

OPERATION OF THE PRIOR INFORMED
CONSENT PROCEDURE FOR BANNED
OR SEVERELY RESTRICTED CHEMICALS
IN INTERNATIONAL TRADE

DECISION GUIDANCE DOCUMENTS

Polychlorinated Terphenyls

JOINT FAO/UNEP PROGRAMME
FOR THE OPERATION OF
PRIOR INFORMED CONSENT

United Nations Environment Programme

Food and Agriculture Organization
of the United Nations

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Rome – Geneva 1992

DISCLAIMER

The inclusion of these chemicals in the Prior Informed Consent Procedure is based on reports of control actions submitted to the United Nations Environment Programme (UNEP) by participating countries, and which are presently listed in the UNEP-International Register of Potentially Toxic Chemicals (IRPTC) database on Prior Informed Consent. While recognizing that these reports from countries are subject to confirmation, the FAO/UNEP Joint Working Group of Experts on Prior Informed Consent has recommended that these chemicals be included in the Procedure. The status of these chemicals will be reconsidered on the bases of such new notifications as may be made by participating countries from time to time.

The use of trade names in this document is primarily intended to facilitate the correct identification of the chemical. It is not intended to imply approval or disapproval of any particular company. As it is not possible to include all trade names presently in use, only a number of commonly used and published trade names have been included here.

This document is intended to serve as a guide and to assist authorities in making a sound decision on whether to continue to import, or to prohibit import, of these chemicals because of health or environmental reasons. While the information provided is believed to be accurate according to data available at the time of preparation of this Decision Guidance Document, FAO and UNEP disclaim any responsibility for omission or any consequences that may flow therefrom. Neither FAO or UNEP, nor any member of the FAO/UNEP Joint Group of Experts shall be liable for any injury, loss, damage or prejudice of any kind that may be suffered as a result of importing or prohibiting the import of these chemicals.

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ABBREVIATIONS WHICH MAY BE USED IN THIS DOCUMENT

(N.b. chemical elements and pesticides are not included in this list)

ADI	acceptable daily intake
ai	active ingredient
b.p.	boiling point
bw	body weight
°C	degree Celsius (centigrade)
CCPR	Codex Committee on Pesticide Residues
DNA	Designated National Authority
EC	emulsion concentrate
EEC	European Economic Community
EPA	U.S. Environmental Protection Agency
ERL	extraneous residue limit
FAO	Food and Agriculture Organization of the United Nations
g	gram
µg	microgram
GAP	good agricultural practice
GL	guideline level
ha	hectare
IARC	International Agency for Research on Cancer
i.m.	intramuscular
i.p.	intraperitoneal
IPCS	International Programme on Chemical Safety
IRPTC	International Register of Potentially Toxic Chemicals
JMPR	Joint FAO/WHO Meeting on Pesticide Residues (Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and a WHO Expert Group on Pesticide Residues)
k	kilo- (x 10 ³)
kg	kilogram

l	litre
LC ₅₀	lethal concentration, 50%
LD ₅₀	lethal dose, median
m	metre
mg	milligram
ml	millilitre
m.p.	melting point
MRL	Maximum Residue Limit
MTD	maximum tolerated dose
ng	nanogram
NOEL	no-observed-effect level
NOAEL	no-observed-adverse-effect level
NS	Not Stated
OP	organophosphorus pesticide
PHI	pre-harvest interval
ppb	parts per billion
ppm	parts per million (Used only reference to the concentration of a pesticide in an experimental diet. In all other contexts the terms mg/kg or mg/l are used).
ppt	parts per trillion
sp gr	specific gravity
STEL	Short Term Exposure Limit
TADI	Temporary Acceptable Daily Intake
TLV	Threshold Limit Value
TMDI	theoretical maximum daily intake
TMRL	Temporary Maximum Residue Limit
TWA	Time Weighted Average
UNEP	United Nations Environment Programme
WHO	World Health Organization
WP	wettable powder
wt	weight
<	less than
<<	much less than
<=	less than or equal to
>	greater than
>=	greater than or equal to

POLYCHLORINATED TERPHENYLS

PRIOR INFORMED CONSENT DECISION GUIDANCE DOCUMENT

1. IDENTIFICATION

- 1.1 Common Name: polychlorinated terphenyls (PCTs)
- 1.2 Chemical Type: polyhalogenated organo compound
- 1.3 Use: waxes (for metal parts), fire retardants, plasticizer applications, hydraulic fluids, lubricants (PCB-substitute)
- 1.4 Chemical Name: chlorinated terphenyl
- 1.5 CAS No: 61788-33-8
- 1.6 Trade Names/Synonyms:
PCT, Aroclor (series 54), Kanechlor C, Electrophenyl T-60, Clophen Harz (W), Cloresil (A,B,100), Leromoll, Phenoclor
- 1.7 Mode of action: not relevant
- 1.8 Formulation Types: yellow resins
- 1.9 Basic Producers
USA, Monsanto (up to 1972); France, Produits Chimiques Ugine Kuhlman (up to 1980); Germany, Bayer (up to 1974); Italy, Caffaro (up to 1975); Japan: Kanegafuchi.

