Monsanto

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Dr. Martha Sager, Chairman
Effluent Standards and Water Quality
Information Advisory Committee
Environmental Protection Agency
Room 821, Crystal Mall, Building 2
Washington, D.C. 20460

Re: Effluent Standards and Water Quality
Information Advisory Committee
Agenda and Notice of Public Hearings
Federal Register, Vol. 38, No. 116, Page 11868
Monday, June 18, 1973

Dear Dr. Sager:

Monsanto Company, as an interested party and a manufacturer of polychlorinated biphenyl (PCB), would like to take this opportunity to share with the Committee, and present for the record, our experiences regarding the manufacture, sale and handling of PCB and its relationship to the environment.

We hope this information, along with the attached exhibits, will be helpful to the Committee and the Administrator when proposing effluent standards for toxic pollutants.

BACKGROUND

Monsanto Company has been a major manufacturer of chemical products since 1901. These products are used in numerous American industries, and in fact, through our research department, we have played a role in developing new products to meet the needs of industry and the consumer.

On some occasions a chemical compound with specific properties is developed to meet a need in a certain application. In other cases a chemical compound with unique properties is developed first -- possibly through innovative research or even by happenstance -- and then an end-use is found.

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The chemical structure of PCB has been known for nearly 100 years. It was not until the late 1920s that a use for PCB was found -- as a dielectric fluid in transformers and capacitors. The properties of PCB -- inertness, fire resistance and a nonconductor of electricity -- seemed to be perfectly suited to these electrical applications where high-voltage arcing could occur, possibly resulting in serious fires or damage to the equipment.

Monsanto began commercial production of PCB in 1929. As the unique properties of the material became known new uses were found. For example, their fire-resistant nature made them excellent choices for use in heat-transfer fluids. Their inertness gave long-lasting qualities to lubricants. Their use in surface coatings improved waterproofing characteristics.

Handling of the product at the manufacturing level has not presented problems so long as the proper industrial hygiene practices were followed and PCB has always been considered less hazardous than many other chemicals in everyday use.

Therefore, it appeared that PCBs were a very suitable product which met the needs of industry.

Late in the 1960s, sophisticated analytical procedures were developed which could detect very minute quantities of PCB in nature. Following this analytical breakthrough, researchers discovered that PCB could possibly be affecting certain forms of aquatic, marine, terrestrial and avian wildlife.

The persistent nature and stability of PCB, while so desirable from the standpoint of many industrial applications, appeared to be undesirable in terms of our environment.

INDUSTRY ACTIONS

When questions about the effect of PCB on the environment first surfaced, Monsanto Company reviewed its product line and the applications for these products. As more data were developed and the environmental controversy grew, Monsanto took steps intended to reduce the entry of PCB into the environment. The company stopped the sale of PCB for use in various applications, except where no acceptable alternatives were available.

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Today, PCB manufactured by Monsanto Company is sold to the electrical industry where it is used in closed systems as a dielectric fluid in transformers and capacitors -- applications for which we understand there continue to be no acceptable substitutes.

Our manufacturing and sales reduction program was a unilateral action taken by Monsanto and was based on our evaluation of developing environmental data.

Recognizing the need for proper controls in the handling and use of PCBs, representatives of the transformer and capacitor industries, utilities, and governmental agencies under the initial auspices of the National Electrical Manufacturers Association formed American National Standards Institute Committee C-107. A copy of the Committee's recently issued proposed guidelines for the handling and disposal of dielectric fluids is attached. These guidelines reflect the industry's understanding of the need for proper control and should contribute significantly toward this objective.

TOXICITY IN PERSPECTIVE

In Section 502 (13) of the current Federal Water Pollution Control Act, the term "toxic pollutant" is defined as "those pollutants or combinations of pollutants including disease causing agents, which after discharge or upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring."

While the breadth of this definition can be so construed as to permit the inclusion of many substances on a list of "toxic pollutant(s)," we concur with the recent suggestion of the EPA's Acting Administrator (Federal Register Vol. 38, No. 129, page 18048) that Congress intended the Administrator under the Act "... to be selective in determining which of the potentially large number of candidate substances

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actually should be listed at various times." Although not spelled out in the definition, we feel it important to consider the degree of toxicity of the substance; differences in biological species' sensitivity; and whether or not the substance poses a threat to man, animals, birds, the aquatic environment or some other aspect of the ecosystem.

For example, there is a material difference between the threat to human health posed by equal amounts of the "cyanide ion" and "PCBs," both of which substances appear on your proposed list of pollutants. We feel certain the members of your committee will agree that these two substances should not be considered on the same basis merely because they are both suggested for inclusion in the same list.

We trust that comparative differences in the potential hazard to health and our environment of the various substances proposed for your list will be an important factor in your deliberations and determinations.

On the basis of available evidence, it would appear that PCBs pose less of an acute toxic health hazard than many substances not proposed for your list, and at the levels found in the total environment are not a threat to public health. We believe these views agree with the conclusions reached by the Interdepartmental Task Force on PCBs in its report dated May, 1972 (COM-72-10419).

We sincerely believe, because of Monsanto's sales policies discussed elsewhere, and actions of others throughout the world, that the levels of PCB in the aquatic environment are even lower now than at the time the Task Force report was prepared.

BIODEGRADATION

A valid assessment of the environmental impact of polychlorinated biphenyls must include consideration of the persistence of these materials. Certain reports have been made that PCBs are non-degradable. However, although much work remains to be done, an analysis of available information and information from studies by Monsanto indicate beyond any reasonable doubt that the many PCB

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isomers degrade in the environment at different rates. This information indicates that under the proper conditions of use and control, some of the commercial PCBs, which are mixtures of several isomers, can be utilized and their safety benefits can be realized without serious adverse consequences to the environment.

In May, 1972 we shared with members of the Federal Interdepartmental Task Force on PCBs the results of studies of residual PCBs in animal tissues and biodegradation by activated sludges. A copy of this presentation is attached for review by your Committee. Articles describing in more detail the results of the degradation studies in activated sludges and soils are being prepared for publication. Copies of these reports will be mailed to your Committee when they are completed.

EFFLUENT STANDARDS

The worldwide interest in PCBs and their environmental impact has resulted in an abundance of published articles. To assist the Committee we have attached a bibliography of some of the pertinent literature, copies of selected articles and a copy of the Interdepartmental Task Force report. This report, in our opinion, is an excellent reference document and we recommend it to the Committee as a valuable source of information as you consider possible effluent standards.

Although much has been published, much more scientific information is required. This critical need for more knowledge was recognized by the Task Force and is highlighted in its report under "Findings, Conclusions and Recommendations".

It is our considered opinion that in the absence of critical basic scientific data any attempt to establish a PCB standard for water effluents at point sources would be premature at this time.

Pending the availability of the data which would contribute to the establishment of a realistic effluent standard, it is appropriate to consider that the restricted use and proper control of PCBs have and will continue to result in a diminished impact on the environment. Furthermore, the recent ruling by the Food and Drug Administration

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(Federal Register, Volume 38, Number 129, July 6, 1973) provides for temporary PCB tolerances in food, animal feeds and food packaging materials, thereby limiting exposure to humans and domestic animals.

We appreciate the opportunity the Committee has provided for interested parties to contribute information. If you have any questions concerning our comments or any of the attachments we will be pleased to supply further explanations or information upon request.

Respectfully submitted,

W. B. Papageorge
Manager
Product Acceptability

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Enclosures

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