DIELDRIN (Group 3)

A. Evidence for carcinogenicity to humans (*inadequate*)

Mean tissue levels of dieldrin were reported to be elevated in one necropsy study of 50 cancer patients compared to 42 control subjects[1]. Mean serum levels were also reported to be elevated in cancer patients compared with controls in one study[2], but not in another[3]. Follow-up for four to 29 years (mean, 24 years) of 233 workers employed for four to 27 years (mean, 11 years) in the manufacture of aldrin (see p. 88), dieldrin and endrin revealed nine deaths from cancer with 12 expected (standardized mortality ratio [SMR], 75; 95% confidence interval, 25-125)[4,5]. In a similar study, 90% of 1155 men employed in the manufacture of aldrin, dieldrin and endrin were followed for 13 years or more. Mortality from all cancers was not increased (82; 56-116), although there were apparent increases in mortality from cancers of the oesophagus, rectum and liver, based on very small numbers[6].

B. Evidence for carcinogenicity to animals (*limited*)

Dieldrin has been tested by oral administration in mice, rats, trout, hamsters, dogs and monkeys. In mice, it produced benign and malignant liver neoplasms[1,7-10]; no carcinogenic effect was observed in feeding studies using several strains of rats[1,8,11], trout[12] and hamsters[13], the latter having been given relatively high doses. Feeding studies in dogs and monkeys were inadequate for evaluation[1]. Dietary administration to trout of dieldrin enhanced the incidence of liver tumours induced by dietary administration of aflatoxin B_1[12].

C. Other relevant data

In one study, chromosomal aberrations were not found in peripheral blood lymphocytes of workers exposed to dieldrin[14].

Dieldrin did not induce dominant lethal mutations in mice or chromosomal aberrations in bone-marrow cells of Chinese hamsters treated *in vivo*. It induced unscheduled DNA synthesis in transformed human fibroblasts but not in rat hepatocytes; it did not induce

single-strand breaks in Chinese hamster V79 cells. Dieldrin inhibited intercellular communication in human and rodent cell systems. It did not induce sex-linked recessive lethal mutations in *Drosophila*, was not mutagenic to bacteria and did not induce breakage of plasmid DNA[14].

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