

MAR 24 REC'D

Monsanto

FROM (NAME & LOCATION) D. R. Pogue - G. O.

DATE : March 24, 1969

cc: H. S. Bergen
J. T. Garrett
D. A. Olson

SUBJECT :

REFERENCE :

TO : Phocion Park III

Phocion,

Attached for your review is a draft of the response to the San Francisco Regional Water Quality Control Board that I've prepared at the request of Howard Bergen, in his absence this week. A similar draft less attachments has been sent to Jack Garrett for his review. Primary sources for my comments came from memos to H. Bergen from E. Wheeler and P. Benignus.

Per our telephone conversation Friday I'll plan to telephone you and Jack Garrett early Tuesday afternoon from Pere Marquette Tuesday to insure the content is consistent with Monsanto's best interests. In the event major re-work is required, I can plan to return to the offices sometime during the week.

Thank you.

Don/pep
D. R. Pogue

DRP/pep

P.S. Also enclosed for your reference and Jack's is a copy of the letter from the Water Quality Control Board.

D. R. P.

DSW 162225

DRAFT

March 24, 1969

Ref: File No. 2119-1075

Mr. Fred H. Dierker
Executive Officer
State of California-Resources Agency
San Francisco Bay Region
Regional Water Quality Control Board
364 Fourteenth Street
Oakland, California 94612

Dear Mr. Dierker:

This information on Monsanto's chlorinated biphenyls is in reference to your letter of March 7th. Your requests are answered individually.

1. Data from ~~fish bioassays~~ which we are now performing; including ~~96-hr. TL_m~~ and data pages recording laboratory observations -

We have only recently contracted with a consulting laboratory to undertake fish toxicity studies on chlorinated biphenyls. Due to the low solubility of polychlorinated biphenyl in water as indicated in four below it would not be surprising if we fail to get a 96-hour TL_m. Depending on the results of the initial studies, we plan to do at least 30-day exposure experiments. We will keep you informed of any results we obtain.

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2. Existing data on toxicity, including long-term effects.

Attachment A is a Xerox copy of two pages showing the general physical characteristics of our polychlorinated biphenyls. We have added to the bottom of these pages the results of acute animal toxicity studies showing the oral LD₅₀ in rats and the skin minimum lethal dose when applied to rabbits. You will note that the samples were administered undiluted or as solution-suspension in corn oil depending on the viscosity and solubility of the materials.

4. Solubility in water.

Aroclors are essentially insoluble in water, which is a property valued for most of its industrial applications. The solubility of Aroclor in tap water at 25°C is as follows:

<u>Product</u>	<u>Solubility in Water</u>
Aroclor 1242	203 $\pm$ 10 ppm
Aroclor 1248	106 $\pm$ 14 ppm
Aroclor 1254	50 $\pm$ 2 ppm

Although the solubility of Aroclor 1260 has not been determined, the above data certainly serves to indicate that the more highly chlorinated Aroclors such as 1260 are the least soluble in water. Accordingly, it is quite reasonable to say that the solubility of Aroclor 1260 in water would be significantly lower than 50 ppm.

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3. & 5.

Maximum allowable concentrations in industrial work areas. Industrial applications by product.

Chronic inhalation data has been obtained on Aroclors 1242 and 1254 and a reprint discussing the results of the studies is enclosed (Attachment B). The author suggests threshold limit values for an industrial environment of 2.0 mg per cu meter for Aroclor 1242 and 1.0 mg per cu meter for Aroclor 1254, which is double that decided by The American Conference of Governmental Industrial Hygienists.

You will note in the table describing the properties of these materials that the liquid members of the series have extremely high distillation ranges and that waxy or resinous members have to be distilled under high vacuum. These data attest to the low vapor pressure of the materials at ambient temperatures.

Aroclors find primary uses in applications requiring chemical stability, good dielectric properties, fire resistance, low volatility, and water insolubility.

Dielectric Fluids - Aroclors 1242 through 1260 are used in hermetically sealed capacitors and

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transformers, where design is for 20-30 years longevity and operating conditions are less than ambient temperature to slightly above.

Plasticizers - Aroclors 1232 through 5460 are used primarily in flame-retardant vinyl-asbestos floor tile, polyvinyl acetate emulsion adhesives, as flame retardant plasticizers in polyurethane rubber, foams and coatings, styrene-butadiene copolymer coatings, and in cellulosic lacquers. These applications do not include automobile tires. The applications of Aroclor coatings, tile, lacquers etc., emphasize Aroclors inertness and low volatility. In normal use Aroclor plasticizer applications are ambient temperature environments presenting no special health problems. Because of Aroclors chemical inertness we do not see any problems associated with the environment from refuse dumps.

Hydraulic Fluid - Heat Transfer Fluid - Aroclors find applications in industrial (excludes aviation) hydraulic and heat transfer systems. As in the case of dielectric applications these systems are closed systems designed for essentially indefinite fluid life. Aroclor fluids are valued from \$2.00 to \$4.00 per gallon depending upon type and formulation. Thus the indefinite life design of Aroclor systems

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and its value indeed limit discarded fluid. In the rare cases where an amount is available the normal practice is fluid reclamation for reuse.

