PCBs - The Electrical Industry

Steering Committee - ANSI - C107
St. Louis, Mo. 11/11/71

Pertinent comments relative to PCBs for use by the electrical industry and for consideration by the sub-committees on capacitors and transformers, include:

1. The electrical industry has no suitable fire-resistant dielectric fluid replacement for PCBs, polychlorinated biphenyls used in the askarel class of transformers and capacitors.

2. Because of this essential need and as the capacitors and transformers are hermetically sealed, Monsanto continues to supply selected PCB fluids for use only in this particular electrical apparatus and only as "make-up" fluid (no new systems) in a few carefully regulated closed system heat transfer applications.

3. Because the higher chlorinated PCBs persist in the environment, Monsanto has removed essentially all of the penta and hexachlorobiphenyl compounds from capacitor askarel. The new product used exclusively is called Aroclor 1016. Also the hexachlorobiphenyl compounds have been removed from use in the askarel type transformer fluids.

4. Strict and effective steps have been taken to avoid introduction of PCBs into the environment at Monsanto's plants and by

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the facilities used where askarel type transformers and capacitors are made.

5. By discontinuing sale of PCBs for non-electrical applications, about 75 percent of the more persistent types have been removed from commerce.

6. The posture of the FDA includes:

   a) "We reject the need and in fact the feasibility as some have proposed for an outright ban on the substances. Although the use of PCBs requires control, an outright ban is not feasible and would not be in the best interest of the consumer."

   b) "All available evidence indicates that PCBs (in terms of acute toxicity) are classifiable as being of moderate toxicity." It was noted that PCBs are less toxic than DDT which is one of the safest pesticides to humans in acute toxicity terms.

7. When fed orally to standard test animals PCBs were found essentially non-toxic.

8. FDA guide lines for maximum levels of PCB allowed in food products are:

Fish	5 ppm
Chickens	5 ppm
Milk	0.2 ppm
Eggs	0.5 ppm
Catfish meal	0.3 ppm

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9. Prolonged exposure of PCB liquid or vapor to the skin should be avoided to prevent possibility of chloroacne.

10. Prolonged exposure to vapors from hot PCBs should be avoided to prevent possible damage to the liver and kidney. 0.5 to 1.0 mg per cubic meter of air has been determined to be the maximum safe level of exposure during an 8 hour work day.

11. There is no evidence from extensive animal studies that PCBs are carcinogenic.

12. When PCBs are decomposed by an electric arc the gas formed is virtually entirely hydrogen chloride. If phosgene gas is formed at all, the amount is barely discernable.

13. Steps taken and judgements made to dispose of scrap PCB materials from the electrical industry include:

a) Monsanto and others provide special high temperature incineration and gas scrubber facilities to completely destroy scrap PCB fluids. The scrap fluid may be sent to Monsanto Co., Sauget, Ill., attention supervisor Dept. A246 for incineration at 3 cents per pound.

b) All Monsanto PCB product labels carry this message which is also being placed onto askarel transformers.

c) It is the concensus that it is not feasible to collect and incinerate failed capacitors, at this time. They should be buried in a land-fill remote from lakes, streams or other sources of water.

The incineration equipment already designed to take the place of land-fills has been demonstrated fully capable

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of destroying the smaller capacitors as used for fluorescent ballast and motor-run purposes in air conditioners, etc. This equipment is also capable of destroying the impregnated paper and plastic film core structures removed from the larger power capacitors.

It is foreseen that eventually this type equipment will come into use to replace many land-fills. Until such time the faied capacitors should be buried in land-fills.

d) The solubility of PCBs in water is extremely low, in the range of 50 to 200 parts per billion, and the concensus is that PCB fluids do not migrate when buried in the soil.

e) Solid scrap transformer insulation including coils and cores should be drained free from PCBs followed by flushing or solvent extraction, using such solvents as perchloroethylene, or trichloroethylene employed in vapor degreasing. The scrap fluid mixtures should then be incinerated under conditions similar to those provided by Monsanto to destroy the PCBs.

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ATTACHMENT 2

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