

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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OECD COUNCIL TAKES MAJOR DECISION WITH REGARD
TO THE CONTROL OF CERTAIN TOXIC CHEMICALS

OECD Member countries have agreed to control the manufacture and trade of industrial chemicals known as Polychlorinated Biphenyls (PCBs)*, the use of which may lead to the contamination of the environment. This is the first international agreement aimed at limiting the production and use of chemicals in order to protect the environment. Only a limited number of uses, specifically listed in the OECD Council Decision and including, in particular, applications where the non-flammability of PCBs is an essential factor, would be authorised. The Decision also allows for production of PCBs for use in closed systems, such as condensers and transformers in large electrical equipment, which present minimal risks for the environment.

The agreement recommends that Member countries in implementing the Decision give priority attention to the elimination of PCB uses in such products as heat transfer fluids for food processing, animal feed and pharmaceuticals; adhesives and sealants; hydraulic liquids, other than in mining, and lubricating oils; vacuum pump fluids and cutting oils; also pesticides.

The OECD action stems from the widespread concern of Governments, following a series of accidents. The persistence and toxicity of PCBs first became apparent with the discovery in 1966 of traces in poisoned fish and wild birds. Accidents during the past four years have included the occurrence of PCBs in chickens caused by absorption from PCB-containing plastic wrappers; the discovery of PCBs in food wrappings due to recycling of copying paper in the production of paper pulp; the occurrence of PCBs in milk from cows given feed contaminated by PCBs through herbicides or silos where it had been stored (U.S.A., 1969, 1970, and 1971). The most serious accident involved human poisoning following leakage of heat transfer fluid in a rice oil pasteurisation plant in Japan in 1968.

* See Technical Note attached.

The text of the agreement, set out in the Council Decision on the Protection of the Environment, is attached together with a technical note on PCBs resulting from an eight-month investigation by the OECD Environment Committee's Sector Group on the Unintended Occurrence of Chemicals in the Environment. The agreement stems from proposals of the Group for concerted action drawn up at its meeting in November 1972, as part of the Organisation's work of developing co-ordination between Member countries to minimise distortions in international trade that could arise from lack of harmonisation of national measures.

The Decision, establishing co-ordinated environmental regulatory action among OECD countries, lays stress on the ultimate need to entirely eliminate the dispersal of PCBs; it is also in line with the Resolution passed by the United Nations Conference on the Human Environment in June 1972 calling on Governments to minimise the release of dangerous or toxic substances, especially where they are persistent.

DECISION OF THE OECD COUNCIL
ON PROTECTION OF THE ENVIRONMENT BY CONTROL
OF POLYCHLORINATED BIPHENYLS

The Council,

Having regard to Articles 5(a), 5(b) and 12(c) of the Convention on the Organisation for Economic Co-operation and Development of 14th December, 1960;

Having regard to the Recommendation of the Council of 26th May, 1972, on Guiding Principles concerning International Economic Aspects of Environmental Policies ;

Having regard to the Note by the Secretary-General of 7th February, 1973, concerning Proposals for Concerted Action with respect to Polychlorinated Biphenyls ;

Considering that the use of Polychlorinated Biphenyls (PCBs) should be controlled by international action in order to minimise their escape into the environment pending the realisation of the ultimate objective of eliminating entirely their escape into the environment;

On the proposal of the Environment Committee;

I. DECIDES:

1. Member countries shall ensure that in their respective territories, Polychlorinated Biphenyls (PCBs) shall not be used for industrial or commercial purposes, except in the following categories of use:

Dielectric fluids for transformers or large power factor correction capacitors;

Heat transfer fluids (other than in installations for processing of foods, drugs, feeds and veterinary products);

Hydraulic fluids in mining equipment;

Small capacitors (subject to the provisions of Section II.2 below);

and, as regards the foregoing categories, PCBs may be used only in those applications in which the requirements for non-inflammability outweigh the need for environmental protection and in which Member countries are satisfied that sufficient controls are exercised in order to minimise risk to the environment.

2. In pursuance of paragraph I.1 above, Member countries shall:

- (a) control the manufacture, import and export of bulk PCBs;
- (b) institute adequate arrangements for the recovery, regeneration, adequate incineration or other safe disposal of surplus and waste materials;
- (c) institute a special, uniform labelling system for both bulk PCBs and PCB-containing manufactured products; and
- (d) establish safety specifications for containers and transport.

II. RECOMMENDS that Member countries in implementing the Decisions set forth in Section I above:

1. control the manufacture, import and export of PCB-containing products;

2. work towards the elimination of the use of PCBs in small capacitors;

3. give priority attention to the elimination of the following applications of PCBs:

- (a) heat transfer fluids in the food, pharmaceuticals, feed and veterinary industries;
- (b) plasticizers for paints, inks, copying paper, adhesives, sealants;
- (c) hydraulic liquids (other than in mining) and lubricating oils;
- (d) vacuum pump fluids and cutting oils;
- (e) pesticides;

4. request firms to use, as PCB replacements, materials which are less hazardous to human health and the environment than the range of PCBs now in use.

