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SUMMARY OF TOXICOLOGICAL STUDIES ON
COMMERCIAL PCB'S

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The need for additional toxicological data became apparent in 1966 when the refinement of analytical techniques made possible the identification of PCBs in the environment.

To assess the hazards of these materials, classical feeding studies with Aroclors 1242, 1254 and 1260 in rats and dogs were conducted according to accepted traditional procedures. In addition, three-generation, two litter reproduction studies and teratology studies in albino rats and a dominant lethal mutagenic study in mice were considered to be necessary for this purpose.

Effects such as decrease in eggshell thickness described in certain avian species suggested that toxicity and reproduction studies in chickens would be helpful in evaluating possible untoward effects in birds.

The findings included the following:

1. No evidence of teratogenic or mutagenic changes were noted with any of the PCBs at maximally tolerated dose levels in rats and mice.
2. In the rat reproduction study, there were low mating indices at 100 ppm Aroclor 1242 and decreased pup survival at 100 ppm of Aroclor 1242 and 1254.
3. Egg production in hens fed 100 ppm Aroclor 1242 or 1254 was decreased with hatchability reduced severely. Poor hatchability of eggs



from hens fed 8 ppm Aroclor 1242 was found. The specific gravity of the eggs obtained from the test group was not affected; however, Aroclor 1242 at 10 and 100 ppm levels and Aroclor 1254 at 100 ppm level were associated with reduced eggshell thickness.

4. In the dog studies the only findings were in dogs fed Aroclor 1260 at 100 ppm and these showed increased serum alkaline phosphatase activity and liver weights without concomitant histopathologic changes.

5. In the chronic rat studies a weight depression was observed at the 24 month point in females fed 100 ppm of Aroclor 1254.

Food consumption, mortality and hematologic, urine and blood chemistry studies did not differ among treatment and control groups.

Liver weight increases were noted in males and females fed 100 ppm Aroclor 1254 or Aroclor 1260, and in females only in the 100 ppm group fed Aroclor 1242.

As expected, the important histopathologic changes were present in the livers of the 24 month sacrifice animals and consisted of hepatocellular alterations such as focal hypertrophy, cytoplasmic lipid changes and in some animals at 100 ppm, hepatomas or cholangiohepatomas. No evidence of hepatocellular carcinogenicity of the Aroclors was found in this study.