

Monsanto

FROM
(NAME-LOCATION-PHONE) J. H. Craddock - St. Louis CSLH 4-4764

DATE : July 9, 1980

CC: C. F. Callis - B2SA
R. S. Nelson - CSLH

SUBJECT : PCB MATERIAL SAFETY DATA SHEET

REFERENCE :

TO : D. R. Bishop - A3NB
J. R. G. Ortiz - E2ND
G. Roush, MD - A2SA
R. A. Stohr - B3NJ

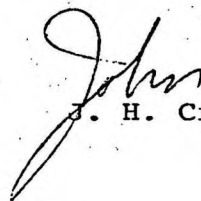
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Attached is a first draft copy of a new Material Safety Data Sheet (MSDS) for PCB's. I have put this together based upon old OSHA 20 forms and a Workplace Safety and Exposure Sheet dated February 28, that was reviewed by Product Acceptability and some DMEH staff for use in Canada.

I have used the standard format for the new Monsanto MSDS and have attempted to broaden the content to include all PCB's with some simple definitions and explanations to the user.

Please review this document and give me your comments and suggestions as soon as possible, hopefully by July 23. I am holding several requests for copies of MSDS's relating to Aroclors and other PCB-containing products and would like to be able to respond with a new, standard, written answer.

Hopefully, in the future the standard response will be something we have all agreed upon and feel comfortable with distributing in response to general inquiries.


J. H. Craddock

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enclosure

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Monsanto MATERIAL SAFETY DATA**NOTE:**

NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION AND RECOMMENDATIONS HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

MONSANTO PRODUCT NAME

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MO. 63166
EMERGENCY PHONE NO.
(CALL COLLECT)

POLYCHLORINATED BIPHENYLS - PCB's*

*See page 4 for definition and notes

PRODUCT IDENTIFICATIONSynonyms

PCB's
Chlorodiphenyl (___% Cl)
Chlorinated biphenyl
Polychlorinated biphenyl
Chlorinated biphenyls
(approx. ___% Cl)

Trade Names (Commonly used Monsanto products)

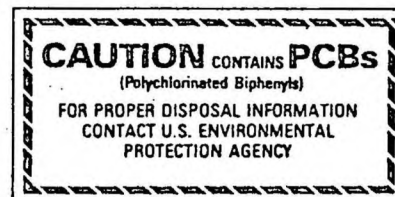
Askarel®**
Aroclor®¹ Series 1016, 1221, 1232, 1242, 1248, 1254, 1260
Pyranol®² Series
Inerteen®³ Series
Therminol®¹ FR Series

*See page 4 for notes

CAS No. 001336363, 053469219, 012672296, 01109769, 011096825 and others

WARNING STATEMENTS

Federal regulations under the Toxic Substances Control Act require PCB's and PCB items to be marked. (Check regulations for details*)

**EMERGENCY AND FIRST AID PROCEDURES**

Ingestion - Consult a physician. Give... (Physician, please complete)

Skin - If liquid or solid PCB's are splashed or spilled on a person, contaminated clothing should be removed promptly and the skin washed thoroughly with soap and water for at least 15 minutes.

Eyes - Eyes should be irrigated immediately with copious quantities of running water for at least 15 minutes if liquid or solid PCB's get into them. A drop of vegetable oil may be applied to the eye to relieve the irritating effect of PCB's.

Inhalation - Remove to fresh air. If skin rash or respiration irritation persists, consult a physician.

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PAGE 2 OF 4**Monsanto MATERIAL SAFETY DATA****OCCUPATIONAL CONTROL PROCEDURES**Inhalation

Atmospheric concentrations should be maintained below the recommended Threshold Limit Value (TLV). At room temperatures, the hazard of inhalation is considered slight or absent. At elevated temperatures, the process either should be completely enclosed or adequate mechanical exhaust ventilation must be provided to reduce concentrations to safe levels. For allowed enclosed uses, the system must be designed and constructed so that it is leak-proof. Special gasket/seal materials should be used to prevent leakage. Chemical cartridge respirators or gas masks approved for protection against organic vapors are recommended in the event of spills or leaks of hot fluids. These will provide good protection up to the concentrations shown on the approval labels and the odor will give ample warning if it comes through the device. Self-contained breathing apparatus should be worn when PCB's are encountered in an enclosed space.

Skin Contact

Avoid prolonged or repeated skin contact. Where employees may come into direct contact with PCB's, protective clothing impervious to PCB's should be worn. Gloves, boots, overshoes and bib-type aprons that cover the boot tops should be used when necessary. This protective equipment should be regularly inspected for defects and to ensure that it is in a clean and satisfactory working condition. Contaminated clothing must be laundered before reuse.

Eye Contact

Eye protection should be used where there is a possibility of liquid splashes.

Ingestion

Ingestion of these materials is generally not a problem in industry.

PHYSIOLOGICAL EFFECTS SUMMARY:Skin Contact

Can be absorbed through intact skin. Local action on skin is similar to that of common organic solvents where contact leads to removal of natural fats and oils with subsequent drying and cracking of the skin. A potential exists for the contracting of chloracne.

Eye Contact

The liquid products and their vapors are moderately irritating to eye tissues.

Ingestion

The acute oral toxicities of the undiluted compounds are: LD₅₀ rats - 8.65 gm/kg for 42% chlorinated, and 11.9 gm/kg for 54% chlorinated - "slightly toxic"

Inhalation

Animal experiments show no liver damage after prolonged exposure to 8.6 mg/cu.m. of 42% chlorinated material. Some liver damage was evident after prolonged exposure to 1.5 and 5.4 mg/cu.m. of 54% chlorinated material.