III. DECIDES :

At the beginning of 1974, 1975 and 1976 within the framework of the Environment Committee, Member countries shall exchange information on the main statistical data concerning PCBs, notably on:

(1) amounts of PCBs, including :

amounts manufactured by PCB type,				
amounts imported	"	"	"	and by country,
amounts exported	"	"	"	and by country,
amounts incinerated	"	"	"	
amounts consumed	"	"	"	and by use;

(2) PCB replacements supplied by manufacturers, including the following points:

identification,
total amounts for each chemical type and for each use,
known toxicity and environmental hazard of each chemical type;

(3) disposal of surplus PCBs by incineration (including evaluation of incinerator efficiency) or by other efficient means.

IV. NOTES the "Technical Note on Polychlorinated Biphenyls" contained in the Appendix to this Decision.

V. INVITES Member countries to report to the Organisation at the beginning of 1974, 1975 and 1976 on measures taken in application of this Decision.

VI. INSTRUCTS the Environment Committee to follow the implementation of this Decision, to report at regular intervals to the Council on the information exchanges provided for in Section III of this Decision and to make such proposals to further improve and strengthen the control of production and use of PCBs as may seem appropriate in the light of experience gained and the continued work of the Organisation in this field.

Technical Note on
Polychlorinated Biphenyls

INTRODUCTION

1. Polychlorinated biphenyls (PCBs) are a group of stable substances comprising theoretically more than 200 individual compounds, many of which are widely used particularly because of their dielectric properties and non-flammability. At present they are obtained through chlorination of diphenyl, resulting in mixtures that are characterised by their average content of chlorine. Due to the persistence and toxicity of some of these compounds(1), effects have been observed in the environment and accidents reported over the last few years, which have given rise to serious concern in Member countries. In view of this concern, the Sector Group on Unintended Occurrence of Chemicals in the Environment has investigated, on a priority basis, the need for, and feasibility of, concerted action to control the use and emissions of PCBs. The results of this enquiry lead to the following conclusions:

- (a) Because of unacceptable levels of PCBs found in the environment and because of a number of incidents involving human health, some countries have taken, or are considering taking action to control the use of PCBs;
- (b) There are (1972) only six companies in O.E.C.D. Member countries that manufacture PCBs; five of them have already taken steps to reduce production to the supply for a few approved uses;
- (c) PCBs can be replaced except for some uses where their dielectric properties and non-flammability are essential;
- (d) The technology for destruction of PCBs exists;
- (e) Because of the many applications of PCBs in the wide range of consumer products moving in international trade, the situation will almost certainly become complicated unless international agreement is reached on allowable uses;

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- (1) As of the time of the preparation of this Note, limited research studies with certain selected PCB-compounds seem to indicate that some of these compounds could eventually safely be used for certain applications.

- (f) A rough estimate(1) indicates that consumption of PCBs in O.E.C.D. countries is matched by production. Considering in addition that import of chemicals from non-O.E.C.D. to O.E.C.D. countries is still restricted to basic chemicals, import of bulk PCBs is unlikely. It is, therefore, reasonable to suggest that the major part of the problem of unintended occurrence of PCBs can be solved through concerted action between O.E.C.D. Member countries.

USES OF PCBs

2. The applications of PCBs fall mainly into two categories:
- uses in closed systems;
 - dissipative uses.

CLOSED SYSTEMS

3. The use of PCBs in closed systems can be defined as applications from which the PCBs are recoverable. PCBs in transformers, capacitors, heat transfer systems, hydraulic equipment, and vacuum pumps are in principle recoverable, since during use, the PCBs are not generally dispersed into the environment.
4. It is, however, important to distinguish between closed system uses that are controllable in practice and those where control cannot be guaranteed either:
- because frequent replacement of relatively small quantities will lead to disposal rather than recovery, or
 - because a large number of small units widely dispersed will make collection extremely difficult, or
 - because accidental leakage will cause imminent danger to human health.
5. A truly controllable use may therefore be defined as an application where:
- the PCBs are contained in a sealed circuit in large, long-life units;

- (1) Production in 1971 amounted to about 48,400 metric tons and consumption in the 13 countries that provided numerical information to about 35,300 tons.

- the quantities involved are such that there is an incentive for regeneration.

6. Following what has been said above, the only truly controllable uses of PCBs are in dielectrics for transformers and for large capacitors for power factor correction. Preventing escape of PCBs from these applications is mainly a problem of engineering design and of collection and destruction of used liquids, or, in the case of capacitors, of removal and destruction of PCB-impregnated material. These uses also being essential for safety reasons, it would be unreasonable to suggest that they be discontinued at the present time.

