Monsanto

FROM (NAME & LOCATION) C. L. Bradford/N. T. Johnson

DATE November 17, 1971 cc

SUBJECT CHLORINATED TERPHENYLS

REFERENCE

TO : T. L. Gossage

We have given considerable thought to your posed question what would happen should we completely remove polychlorinated biphenyls and polychlorinated terphenyls from our industrial fluids. Following are our observations.

SANTOVAC

Santovac 1 and 2 will be dead if we remove polychlorinated biphenyls from our product line. They are only saleable because of the special properties of PCBs, so we recommend no replacement products for them. The combined budgets for 1972 are 176,000 pounds and 187,000 high gross profit (88%) dollars. Removal of Santovacs from the market will cause some hardship and scrambling on the part of our customers since in some diffusion pumps it appears only the Aroclors will work. However, other than some ill will, we expect no adverse effects to our company.

TURBINOL 153

We have one customer for this PCB-containing product, Texas Eastern Transmission Corporation. They use it as a lubricant in 18 or so turbine-compressor combinations, each installation being worth $1M or more. They are the major supplier of natural gas to the East Coast including New York City.

To our knowledge, there is no approved fire resistant lubricant that can directly replace Turbinol 153. The best candidate would be a straight phosphate ester, but for a reasonable change-over General Electric (the turbine manufacturer) should first approve the product and then Texas Eastern would probably require 5,000 hours of running time before agreeing to the switch.

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EXHIBIT NO. 1136
11/5/92 [illegible]

To avoid the possibility of shutting this pipeline down, and/or causing such a great expense to this customer that they would sue us, we recommend giving them 8 months grace from the time G. E. has approved an alternate fire resistant fluid - hopefully our own straight phosphate ester. In addition, we recommend Monsanto absorbing the cost to incinerate their current charge of Turbinol 153 (estimated at 54,000 gallons - a cost to Monsanto for incineration and freight equaling $27,000) plus providing them a free charge of straight phosphate ester, should they decide to remain with us. Our 1972 budget for this product is 325,000 pounds at $107,000 - all of which we expect to lose if we withdraw from the market with less than the notice recommended above.

PYDRAUL & MISCELLANEOUS INDUSTRIAL FLUIDS

In addition to the products above, we have 10 Pydraul fluids and 5 miscellaneous industrial fluids that contain polychlorinated terphenyls. Our domestic 1972 budget for these products is 14,664,000 pounds and $3,742,000. If we stop using PCTs without fully tested NC/N_2C ester formulations, inventoried replacement products, and 90 days thereafter for conversion, we will lose all of this business. Note the NC/N_2C ester formulations. We do not think it realistic to think that we could convert customers to interim formulations and then convert them later to NC/N_2C products.

If inventoried product and fully tested formulations were available on 1/1/72, and we were given 90 days to convert customers, we would estimate our 1972 sales to be 9,683,000 pounds and $2,646,000. Our losses then would be 4,981,000 pounds and $1,096,000. We would expect to retain 52% of the business on new products.

Assuming availability on 1/1/72 of inventoried products and fully tested formulations but given 180 days to convert customers, we estimate 1972 sales of 12,764,000 pounds and $3,287,000. This represents a loss of 1,900,000 pounds and $455,000. We would expect to retain 71% of the business.

REPLACEMENT FLUIDS

One assumption of all these calculations is that our new formulations will be compatible with our current products except for Turbinol 153, Pydraul 150A and the air compressor lubricants including Pydraul ACA, Pydraul AC Wintergrade 28, and Pydraul 625A.

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For Pydraul 150A our replacement product would not be compatible. The VI improver in Pydraul 150A is soluble only in the chlorinated terphenyls. Therefore, we recommend that Monsanto replace free of charge our customers' current fill (estimated at 50,000 gallons) and absorb the expense of incinerating 50,000 gallons of returned fluid ($25,000 cost). The replacement product would be Pydraul 30E.

For the air compressor lubricants we recommend replacing free of charge approximately 25,000 gallons of fluid now out in the industry and incinerating that amount at our own expense. Cost of incineration and freight would probably be around $12,500, and the replacement products would be Pydraul 30E, Pydraul 65E and Pydraul 115E.

Since all other new products would be compatible with the old, we would recommend simply adding the new to the old as makeup. This, of course, would mean gradual loss to the environment of all PCTs and PCBs in our current customers' systems. The alternative would be to replace their current charge of fluid with new fluids and incinerate their old fluid, all at our expense. A rough estimate of the amount of fluid involved in that operation would be 20M pounds.

SUMMARY

In summary, if we withdraw from this market with little notice to our customers, say by 1/1/72, the industry we serve must find a source for over 16M pounds of fire resistant fluids, on an annual basis. The 1972 requirements would actually be larger since many customers would have to take initial fills for conversion. There may not be enough phosphate ester capacity available to satisfy these needs. The result would be plants going to water glycol or non-fire resistant petroleum oils to keep operating. Any resultant fires or inferior performance might possibly be laid at Monsanto's doorstep and result in law suits. Even with no fires, such a precipitous withdrawal of supply by us would create much long term ill with such industrial giants as General Motors, Alcoa, Armco Steel, Inland Steel, Republic Steel, United States Steel, Johnson Motors, Ralston Purina and Texas Eastern, to name a few.

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We recommend that if the decision is to withdraw, we do it in an orderly manner that will allow our customers of 10 or 20 years adequate time to choose and get delivery on acceptable replacement products.

C. L. Bradford

N. T. Johnson

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