6. Current volume of sales of "PCB" in the San Francisco Bay Area and in California.

It is Monsanto's policy not to disclose customer lists. However, we do want to cooperate in the fullest extent in this matter. I suggest you work through Mr. C. L. Bradford, Regional Manager, Functional Fluids and Mr. Robert Johnson, Regional Manager, Plasticizers.

Their addresses are:

Mr. C. L. Bradford - 6670 E. Flotilla
Los Angeles Calif. 90022
RA 3-2492

Mr. Robert Johnson - (same as above)

7. Monsanto's advice to its customers for handling "PCB" in normal use, disposal, residual disposal, spills, etc.

We advise customers using our Aroclor products to take normal personal precautions associated with handling most synthetic chemicals.

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It can be handled with only minor precautions. If accidentally spilled on hands, no serious skin irritation will occur. However, liquid askarel has a solvent action (similar to paint thinner) on the fats and oils of the skin and prolonged contact may lead to drying and chapping of the skin.

In case of contact, wash off the skin with soap and water; remove and dry clean saturated clothing. Clean up spills with rags, sawdust or absorbent clay. Eye contact may result in painful irritation but no permanent damage to tissues. If askarel gets in the eyes, flush with large amounts of water. As with all eye first-aid, refer to a physician. To relieve irritation, physicians have used a 1% Pontocaine as well as ophthalmic cortisone acetate solution, or castor oil.

Infrequent exposure to askarel vapors will not cause ill effects. However, prolonged exposure to high vapor concentrations should be avoided. If hot askarel must be handled in a closed or confined area, provide the area with ordinary exhaust ventilation.- or - wear an organic cartridge respirator approved by the U.S. Bureau of Mines.

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In our more than 30 years of manufacture, cases of harmful effects in the industrial use of the materials have been extremely rare. We believe this is due to the low volatility which reduces any possible inhalation at ambient temperatures and secondly the fact that in heat transfer uses where the material is heated the system is closed so that exposures are limited to the occasion that when due to accidents the hot materials might escape from a system briefly. Where such incidents have occurred the irritation caused by the vapors from the hot materials (up to 600°F.) have limited voluntary exposures such that systemic toxic effects are rare.

We hope this information will be of value to you. Feel free to contact us should you have further questions or need additional information.

H. S. Bergen

/pep

DSW 162232

SAN FRANCISCO BAY REGION

REGIONAL WATER QUALITY CONTROL BOARD

364 FOURTEENTH STREET
OAKLAND 94612

March 7, 1969

In reply please refer to
File No. 2119-1075Monsanto Company
800 N. Lindbergh
St. Louis, Missouri 63166Attention Mr. Howard S. Burgen, Business Director
Functional Fluids Organic Chemicals Division

Subject: Polychlorinated biphenyls ("PCB's")

Gentlemen:

Confirming recent telephone discussions between your Mr. Burgen and Hobart C. Knapp of this office, we request the following information about your polychlorinated biphenyls:

- ✓ 1. Data from fish bioassays which you are now performing; please include 96-hour TL_m and the data pages recording laboratory observations.
- ✓ 2. Existing data on toxicity, including long-term effects.
- ✓ 3. Maximum allowable concentrations in industrial work areas.
4. Solubility in water.
5. Industrial applications by specific Monsanto product item number, and physical nature of these items; please include:
 - a. Dielectric fluids
 - b. Plasticizers for paints, plastics, elastomers, etc., and the uses of products containing "PCB", e.g. tire stocks, floor tile. Please inform about the diffusion or other escape of "PCB" from such products, both in normal use and in the environment of refuse dumps.
 - c. Hydraulic fluid for aircraft, industrial equipment, etc.
 - d. Heat transfer applications.
 - e. Other.
6. Current volume of sales of "PCB" in the San Francisco Bay Area and in California for each of the above applications and extent to which this is to replace spent "PCB". (We understand current inventory turnover at your Santa Clara warehouse is around 40,000 lbs per month, but we have been able to account for only two bbl. per year in purchases.) Please name Bay Area users of "PCB" for these applications.

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Monsanto Company

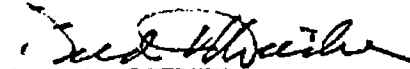
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7. Monsanto's advice to its customers for handling "PCB" in normal use, and for its disposal when discarded, e.g., of filtration residues from processing dielectric fluids, discarding the fluids when they must be replaced in dielectric, hydraulic, or heat transfer service, disposal methods for emptied containers, spills, etc..

In view of the recent allegations in the technical press about the serious detrimental effects of "PCB" on fish and wildlife, we are most anxious to receive this information soon. Your cooperation in this matter will be appreciated.

Sincerely,



FRED H. DIERKER
Executive Officer

HCK,FHD/emj

DSW 162234

STLCOPCB4040851