DRAFT-10/15/70

The Secretary,
Ministry of Industrial Development and Internal Trade
Director General of Technical Development
(Coordination and Licensing Progress Section)
Udyog Bhawan
New Delhi 11, India

Reference: Polychlorinated Biphenyls (PCB)

Dear Sir:

Monsanto recognizes the great potential of India. It has identified a number of areas where it can bring its technology to participate in and foster the economic growth of the country.

Monsanto has been issued a Letter of Intent for Weedicides and an application for a Letter of Intent for Rubber Chemicals is under consideration.

Monsanto has been evaluating still another area where its technology could be of value - manufacture of biphenyl and its chlorinated derivatives. Monsanto is and has been the sole producer of polychlorinated biphenyls (PCB) in the U.S. for over 20 years and is the sole producer in the United Kingdom. As a major producer of these products in Europe and Japan in addition to the U.S., Monsanto is the largest world supplier of PCBs.

PCBs are unique products and find applications in many areas. Unique electrical properties allow their use in transformers as a coolant and insulation fluid. Capacitors use significant quantities of PCBs in their construction. PCBs and derivatives have been used as plasticizers in wire and cable coatings as well as PVC film.

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PCB's have been used as hydraulic fluids, machine tool cutting oils, and in the manufacture of pressure sensitive (carbonless) reproducing paper. Small quantities find a variety of other miscellaneous uses as well.

India's Fourth 5-Year Plan provides for significant growth of electric power generation and use which in turn presages a growing demand for products with the dielectric properties of PCBs.

Accordingly, please record this letter as Monsanto's formal application for the manufacture of polychlorinated biphenyls as the biphenyl intermediate in India. The basic raw materials, petroleum derived benzene and chlorine, would be supplied from indigenous sources. The terms of collaboration will be developed to the satisfaction of the Government.

Monsanto has delayed submitting an application for a Letter of Intent for PCBs and biphenyl in the light of ecological considerations which are emerging. Recent environmental studies have found the presence of PCBs in fish, bird, water, sediment samples. Further studies have indicated a chronic toxicity of PCBs to many forms of life even at very low levels. PCBs do not readily decompose and concentrations can be built up in the living organisms as well as in the environment. The attached paper, "PCBs - Prevalent and Persistent" from Vol. 4 No. 10, October 1970 issue of Environmental Science & Technology describes in depth the ecology problem.

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For some of the PCB applications there are substitutes. For other uses - and in particular capacitors - there is no known substitute. Fortunately in this application, the PCB's are in a closed system with limited opportunity for loss to the surrondings. Research work is going forward for an effective substitute, but to date it has been unsuccessful. All flourescent lights, mercury vapor lamps, fans, and elsewhere where the power factor improvement is required are dependent on the dielectric properties of PCBs.

Monsanto Company, aware of its social responsibilities, has adopted the policy that it will no longer sell PCBs to consumers in the U.S. and Europe where disposal of the end products cannot be controlled. Attached is a Monsanto News Release dated July 16, 1970 which describes fully Monsanto's position as the world's largest manufacturer of PCBs. Effectively this means sales essentially to the electrical industry for capacitors and transformers.

Sufficient capacity exists within present Monsanto capacities and in the world to supply all of India's projected PCB needs for at least the next 5-10 years. With the restriction on the broader applications for PCBs this position will probably prevail. It would seem unlikely that savings in foreign exchange from indigenous manufacture would justify the risk of installing facilities when the ecology threat and the possible development of substitute products could obsolete the investment.

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Accordingly Monsanto earnestly requests your counsel concerning the desirability of the manufacture of these products in India. Should the Government of India find it to the overall best interest of the country, Monsanto is anxious to provide full details required for a Letter of Intent.

Monsanto's worldwide leadership in PCBs and other functional fluids will provide India with the most advanced technology and application research available.

Respectfully yours,

Merlin J. Auzine
Project Manager

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