

oxide might play a part in the previously reported mutagenicity of vinyl chloride, it is more likely that it is the active metabolite of major importance, as this substance has the most pronounced property of producing a high number of mutants at low dose without causing a toxic effect.

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Carcinogenesis Abstracts

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K-18814, K-59631, K-25631, K-1711
 (0670) THE MUTAGENICITY OF CHLOROETHYLENE OXIDE, CHLOROACETALDEHYDE, 2-CHLOROETHANOL AND CHLOROACETIC ACID, CONCEIVABLE METABOLITES OF VINYL CHLORIDE (Eng.) Rannug, U. (Wallenberg Lab., Univ. Stockholm, S-104 05 Stockholm, Sweden); Gothe, R.; Wachtmeister, C. A. *Chem Biol Interact* 12(3-4): 251-263; 1976.

The ability of four conceivable metabolites of vinyl chloride - chloroethylene oxide, chloroacetaldehyde, 2-chloroethanol and chloroacetic acid - to cause base-pair substitution directly in *Salmonella typhimurium* TA1535 was compared. The main comparison was performed at initial concentrations from 0.1-1.5 mM. In this region, however, a mutagenic effect was observed only with chloroethylene oxide and chloroacetaldehyde, the former being approximately 20 times more effective than the aldehyde when compared on a molar basis. 2-Chloroethanol and chloroacetic acid were also studied at higher concentration (1 mM-1 M), and a weak mutagenic response was found with a 1 M 2-chloroethanol solution. With chloroacetic acid no enhancement of the mutation frequency could be detected. Chloroethylene oxide was found to be approximately 450 times more effective as a mutagen than chloroacetaldehyde when the comparison was based on exposure doses, defined as the time-dependent concentrations of the compounds in the treatment solutions, integrated between the times of onset and termination of treatment. Similarly, chloroethylene oxide was 10,000-15,000 times more effective as a mutagen than ethylene oxide, used as a positive control. Although chloroethylene

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