MONSANTO

FROM (LOCATION) St. Louis 77, Missouri CC:

DATE : March 28, 1966

SUBJECT : Toxicity and Hazards

REFERENCE :

TO : Mr. E. Wheeler
General Offices

Aroclor 1221

Attached is section on Toxicity and Hazards for Suggested Procedure P-1414, entitled "The Separation of 4-Chlorobiphenyl from Aroclor 1221 by Fractional Distillation", written by B. Dmuchovsky, dated March 15, 1966, Job No. 4787.

Dolores Sisson

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att.

DSW 552920

IN-10 REV. 8-64

STLCOPCB4091337

DISCUSSION OF IMPORTANT VARIABLES

Care must be exercised to avoid excessive cooling in the system because the pure distillates are solids. In addition biphenyl sublimes and may plug the column. The melting and boiling points of the components in the distillate are shown.

Compound	m., °C.	b, °C./760 mm.
Biphenyl	69-70	255
2-Chlorobiphenyl	34	267-8
3-Chlorobiphenyl	89	284-5
4-Chlorobiphenyl	77.5	282

ANALYTICAL METHODS

Vapor phase chromatographic methods are given by W. E. Koerner and E. M. Emery in Report No. 2864, Job No. 117-4189. A 150 ft. stainless steel capillary column is used at a temperature of 225° C.

TOXICITY AND HAZARDS

Aroclor 1221 is a liquid under normal conditions and has a medium toxicity range for liquid ingestion and high toxicity for vapor inhalation. The maximum allowable concentration is 1 mg./m.^{3} There are no fire hazards under normal conditions. This material can cause dermatitis, systemic poisoning from the fumes, and yellow atrophy of the liver. There are skin, mucous membrane and eye hazards encountered in handling this material. The skin, lungs and eyes should be protected particularly at elevated temperatures. Adequate ventilation is needed.

Biphenyl has the same toxicity as the Aroclors. It is very flammable and will burn when exposed to heat or flame or oxidizing materials.

It is possible that HCl may be present so adequate precautions must be taken for this very toxic gas which has a maximum allowable concentration of 5-10 ppm.

POLLUTION

The off-gas may contain HCl so adequate precautions should be observed.

B. Dmuchovsky

3/16/66
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R. W. Radue

File Copy Approved by Manager of Research: _____

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