December 2000. Anyone who holds PCBs after that date other than those held by disposal operators or research facilities (*Regulation 4(2)*) will be committing a criminal offence. We may take action in accordance with our published Enforcement and Prosecution Policy and such holders could be fined.

However, some transformers will be exempt from the disposal requirement until the end of their useful life because they contain fluids with a PCB concentration of less than 0.05% by weight or 500 ppm.

Equipment containing PCBs can be subject to a Direction given by us and confirmed by the Secretary of State which allows disposal after 31 December 2000 and specifies, for holders of a Direction, the deadline for disposal (*Regulation 4(5)*). This must be before 1 January 2008. A Direction is only available in limited circumstances and the deadline for applying for one has now passed.

Transformers containing PCBs at a concentration greater than 500 ppm

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 fluid 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 (in which the concentration of PCBs exceeds the 500 ppm limit) should have been disposed of on or before the 31 December 2000.

Transformers with PCB concentration less than 500 ppm

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 Environment Agency will consider all equipment on an individual basis.

Components containing small quantities of PCBs

Any component equipment containing PCBs below the contaminated equipment threshold, which is part of another piece of equipment that is not *contaminated equipment* (for example fluorescent light ballasts), may be held until the 'parent' equipment is taken out of use, recycled or disposed of. The component should then be removed and collected separately from its 'parent' equipment (*Regulation 9*).

Decontamination

Unless it was disposed of on or before the 31 December 2000, 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 6.

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.

For help on locating specialist contractors go to page 6.

Other relevant information

Making inspections

We may make site visits to

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

For details of the cost of this service please see the table of charges that came in this pack.

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.

In addition charges will be levied to cover

- inspection (site visits)
- renewal applications.

Please see the table of charges that came in this pack for the appropriate cost.

Annual inventories

The Environment Agency is also responsible for compiling annual inventories of contaminated equipment which will be sent to the Secretary of State and the National Assembly for Wales so that they can 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 in the section *How to fill in the form* which is printed on the inside of the folder that came with these notes.

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 209 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 7.

PCB usage

PCBs have been commercially available since the 1930s and because of their stability and 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 the UK since the introduction of the Control of Pollution (Supply and Use of Injurious Substances) Regulations 1986.

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 ballasts
- 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.

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 5 litres (5 dm³) in order to conform to the registration requirements. It will also be subject to the 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 or 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
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 Environment Agency or a specialist contractor for further information.

Please go to page 6 for a list of organisations that may be able to help you.

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 5 dm³ 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.

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.

Do I hold other PCB materials?

Other materials which contain PCBs at a concentration in excess of 50 ppm 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 concentrations and volume limits.

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

Please go to page 6 for a list of organisations that may be able to help you.

Waste management

The Environment Agency does not endorse any particular disposal process or disposal contractor. PCBs become special waste once you discard, intend to discard or are required to discard them. Specialist disposal contractors should be employed.

Under the environmental Duty of Care, 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 special waste – uses a consignment note
- dispose of PCBs – holds a waste management licence.

Please go to page 6 for a list of organisations that may be able to help you.

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) (England and Wales) Regulations 2000 No. 1043.

The Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) (Amendment) Regulations 2000, No. 3359

The Stationery Office Ltd, PO Box 276, London SW8 5DT,

Tel 0870 600 5522, Fax orders 020 7873 0011

Website <http://www.hmso.gov.uk/si/si2000/20001043>

Price £3.00, ISBN 0-11-0991370

Waste Management Paper No. 6, 2nd edition, *Polychlorinated biphenyls*, The Stationery Office Ltd, PO Box 276, London SW8 5DT, Tel 0870 600 5522, Fax orders 020 7873 0011

Price £11.00, ISBN 0-11-752952-4

United Kingdom action plan for the phasing out and destruction of polychlorinated biphenyls and dangerous PCB substitutes

Website <http://www.environment.detr.gov.uk/marine/pcb/action.htm>

PARCOM Decision 92/3 on the phasing out of PCBs and Hazardous PCB substitutes (made by the Paris Commission under the 1992 OSPAR Convention)

Website <http://sedac.ciesin.org/pidb/texts/acrc/MEofNE.txt.html>

Health and Safety Executive guidance note EH69 – How to handle PCBs without harming yourself and the environment, Health and Safety Executive Books, PO Box 1999, Sudbury, Suffolk CO10 6FS, Tel 01787 881165, Fax 01787 313995
Price £5.00, ISBN 0-7176-0789-5

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

BEAMA Transmission and Distribution Association
Westminster Tower
3 Albert Embankment
London SE1 7FL
Tel 020 7793 3000
Fax 020 7793 3003

For the identification of PCBs in capacitors

BEAMA Capacitors Manufacturers Association
Westminster Tower
3 Albert Embankment
London SE1 7FL
Tel 020 7793 3000
Fax 020 7793 3003

For the identification of accredited analytical laboratories

United Kingdom Accreditation Service (UKAS)
21–47 High Street
Feltham
Middlesex TW13 4UN
Tel 020 8917 8400
Fax 020 8917 8500

For waste management advice

Environmental Services Association (ESA)
154 Buckingham Place Road
London SW1W 9TR
Tel 020 7824 8882
Fax 020 7824 5753

Known trade names

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

* Generic name implying PCB present in mix.

Continues overleaf

Summary of the key requirements of the PCB Regulations

PCB holding	Registration	Labelling	Action
Contaminated equipment (any equipment containing a total volume of PCBs exceeding 5 dm ³ including transformers, capacitors and receptacles of residual stocks)	Yes Except where held for the purposes of, or in the course of, any business, manufacturing process or trade concerned with decontamination or disposal of PCBs	Yes	Dispose by 31 December 2000 unless <ul style="list-style-type: none"> held for the purposes of, or in the course of, any business, manufacturing process or trade concerned with decontamination or disposal of PCBs manufactured, supplied or used for purposes of analysis or research on PCBs <i>Disposal as soon as possible after PCBs no longer needed.</i> Subject to a Direction – <i>disposal by 31 March 2001 where Direction was applied for before 1 January 2001 but where application was not determined before 1 January 2001.</i>
Transformers with fluids with PCB concentration of 50 to 500 ppm	Yes, unless <ul style="list-style-type: none"> total volume of PCBs is 5dm³ or less held for the purposes of, or in the course of, any business, manufacturing process or trade concerned with decontamination or disposal of PCBs 	Yes	May be held until end of useful life and must then be disposed of as soon as possible.
Transformers with fluids with PCB concentration of greater than 500 ppm	Yes, unless <ul style="list-style-type: none"> total volume of PCBs is 5dm³ or less held for the purposes of, or in the course of, any business, manufacturing process or trade concerned with decontamination or disposal of PCBs 	Yes	Disposal by 31 December 2000 unless decontaminated to below 500 ppm; may then be held until end of useful life but must then be disposed of as soon as possible.
Equipment (other than transformers) or receptacles containing a total volume of PCBs not exceeding 5 dm ³	No	No	Dispose by 31 December 2000 unless <ul style="list-style-type: none"> held for the purposes of, or in the course of, any business, manufacturing process or trade concerned with decontamination or disposal of PCBs manufactured, supplied or used for purposes of analysis or research on PCBs <i>Disposal as soon as possible after PCBs no longer needed.</i> Subject to a Direction – <i>disposal by 31 March 2001 where Direction was applied for before 1 January 2001 but where application was not determined before 1 January 2001.</i>
Equipment which is part of other equipment (neither of which is contaminated equipment)	No	No	May be held until the other equipment is taken out of use, recycled or disposed of.

For full and detailed legal requirements, please refer to the PCB Regulations themselves.