

1,1,2,2-TETRACHLOROETHANE (Group 3)

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

The only epidemiological study available evaluated the mortality experience of Second World War army personnel engaged in treating clothing as a defence against gas warfare. In one treatment process, tetrachloroethane was the solvent used for the impregnate. Of the 3859 persons assigned to this process, 1099 whites and 124 blacks had had job duties with probably exposure to the solvent. Among these persons, no statistically significant excess mortality from cancer occurred. Slight excesses were reported for leukaemia (standardized mortality ratio [SMR], 272; based on four deaths) and cancer of the genital organs (SMR, 158; based on three deaths)¹.

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

1,1,2,2-Tetrachloroethane was tested for carcinogenicity in one experiment in mice and in one in rats by oral administration. In male and female mice, it produced hepatocellular carcinomas. No significant increase in the incidence of tumours was observed in rats of either sex. The compound was inadequately tested in one experiment in mice by intraperitoneal injection².

C. Other relevant data

No data were available on the genetic and related effects of 1,1,2,2-tetrachloroethane in humans.

1,1,2,2-Tetrachloroethane did not transform BALB/c 3T3 cells and did not induce sex-linked recessive lethal mutations in *Drosophila*. It induced recombination, gene conversion and mutation in *Saccharomyces cerevisiae* under conditions in which endogenous levels of cytochrome P450 were enhanced. It was not mutagenic to bacteria but caused DNA damage³.

References

- ¹Norman, J.E., Jr, Robinette, C.D. & Fraumeni, J.F., Jr (1981) The mortality experience of army World War II chemical processing companies. *J. occup. Med.*, 23, 818-822
- ²IARC Monographs, 20, 477-489, 1979
- ³IARC Monographs, Suppl. 6, 511-513, 1987