2. SUMMARY OF CONTROL ACTIONS

- 2.1 General
PCTs have been banned in 2 countries and are severely restricted in 12 countries. Control actions concern regulations on import, use, processing and sale of PCTs. See Annex 1 for a summary of specific actions reported by governments.
- 2.2 Reasons for the control action
PCTs accumulate in the food chain and are very persistent in the environment. At temperatures between 300°C and 800°C thermolysis will lead to highly toxic chlorinated dibenzodioxins and dibenzofurans.

2.3 Uses banned

Banned are all commercial, manufacturing and processing uses (Canada), all uses of PCTs as active or inactive ingredients (USA) and all uses except for preparations with a PCT content < 0.01% by weight (EEC).

2.4 Uses reported to be continued in effect

Preparations with a PCT content < 0.01 % by weight are free for use and sale (EEC). The sale and use of PCTs as standards in chemical analysis and other laboratory use is allowed (The Netherlands).

2.5 Alternatives

No alternatives are suggested by those government reporting control actions.

2.6 Contacts for further information on the chemical

FAO/UNEP joint data base IRPTC, Geneva and the Designated National Authorities in the countries taking action.

3. **SUMMARY OF FURTHER INFORMATION ON PCTs**

3.1 Chemical and Physical Properties

PCTs are heat stable, non-flammable yellow resins. PCTs resist attack by corrosive chemicals such as alkalis and strong acids, are insoluble in water, but soluble in various organic solvents and oils.

3.2 Toxicological Characteristics

3.2.1 *Acute Toxicity:* oral LD₅₀ rats: 10600 mg/kg, skin LD₅₀ rabbit: 3160 mg/kg (Aroclor 5442).

3.2.2 *Short-term Toxicity:* The liver is the main target organ for PCT, showing increased weight and enzyme induction. Furthermore the eyes and skin are affected (acne-form lesions) and body weight loss is induced. NOEL is above 20 mg/kg bw and below 250 mg/kg bw.

3.2.3 *Chronic Toxicity:* PCTs induce hepatocellular carcinomas in mice, lowest effective dose: 250 mg/kg bw (Jensen, 1983).

3.2.4 *Epidemiological data:* no epidemiological data are presented in literature.

3.3 Environmental Characteristics

3.3.1 *Fate:* high resistance against biodegradation and photodegradation.

3.3.2 *Effects:* PCTs are lipophilic substances and accumulate in living organisms through the food chains.

3.4 Exposure

- 3.4.1 *Food*: PCT may occur in food at concentrations of 0.01 - 0.05 ppm (Canada). Human daily intake has been estimated at 0.05 µg (Japan, only vegetable products).
- 3.4.2 *Occupational/Use*: PCTs have been detected in paper products, paperboard samples contained up to 163 ppm, garbage samples up to 10.5 ppm.
- 3.4.3 *Environment*: concentrations in water may vary between 0.0005 - 0.33 ppb. In soil a maximum concentration of 13 ppm was found close to a factory, in sewer sludge up to 5 ppm and sediment 1.2 ppm (Jensen, 1983).
- 3.4.4 *Accidental Poisoning*: mild effects of eye and skin irritation. Wash promptly when skin is wet or contaminated, if swallowed give large quantities of salt water and induce vomiting.

3.5 Measures to Reduce Exposures

Appropriate clothing to avoid skin contact, eye protection to prevent eye contact.

3.6 Packaging and Labeling

Suspected carcinogenic substance, hazardous to the environment, danger of cumulative effects.

3.7 Waste Disposal Methods

Incinerate for more than 2 seconds at 1200°C or higher. If PCT content of waste is less than 500 ppm incinerate for more than 0.5 sec at 800°C.

3.8 Maximum Residue Limits

No data available.

4. **MAJOR REFERENCES**

- WHO. Polychlorinated Biphenyls and Terphenyls. Environmental Health Criteria 2, WHO, Geneva (1976)
- Kimbrough, R.D. and A.A. Jensen. Halogenated biphenyls, terphenyls, naphthalenes, dibenzodioxines and related products. Topics in Environmental Health, Elsevier, Amsterdam, New York, Oxford (1989)
- Jensen, A.A. and K.F. Jorgensen. Polychlorinated terphenyls (PCTs) use, levels and biological effects. The Science of Total Environment 27, 231-250 (1983)

ANNEX 1

SUMMARY OF CONTROL ACTIONS AND REMAINING USES FOR POLYCHLORINATED TERPHENYLS, PCTs, AS REPORTED BY COUNTRIES

BANNED:

Canada (1979) Import, manufacture, processing, sale or use of PCTs is banned for all commercial, manufacturing and processing uses.

USA (NS) Elimination of all use as active or inactive ingredients.

WITHDRAWN:

None reported.

SEVERELY RESTRICTED:

Only remaining uses allowed:

EEC-countries * (1988) PCTs in preparations, including waste oils, with a PCT-content higher than 0.01% by weight may not be used.

Specific uses reported as not allowed:

None reported.

Use permitted only with special authorization:

None reported.

* **EEC-countries-** Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and United Kingdom.