A level of 10 mg/cu.m. in the air has been reported as unbearably irritating.

Threshold Limit Value (TLV)

Chlorodiphenyl (42%) 1.0 mg/cu.m.

Chlorodiphenyl (54%) 0.5 mg/cu.m.

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FIRE PROTECTION INFORMATION

Fire and Explosion - The chlorodiphenyls are fire-resistant or essentially non-flammable liquids. When exposed to flame or hot surfaces under severe conditions they may decompose to form CO, CO₂, HCl, phenolics and aldehydes. No phosgene is formed.

PHYSICAL DATA TABLE 1 - Properties of Selected Aroclors

Property	1016	1221	1232	1242	1248	1254	1260
Color (APHA)	-	100	100	100	100	100	150
Physical state	mobile oil	mobile oil	mobile oil	mobile oil	mobile oil	viscous liquid	sticky resin
Stability	inert	inert	inert	inert	inert	inert	inert
Density (lb/gal 25°C)	11.40	9.85	10.55	11.50	12.04	12.82	13.50
Specific gravity x/15.5°C	1.36-1.37 x-25°	1.18-1.19 x-25°	1.27-1.28 x-25°	1.30-1.39 x-25°	1.40-1.41 x-65°	1.48-1.50 x-65°	1.55-1.56 x-90°
Distillation range (°C)	323-356	275-320	290-325	325-366	340-375	365-390	385-420
Acidity mg KOH/g, maximum	-	.014	.014	.015	.010	.010	.014
Fire point (°C)	none to boiling point	176	238	none to boiling point	none to boiling point	none to boiling point	none to boiling point
Viscosity (100°F)	71-81	38-41	44-51	92-92	185-240	1400-2500	-

REACTIVITY DATA

PCB's are very stable, fire-resistant compounds.

SPILL, LEAK & DISPOSAL INFORMATION

If PCB's leak or are spilled, the following steps should be taken immediately:

1. All non-essential personnel should be evacuated from the leak or spill area.
2. The area should be adequately ventilated to prevent the accumulation of vapors.
3. The spill/leak should be contained. Loss to sewer systems, navigable waterways and streams should be prevented. Spills/leaks should be removed promptly by means of absorptive material, such as sawdust, vermiculite, dry sand, clay, dirt or other similar materials, or trapped and removed by pumping or other suitable means (traps, drip-pans, trays, etc.).
4. Personnel entering the spill or leak area should be furnished with appropriate personal protective equipment and clothing.
5. Personnel trained in the emergency procedures and protected against the attendant hazards should shut off sources of PCB's, clean up spills, control and repair leaks, and fight fires in PCB areas.
6. All wastes and residues containing PCB's (e.g., wiping cloths, absorbent material, used disposable protective gloves, clothing, etc.) should be collected, placed in proper containers marked and disposed of in the manner prescribed by EPA regulations (40 CFR 761).

ADDITIONAL COMMENTS

An excellent reference for PCB handling information for all uses is: American National Standard (ANSI C107.1-1974) "Guideline for Handling and Disposal of Capacitor and Transformer-Grade Askarels Containing Polychlorinated Biphenyls." Available from American National Standards Institute, Inc., 1430 Broadway, NY, NY 10018

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NOTE:

ALTHOUGH THE INFORMATION AND RECOMMENDATIONS SET FORTH IN THIS SHEET ARE BELIEVED TO BE CORRECT AS OF THE DATE HEREOF, MONSANTO COMPANY MAKES NO REPRESENTATION AS TO THE COMPLETENESS OR ACCURACY OF SUCH INFORMATION AND RECOMMENDATIONS. MONSANTO COMPANY SHALL IN NO EVENT BE RESPONSIBLE FOR ANY DAMAGES OF WHATSOEVER NATURE DIRECTLY OR INDIRECTLY RESULTING FROM THE PUBLICATION OR USE OF OR RELIANCE UPON SUCH INFORMATION AND RECOMMENDATIONS.

NO WARRANTY, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS OR OF ANY OTHER NATURE WITH RESPECT TO THE PRODUCT OR TO THE INFORMATION AND RECOMMENDATIONS HEREIN IS MADE HEREUNDER.

This form has been approved by the Occupational Safety and Health Administration as "equivalent to" OSHA Form 20.

POLYCHLORINATED BIPHENYLS*

Definition: A series of technical mixtures, consisting of many isomers and compounds that vary from mobile oily liquids to white crystalline solids and hard non-crystalline resins. Technical products vary in composition, in the degree of chlorination and possibly according to batch.

The mixture generally used contains an average of 3 molecules chlorine per molecule (42% chlorine) to 5 molecules chlorine per molecule (54% chlorine). They are used as dielectric fluids in transformers and capacitors. Prior to 1977, PCB's were used in heat transfer systems and as hydraulic fluid. Federal regulations now specify that PCB's can be used only in totally enclosed systems. (40 CFR 761, see FEDERAL REGISTER, Vol. 44, p. 31514ff, May 31, 1979)

CAS No. 001336363: For general class of compounds

TRADE NAMES

ASKARELO** - Generic name for a broad class of fire-resistant synthetic chlorinated hydrocarbons used as dielectric fluids.

- ① Registered trademark of Monsanto Company
- ② Registered trademark of General Electric Company
- ③ Registered trademark of Westinghouse Electric Corporation

This list of trade names is representative of several commonly used Monsanto products (or formulated with Monsanto products). Many other trademarked products were marketed by Monsanto and other chemical manufacturers. Contact the manufacturer of the trademarked product directly, if not in this listing, to determine if the formulation contained PCB's.

DATE July 1, 1980	REVISED	X	SUPERCEDES All prior to 7/1/80
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