AURAMINE (TECHNICAL-GRADE) (Group 2B) and MANUFACTURE OF AURAMINE (Group 1)

A. Evidence for carcinogenicity to humans (*inadequate* for auramine, technical-grade; *sufficient* for the manufacture of auramine)

The manufacture of auramine (which also involves exposure to other chemicals) was judged to be causally associated with an increased incidence of bladder cancer on the basis of one study dealing with experiences in the first half of the century in the UK[1]. Data reported later, in two studies dealing with one group of workers in the Federal Republic of Germany involved in the manufacture of auramine, were judged to show increased risks of both bladder cancer and prostatic cancer; however, these workers had also been exposed to other chemicals, including 2-naphthylamine (see p. 261)[2,3].

In a study of mortality and cancer incidence among hairdressers, the hypothesis was raised that the observed excess risk of bladder cancer was associated with exposure to colouring agents present in brilliantines used on men's hair. Auramine was reported to be one of the most commonly used dyes in brilliantines, at least in the 1930s; however, the occurrence of impurities, such as 2-naphthylamine could not be ruled out[4]. Data on exposure to auramine alone were considered to be inadequate for evaluation.

B. Evidence for carcinogenicity to animals (*sufficient* for auramine, technical-grade)

Auramine (technical-grade) was tested for carcinogenicity by oral administration in mice and rats and by subcutaneous injection in rats. Following its oral administration, it induced liver neoplasms in animals of each species[1,2]. After subcutaneous injection in one study in rats, it induced local sarcomas[1]. Studies in rabbits and dogs were inadequate for evaluation[1].

C. Other relevant data

No data were available on the genetic and related effects of auramine in humans. It did not induce micronuclei in bone-marrow cells of mice treated *in vivo*. It transformed Syrian hamster embryo cells and induced sister chromatid exchanges and DNA strand breaks in rodent cells in culture. It caused aneuploidy, mitotic recombination and DNA damage in yeast. Auramine was mutagenic to bacteria and induced prophage[5].

References

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