

E. P. Wheeler - Medical Department

March 20, 1969
REPLY TO LETTER FROM
SAN FRANCISCO REGIONAL WATER
QUALITY CONTROL BOARD
Your memo March 12, 1969

P. E. Benignus
Tom Ford

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TFORD

Howard S. Bergen
HBSURG

I believe the following will suffice for answers to questions 1, 2 and 3.

1. We have only recently contracted with a consulting laboratory to undertake fish toxicity studies. 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.

2. There is enclosed a Xerox copy of two pages showing the general physical characteristics of our polychlorinated biphenyls. The numerical designation of the several products is significant in that the 1200 series are biphenyls chlorinated to the extent indicated by the last two numbers. For example, Aroclor 1242 is biphenyl chlorinated to the extent of 42%. The 5400 compounds are terphenyls again with the last two numbers indicating the percentage of chlorination. 4400 and 2500 compounds are mixtures of biphenyls and terphenyls chlorinated to the percentage indicated by the last two numbers.

We have added to the bottom of these pages the results of acute animal toxicity studies showing the oral LD_{50} 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.

3. Chronic inhalation data has been obtained on Aroclors 1242 and 1254 and a reprint discussing the results of the studies is enclosed. 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. The American Conference of Governmental Industrial Hygienists decided to reduce these values by one-half.

Howard S. Burgen

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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.

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 uses where the material is heated the system is a closed one 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 have limited voluntary exposures such that systemic toxic effects are rare.

Elmer P. Wheeler

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Enclosures

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