

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

MS
MATERIALS
INFORMATION SERVICES

No. 1200

AROCLOR 1254

Date May 1980

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: AROCLOR 1254
DESCRIPTION: Distillation cut of polychlorinated biphenyl (or diphenyl), containing 54%
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

		x	HAZARD DATA
Mixture of Chlorinated Biphenyls, $C_{12}H_{10-x}Cl_x$:		ca 100	EPA exemption or authorization needed for any measurable exposure*
x	Approx. %		
2	0.5		Rat, Oral LD ₅₀
3	1		Adult 4-10 g/kg
4	21		Weaning 1.2 g/kg
5	48		Rat, Intravenous
6	23		LD ₅₀ 358 mg/kg
7	6		Rat, Oral, TDLo
*Current ACGIH 8-hr TWA is 0.5 mg/m ³ . NIOSH has proposed a 10-hr TWA of 1.0 µg/m ³ . 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.			1220 mg/kg/35 wk (neoplastic effect)

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	Four 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 ⁴

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				

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.

PLAINTIFF'S
EXHIBIT

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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 Cl₄.

SECTION VI. HEALTH HAZARD INFORMATION

TLV (See Sect. II)

PCBs show high levels of bioaccumulation in fatty tissue and very slow metabolism, especially for Cl₅ 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.

AROCOR 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 PCB's (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. PCB's 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. Promptly 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

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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.

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

Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: MIS
CRD

Industrial Hygiene
and Safety

MEDICAL REVIEW: June 1980

J. M. Zelen

5-29-80

MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	GENERAL ELECTRIC CO.	REGULAR TELEPHONE NO.	
		EMERGENCY TELEPHONE NO.	
ADDRESS	100 Woodlawn Avenue, Pittsfield, Mass. 01201		
TRADE NAME	PYRAL		
SYNONYMS AROCLOR, CHLORINATED BIPHENYL, CHLORINATED BENZENE BLENDS			
SHIPPING NAME ¹	DOT.		
	IATA		

II HAZARDOUS INGREDIENTS²

MATERIAL OR COMPONENT	CAS NO.	%	HAZARD DATA
askarel/Chlorinated Aromatics			
Polychlorobenzene, MO39-2968			

III PHYSICAL DATA

B.OILING POINT, 760 MM HG	410-780°F	MELTING POINT	
SPECIFIC GRAVITY (H ₂ O = 1)	1.53 g ml ⁻¹ @ 25°C	VAPOR PRESSURE	Approx. ~ 1MM @ 104°F
VAPOR DENSITY (AIR = 1)	Approx. ~ 6.5	SOLUBILITY IN H ₂ O % BY WT	
SOLATILES BY VOL.		EVAPORATION RATE (BUTYL ACETATE = 1)	
APPEARANCE AND ODOR	Clear Liquid with Yellow Tint, Slight Acrid Odor	Ph (AS IS), Ph (1% SOLN.)	

IV FIRE AND EXPLOSION DATA

FLASH POINT	Cleveland Open Cup - None to Boiling Point	AUTOIGNITION TEMPERATURE	
TEST METHOD			
FLAMMABLE LIMITS IN AIR, % BY VOL.	None	LOWER	UPPER
EXTINGUISHING MEDIA	None Required		
HAZARDous FIRE FIGHTING PROCEDURES	Material is non-flammable 737817		
USUAL FIRE AND EXPLOSION HAZARD	Gases produced by electric arcing contain high percentage of HCl; the unpleasantness and irritation caused by HCl give ample warning of its presence.		

GENIP 003069

V HEALTH HAZ/ RD INFORMATION

HEALTH HAZARD DATA	HAZARD CLASSIFICATION	BASIS FOR CLASSIFICATION	SOURCE
ROUTES OF EXPOSURE INHALATION PCBs Vapor 0.5 - 1.0 mgm/cu. meter/8 Hr. Day Trichlorobenzene - 5ppm			TVLs - Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes for 1977
SKIN CONTACT	Dermatitis		
SKIN ABSORPTION			
EYE CONTACT	Eye Irritation		
INGESTION			

EFFECTS OF OVEREXPOSURE

ACUTE OVEREXPOSURE Chloroacne

CHRONIC OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

EYES. Remove from exposure. Wash irrigate eyes.

SKIN Remove from exposure. Wash skin.

INHALATION: Remove from exposure. Consult physician.

