Proposed briefing document for Fitz

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DRAFT
1/5/76

MONSANTO PROGRESS ON ALTERNATE PRODUCTS

It's important to discriminate between fluids for transformer cooling and those for capacitor impregnation, because each application has requirements not shared by the other, and we know of no candidate replacement product which would be applicable to both.

For capacitors, we have studied several alternative technical approaches and have settled on a product which mimics the electrical behavior of PCB's in a capacitor, yet contains no chlorine. Our testing has included impregnation of capacitors which were subjected to accelerated life tests; these were favorable. Of course ultimate acceptance must come from our customers, several of whom have received sample quantities for use in their own testing programs. Should we receive an early favorable verdict from enough of the industry to support an investment, we could get into interim production at a volume sufficient to supply the industry before year-end, although we could not achieve the economics of a dedicated plant for 2-3 years.

In transformer fluids, we are not as far along. Most power transformers are cooled by mineral oil -- PCB's are only used in those applications where a high degree of fire resistance is needed. Unfortunately, there is no accepted quantitative definition of the degree of fire resistance needed in a fire-resistant transformer fluid. However, we have come up with a

candidate product which we will make available for testing by transformer manufacturers. We think it's superior to other proposed replacements.

An obvious key issue in the final acceptance of these candidate dielectric fluids is their environmental and toxicological properties. We have approached this question in two ways: first by pursuing chemical structures thought likely to be relatively innocuous from previous experience or analogy; and second by a thorough testing program. A report on our testing to date will be available in a few weeks -- I can say now that we are pleased with the results so far, but some of the more extended tests are still under way.

CLEANUP ACTION AT OUR PLANTS

Measurable losses from the Sauget Village treatment plant to the environment are approximately one to two pounds per day, which equates to approximately 1 to 2 parts per trillion PCB's in the Mississippi River at average flow rates. While there presently are no formal PCB discharge limits, ~~the EPA has~~ proposals under consideration ~~which~~ call for ambient water concentrations at levels not to exceed 1 part per trillion.

The level of PCB's in the atmosphere is less than Threshold Limit Values ("TLV refers to airborne concentrations of substances and

represents conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effects") using sampling and analytical techniques currently available. We presently are manufacturing about 80,000 pounds per day of PCB's.

In our manufacturing area we have acted to prevent loss of PCB's in the environment by literally making the department a "concrete bathtub". Drainage is collected in an isolated PCB sewer system with settling basins to insure PCB containment in case of accidental spill or equipment failure with the capability of monitoring the effluent from the department.

Storage tanks are blanketed with nitrogen to eliminate tanks "breathing", and mist eliminators have been installed in vapor lines to eliminate the possibility of PCB's leaving the manufacturing area. The key to our continued success in controlling PCB's is in our maintaining a high housekeeping level.

A Monsanto chemical waste treatment to be completed in late 1976, followed by a metropolitan treatment plant in 1982-3 will be further steps in reducing PCB effluents toward a negligible value.

STEPS TAKEN IN LABELLING AND TRANSPORT PRACTICES

Monsanto ships PCB fluids in both bulk carriers and in drums. Bulk shipments are made in a Monsanto-owned fleet of tank cars

which is used exclusively for that service, or in customer-owned tanktrucks. Drum shipments are made in special reinforced drums which we believe to be the best available.

A multi-lingual warning label is affixed to each package giving a brief description of the nature of the material and appropriate actions to be taken in the event of a spill or leak. We also supply a label to be used on return shipments for incineration, which gives similar information.

THE MONSANTO INCINERATION SERVICE

An incinerator was built at our Sauget, Illinois plant for the specific purpose of destroying waste PCB-containing liquids, both from our own operations and from our customers. Firebox temperatures above 2000°F are maintained to completely destroy the PCB compounds, and combustion products are removed in scrubbers. Routine sampling of both the stack and the scrubber effluent has confirmed the effectiveness of the system. A fee for handling is charged for the incineration service, which does not fully cover the costs we have incurred to date in developing and operating the incineration system.

PROPOSED ADDITIONS TO QUESTIONS AND ANSWERS

Q. Are your replacement products fire resistant? If not, won't this expose the public to some new hazards?

A. Our replacement capacitor fluid candidate is far from the category of "flammable liquids", but it will burn more easily than PCB's. To give a familiar analogy, it has about the same Flash Point as the ethylene glycol used in automotive anti-freeze. We hope and expect that capacitor manufacturers can design to minimize any potential fire hazard, but to some degree there will be a trade-off between maximum fire safety and environmental compatability.

Q. You stated that there is no accepted standard for fire-resistance for transformer fluids. What is Monsanto doing about it?

A. We feel that the proper agency for establishing such a standard would be an underwriters group or the Bureau of Standards. EPA might be able to focus the attention of appropriate government agencies on this problem.

Q. Why is Monsanto introducing a replacement dielectric fluid before environmental and toxicological testing is complete?

A. In a sense, that kind of testing is never really complete, because there are so many different kinds of tests, and some take several years to run. The data we have developed so far encourages us to believe that the new product is better than PCB's: that is - more biodegradable, not subject to biomagnification, relatively non-toxic - and this lends urgency to getting on with a replacement program.

MONS 044987