

ORGANISATION FOR ECONOMIC
COOPERATION AND DEVELOPMENT

Environment Directorate

NR/ENV/72.51

RESTRICTED

Paris, 13th October, 1972

To : Members of the Sector
Group on Unintended Occur-
rence of Chemicals in the
Environment

Copy to : National
Delegations

Or. Engl.

SECTOR GROUP ON UNINTENDED OCCURRENCE
OF CHEMICALS IN THE ENVIRONMENT

Polychlorinated Biphenyls

Proposals for Concerted Action

1. This document contains proposals for concerted action in OECD member countries in respect of control of polychlorinated biphenyls.
2. These proposals, formulated in consultation with the Bureau of the Sector Group, are based on the conclusions drawn from the enquiry on polychlorinated biphenyls in Member countries. The results of this enquiry have been presented in document NR/ENV/72.49.
3. It is to be noted that a consultation meeting was held under the Notification and Consultation Procedure on Measures for the Control of Substances Affecting Man or His Environment with reference to polychlorinated biphenyls (PCBs). This meeting, on October 2nd, 1972, unanimously agreed the desirability of establishing a common policy framework throughout the OECD membership with regard to acceptable uses of PCBs and the specific conditions under which such uses should be permitted.
4. The proposals contained in the document below represent a common policy framework which may be expected to satisfy the requirements posed by the consultation meeting.
5. Member countries are therefore invited to examine the proposals in this document and ensure that their delegates to the Sector Group on Unintended Occurrence of Chemicals in the Environment are adequately briefed with regard to these proposals so that, if possible, they may be agreed by the Sector Group at its November meeting.
6. The agreed proposals would then be transmitted to the Council before the end of 1972 under procedures to be set by the

MONS 041880

REPORT ON THE UNINTENDED OCCURRENCE
OF PCBs IN THE ENVIRONMENT

Polychlorinated Biphenyls

Proposals for Concerted Action

INTRODUCTION

1. The enquiry in Member countries on the control of PCBs, the results of which have been presented in document E/ENV/72.49, leads to the following conclusions :
 - a) Because of high 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 OECD Member countries that manufacture PCBs; four of them have already taken steps to reduce production to 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;
 - f) A rough estimate* indicates that consumption of PCBs in OECD countries is matched by production. Considering in addition that import of chemicals from non-OECD to OECD 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 OECD Member countries.

* Production in 1971 amounted to about 40,400 metric tons and consumption in the 12 countries that provided numerical information to about 35,300 tons; assuming that consumption of PCBs is likely to be in some measure proportional to GNP, consumption in the other ten countries (Austria, Denmark, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Spain, Turkey) would be about 4,700 tons.

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,
 - 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 power factor correction capacitors. Preventing escape of PCBs from these applications is mainly a problem of engineering design and of collection and destruction of used liquids. 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.

X (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. One country having banned the use of PCBs in small capacitors, it seems that such applications may not be essential and perhaps could be discontinued.

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.

(11) Pesticide Use

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

(111) 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, that 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 production represents a total value of only about \$ 30 million in OECD 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 % - 5 % annually and the trend is rising in the OECD area. The over 2,000 million dollar West European paint industry alone accounts for some 40% of the world output. Production is assured by a few large and a great many small companies (U.K. = 400, 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 there used, (e.g. in stoving applications) PCBs constitute something like 5 - 10% 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 specialized, 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 (0.65, 150 tons in 1969) and consumption (0.527, 500 tons) in O.E.C. countries again suggest that import of paints from non-O.E.C. 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, regulatory action by governments through licencing or other means, is essential.
13. Measures are further necessary to ensure collection of used material, safety in transport of raw PCBs, and assessment of substitute materials :
 - a) In order to ensure collection of PCBs from all installations where their use must continue, manufacturers and/or importers should be required to keep inventory of all amounts supplied, recovered, regenerated and destroyed. Such inventories must be open to government inspection.
 - b) A uniform labelling system, internationally recognizable, should be developed for use on containers of raw PCBs as well as on any equipment or product containing PCBs.
 - c) Suppliers (i.e. manufacturers and importers) should further provide containers for the transport of PCB-containing liquids; such containers must meet the safety specifications laid down for toxic materials.
 - d) Development of substitutes that are less hazardous than PCBs 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.
14. It is proposed that the Sector Group submit to the Council of the OECD the recommendations that all member governments
 - a) agree that PCBs be retained for the following categories of use, but only in those applications where non-flammability is essential :

Dielectric Fluids for

transformers

large power factor correction capacitors

certain small capacitors

Heat transfer fluids

other than installations for the processing of foods, drugs, feeds and veterinary products

Hydraulic fluids in

mining equipment,

and further agree that for these uses the following procedures be established :

- (i) licencing of manufacturers and importers of bulk PCBs who should be responsible for recovery, regeneration or adequate incineration of surplus fluids, and, where possible, of small industrial capacitors;
 - (ii) Designating PCBs as toxic materials so as to establish
 - a uniform labelling system for both raw PCBs and PCB-containing manufactured products,
 - safety specifications for containers;
- b) agree that all other applications of PCBs be eliminated as soon as possible, giving priority attention to :
- heat transfer fluids in the food, pharmaceuticals, food and veterinary industries,
 - plasticizers for paints, inks, copying paper, adhesives, sealants,
 - hydraulic liquids (other than in mining) and lubricating oils,
 - vacuum pump fluids and cutting oils,
 - pesticide uses;
- c) request their industries to use as PCB replacements materials which pose a lower hazard to human health and the environment than do the PCBs;

d) bring under immediate surveillance all import of PCBs, either as raw material or contained in manufactured products;

e) exchange information at the end of 1975, 1974 and 1975 on

(i) amounts of PCBs, including:
amounts manufactured by PCB type
amounts imported " "
amounts exported " "
amounts incinerated " "
amounts consumed " " & by use;

(ii) details of PCB replacements including :
identification,
total amounts for each chemical type and
for each use,
known toxicity and environmental hazard
of each chemical type;

(iii) details of incineration of surplus PCBs, including
summary of chemical analysis of incinerator
emissions.