INGESTION:

NOTES TO PHYSICIAN

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GENP 003070

VI REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

COMPATIBILITY

HAZARDOUS DECOMPOSITION PRODUCTS

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

VII DISPOSAL, SPILL OR LEAK PROCEDURES

AQUATIC TOXICITY (E.G. 96 HR. TLM):

WASTE DISPOSAL METHOD

Comply with appropriate EPA and State regulations for PCB materials. See ANSI C-107.1-1974 "Guidelines for handling and disposal of capacitor - and transformer grade askarels containing polychlorinated biphenyls".

TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Use Fuller's earth to avoid spread of liquid. Immediate sweeping of the area is required with disposal into drum container designated for Pyranol contaminated Fuller's earth - see ANSI C-107.1-1974.

NEUTRALIZING CHEMICALS

VIII SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS

Good general ventilation - local exhaust ventilation may be necessary in confined areas.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

NIOSH

RESPIRATORY (SPECIFY IN DETAIL) Gas mask of organic cannister type or self-contained breathing apparatus to be used in emergency if exposed to high concentration of askarel or its arced products.

EYE
Safety glasses or eye shields

GLOVES

gloves of neoprene, polyethylene or Viton

OTHER CLOTHING AND EQUIPMENT

Use aprons of neoprene, polyethylene or Viton

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GENP 003671

HAZARD DATA SHEET

Required Under OSHA Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME General Electric Company		EMERGENCY TELEPHONE NO. Rome, Ga. 404-234-0211 Pittsfield, Ma. 413-494-1110
ADDRESS (Number, Street, City, State, and ZIP Code) Redmond Circle, Rome, Ga. 30161 or 100 Woodlawn Ave., Pittsfield, Mass. 01201		
CHEMICAL NAME AND SYNONYMS Chlorinated Biphenyl/Chlorinated Benzene Blend		TRADE NAME AND SYNONYMS Pyranol, Aroclor
CHEMICAL FAMILY Askarel/Chlorinated Aromatics		FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	410-780°F	SPECIFIC GRAVITY (H ₂ O=1)	1.56-1.57
VAPOR PRESSURE (mm Hg.)	Approx. 1 mm @ 104°F	PERCENT VOLATILE BY VOLUME (%)	Rome, Ga. 60 Pittsfield, Mass. 40
VAPOR DENSITY (AIR=1)	Approximately 6.5	EVAPORATION RATE (_____=1)	6 Hrs. @ 212°F 30 - 37%
SOLUBILITY IN WATER	Nil		
APPEARANCE AND ODOR	Clear Liquid with Yellow Tint, Slight acrid odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used: Cleveland Open Cup)	FLAMMABLE LIMITS	Let	Uet
None to Boiling Point	None		
EXTINGUISHING MEDIA	None Required		
SPECIAL FIRE FIGHTING PROCEDURES	Material is nonflammable		
	737820		

UNUSUAL FIRE AND EXPLOSION HAZARDS

Gases produced by electric arcing contain high percentage of HCl; the unpleasantness and irritation caused by HCl give ample warning of its presence.

SECTION V - HEALTH HAZARD DATA

Vapor 0.5 - 1.0 mgm/cu. meter/8 Hr. Day

Dermatitis; Possible Chloracne - Eye Irritation

See ANSI C107.1 - 1974

EMERGENCY AND FIRST AID PROCEDURES

1. Remove from exposure.
2. Wash skin; irrigate eyes.
3. Consult physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE	X

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HCl when arced electrically

HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR	X

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Use Fuller's earth to avoid spread of liquid. Immediate sweeping of the area is required with disposal into drum container designated for Pyranol contaminated

Fuller's earth - see ANSI C-107.1-1974.

WASTE DISPOSAL METHOD

Incineration

See ANSI C107.1-1974 "Guidelines for handling and disposal of capacitor - and transformer-grade askarels containing polychlorinated biphenyls".

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Gas mask of organic cannister type or self-contained breathing apparatus to be used in emergency if exposed to high concentration of askarel or its arced products

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES Use gloves of neoprene, polyethylene or Viton

EYE PROTECTION Safety glasses or eye shields

OTHER PROTECTIVE EQUIPMENT

Use aprons of neoprene, polyethylene or Viton.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid open exposure of hot askarels (> 130°F). Be alert for possible allergic reactions. Normally shipped in metal containers. After handling, wash hands with water and soap before eating, drinking, smoking or use of toilet facilities.

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PROTECTIVE GLOVES	Use gloves of neoprene, polyethylene or Viton	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		Safety glasses or eye shields
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