7. In all other closed systems, recovery of PCBs, although theoretically possible, would not be practical. Such applications should, therefore, be discontinued, unless safety requirements prevent the use of substitute products:

(i) Heat transfer systems

There may be some installations where the risk of explosion or fire must be avoided at all cost, and the danger of some escape of PCBs therefore is of less importance. Because of the risk of leakage, which can never be totally guarded against, the use of PCBs as heat transfer media in the food, drugs and feed industries should, however, be prohibited.

(ii) Hydraulic equipment, vacuum pumps

Although the quantities involved in the individual case are relatively small, they will, unless recovered, add significantly to the environmental burden of PCBs. Theoretically, used fluids could be recovered, but in view of the difficulty of establishing a system to collect small quantities from many users, these applications should be discontinued. Furthermore, PCBs are generally not essential in hydraulic and pumping fluids, with the possible exception of hydraulic equipment in underground mining.

(iii) Small capacitors

These are typical examples of an application of PCBs in sealed units that are almost completely non-recoverable. Considering, for example, the many domestic electrical appliances in which capacitors are used, the cost of recovery would probably be prohibitive. A warning label showing that the equipment must not be disposed of as ordinary waste has been suggested; it is however, not likely to be sufficient, unless manufacturers

and retailers would accept return of appliances that are out of use. The problem of recovery remains unresolved at the present time, but it has to be noted that Japan has stopped the use of PCBs in the manufacture of small capacitors.

DISSIPATIVE USES

8. The dissipative uses are those where recovery of used PCBs is not possible, since they are not contained in closed systems but in direct contact with the environment:

(i) Lubricating and cutting oils

The conditions under which these oils are used are such that there is continuous emission of small quantities into the environment. These applications, not being essential, should be discontinued;

(ii) Pesticide Use

This use has fortunately been abandoned in most countries already; if not, it should be banned with immediate effect. Since all C.E.C.D. countries require registration of pesticides, such a measure can easily be taken under existing legislation;

(iii) Plasticizers

The most important category, by volume, of dissipative use is in the field of plasticizers. They are or have been used in most countries in a wide variety of consumer products including paints, inks, copying paper, adhesives, sealants, plastic products, etc., many of which are traded internationally. The major applications seem to be in the printing and paint industries.

9. The Printing Industry: Because of the risk of contamination of paper, which after recycling may be used in food packaging, the use of PCBs in the printing industry should be banned. In view of the fact that printing inks can be produced without PCBs and that in any case the amount used probably represents a total value of only about \$30,000 in C.E.C.D. countries, such a measure should not cause serious economic damage. Assuming that copying paper is usually provided by the copying machine manufacturers (relatively few and big companies), any economic effects should be small.

10. The Paint Industry poses a somewhat different problem. Over the last decade, production has increased by 3.5 per cent - 5 per cent annually and the trend is rising in the C.E.C.D. area.

The over 2,000 million dollar West European paint industry alone accounts for some 40 per cent of the world output. Production is assured by a few large and a great many small companies (United Kingdom = 480, Italy and France = 350 etc.). This picture suggests that an overall ban on PCBs in paints could have some economic consequences.

It appears, however, that where used (e.g. in stoving applications) PCBs constitute something like 5 - 10 per cent of the paint. Few details are available in respect of the amounts used in paints, but taking one example (France) where 250 tons were used (1971) in a paint industry that produced something like 700,000 tons of paint, presumably only 2500-5000 tons would contain PCBs. Considering in addition that small paint manufacturers are generally highly specialised, and that the manufacturing process would not have to undergo a major change to replace the use of PCBs, a ban on PCBs should not cause any serious disturbance. The use of PCBs in paints has, in fact, been discontinued in some countries already. Figures for production (8,654,200 tons in 1969) and consumption (8,517,500 tons) in O.E.C.D. countries again suggest that import of paints from non-O.E.C.D. producers may be of minor significance.

11. In practice, none of the products where PCBs have been used as plasticizers can be recovered. Unless the use is totally eliminated, there will be continuous emissions into the environment due to evaporation, insufficient incineration etc. Judging by the action already taken in several countries, substitutes can readily be found for the whole category of plasticizer use of PCBs, which should, therefore, be banned.

12. It follows from what has been said above that for adequate protection of health and environment, but also to avoid undue competition in international trade, agreement is necessary on allowed uses of PCBs. In order to ensure that home production is not substituted by import, control action by governments, through licencing or other means, is essential. Measures are further necessary to ensure collection of used material, safety in transport of raw PCBs, and assessment of substitute materials:

- (a) A uniform labelling system, internationally recognisable, should be developed for use on containers of raw PCBs as well as on any equipment or product containing PCBs.
- (b) Suppliers (i.e. manufacturers and importers) should further provide containers for the transport of PCB-containing liquids: such containers must meet the appropriate specifications that have been laid down to ensure safety in transport of dangerous chemicals.

- (c) Development of substitutes that are less hazardous than persistent PCBs(1) should be encouraged, but in view of the fact that no system for pre-market control of new chemicals has been introduced, testing for environmental effects is so far entirely the responsibility of the manufacturers. Information on replacement products should, therefore, be collected and reviewed.

(1) See footnote on page 5.