MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

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MATERIALS INFORMATION SERVICES

NO. 1200

AROCLOR 1254

Date May 21 1980

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: AROCLOR 1254

DESCRIPTION: Distillation cut of polychlorinated biphenyl (or diphenyls) containing 54% Cl.

OTHER DESIGNATIONS: PCB, an Askarel, PYRANOL, GE Material A13B1, CAS # 027 323 188

MANUFACTURER: Material was a product of Monsanto Co., but dropped in 1977. Except for uses specifically exempted and regulated by EPA (for example power transformers), legal manufacture, distribution in commerce, and use of PCB's in USA ended in 1979 under TSCA.

SECTION II. INGREDIENTS AND HAZARDS

Mixture of Chlorinated Biphenyls, $C_{12}H_{10-x}Cl_x$:	%	HAZARD DATA
	ca 100	EPA exemption or authorization needed for any measurable exposure*
		Rat, Oral LD_{50} Adult 4-10 g/kg Weaning 1.2 g/kg
		Rat, Intravenous LD_{50} 358 mg/kg
		Rat, Oral, TDLo 1220 mg/kg/35 wk (neoplastic effect)

x	Approx. %
2	0.5
3	1
4	21
5	48
6	23
7	6

Includes 69 or more compounds with average of 4.98 Cl atom/molecule. Mixture may contain 0-2 ppm chlorinated dibenzofurans.

*Current ACGIH 8-hr TWA is 0.5 mg/m³. NIOSH has proposed a 10-hr TWA of 1.0 µg/m³. Materials with over 50 ppm PCB content are regulated for handling, storage, records, and waste disposal. EPA criterion in navigable waters is 0.001 µg/L. PCB's.

SECTION III. PHYSICAL DATA

Boiling range at 1 atm, deg C	ca 360-390	Specific gravity (65/15.5 C)	1.5
Vapor pressure at 150 C, mm Hg	<1	Pour point, deg C	10
Water solubility at 25 C, ppm	ca 0.01	Molecular weight (Av)	327
Viscosity at 100 F, cstk	ca 460	Partition Coef. (octanol/water)	$>10^6$

Appearance & Odor: A light yellow, viscous fluid.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits in Air	LOWER	UPPER
None to boiling point cod				

Extinguishing Media: Use media appropriate to the surrounding fire conditions. This material has very low combustibility, but it can undergo thermal-oxidative degradation in a fire situation.

Firefighters should use full protective clothing and self-contained breathing equipment when fighting fire where any PCB's are involved.

SECTION V. REACTIVITY DATA

AROCLOR 1254 and other PCB's are nearly inert materials with very high chemical stability; the higher chlorine levels usually give the greater stability. At about 300 to 600 C some PCB's can oxidize to produce chlorinated dibenzofurans which are much greater in toxicity than the PCB's. For complete incineration of PCB's a 2-second dwell time above 2000 F (1090 C) with 3% excess oxygen in the stack is suitable (see Sect. VII).

AROCLOR 1254 shows very little degradation after 3 weeks exposure to direct sunlight.

PCB's are strongly absorbed on particulates or sediments in aquatic systems (streams, lakes, ocean, etc.).

Mixed in activated sludge, biodegradation occurs slowly, but only very slowly or almost not at all with compounds above Cl_4.

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SECTION VI. HEALTH HAZARD INFORMATION

TLV (See Sect. II)

PCBs show high levels of bioaccumulation in fatty tissue and very slow metabolism, especially for Cl_5 compounds and above. They have become widely dispersed in world-wide environment and in the food chain (much like DDT) since their introduction in 1929. Effective control of PCB discharge into the environment began after 1970.
AROCLOR 1254 has a low vapor pressure, but it can be irritating to the eyes, nose, and throat if misted or heated to produce vapors. Excessive acute and chronic exposures may cause liver damage. Chronic exposure to or ingestion of PCBs (especially when thermally oxidized) can result in chloracne after 1-6 months. There is some evidence of possible carcinogenic risk and adverse reproductive effects with this material. PCBs may appear in the breast milk of an exposed mother.
FIRST AID:
Skin Contact: Clean exposed skin with waterless cleaner, wipe with a disposable towel, then wash with soap and water. Promply remove contaminated clothing. (Control separate disposal of PCB-contaminated materials.)
Eye Contact: Flush promptly & thoroughly with lots of running water for 15 minutes.
Inhalation: Remove to fresh air. Get medical help if symptoms continue.
Ingestion: Get medical help. NIOSH has recommended that vomiting be induced.
Get medical help in all cases of severe exposure, repeated exposures, or persistent symptoms.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of all PCB spills or leaks. Promptly contain spilled material! Prevent its release into the environment! Restrict PCB spill area to trained clean-up personnel; use proper protective gear; follow an established emergency plan.
Stop leakage if possible. Pick up spill. Absorb small spills and residues using a powdered, dry clay. Place leaking containers, picked-up PCBs, and PCB-contaminated materials and refuse into approved, properly labeled, closed containers for storage under controlled, EPA regulated conditions prior to disposal. EPA allows approved storage to 1/1/84.(See Sect.IX.) Storage: 40CFR761.42; Annual report: 40CFR761.45
DISPOSAL: Destroy PCB-containing material by burning in an EPA approved facility. Liquid 50-500 ppm PCB material can be burned as above or landfilled if not ignitable. Non-flowing, PCB-contaminated debris can be disposed of in an EPA approved landfill. (See 40CFR 761; Federal Register, Vol. 44, 31551-4, 66989; Vol.45, 20473.)

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide highly effective local exhaust ventilation (trap for exhaust vapors) especially if this material is heated or misted. Unless authorized by EPA an isolated system must be used for PCBs.
For nonroutine and emergency conditions of exposure use an approved canister respirator or self-contained breathing equipment.
Prevent skin contact for those who work with PCBs. Use neoprene or polyethylene gloves and apron, safety glasses and/or face shield, and other protective clothing as determined by use conditions. An eyewash station and washing facilities should be available to the work area.
Provide for special handling and disposal of PCB-contaminated materials, including paper towels and clothing (see Sect. VII). Provide locker and shower facilities. Workers must be trained for PCB work, and they must follow good hygienic practice.
Provide pre-placement medical exams for workers with emphasis on liver function, skin condition, and reproductive history. Provide annual medical exams for exposed workers.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

PCB materials in containers and in equipment must have proper labeling including the date of storage. Short term (up to 30 days) storage of non-leaking PCBs can be done. Long term storage requires an EPA approved facility, including such criteria as roof and walls to shield from rain, impervious base and diking which will contain 25% of stored volume or twice the volume of the largest container, no drains or openings to allow flow loss, and the base must be located above the 100-year flood water elevation.
Prevent physical damage to containers. Inspect storage frequently.
Prevent skin contact with PCBs, or with solid products contaminated with PCBs. Prevent inhalation of airborne PCBs. Properly contain PCBs until legally disposed of; do not allow them to escape into the environment!
PCBs, and especially used PCBs, can contain higher toxicity contaminants.

DATA SOURCE(S) CODE: 1-6,20,26,31,36

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