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28-day (subacute) Inhalation Toxicity of 1,2-Dichlorobenzene in B6C3F1 Mice

Methods

Five male and five female B6C3F1 mice were exposed to 1,2-Dichlorobenzene vapors for 4-weeks (6 h/day, 5 days/week) at concentration of 0, 50, 150, and 450 ppm. The exposure of test substance and housing animals were carried out in whole-body inhalation chambers, and the range of environmental conditions was maintained in accordance with the test guidelines. Clinical sings, body weight changes, hematology, blood biochemistry, organ weights, and histopathological findings were observed.

Results

The test substance concentrations in the chambers were 49.69±1.05, 147.84±8.35, 469.65±12.91 ppm. Two deaths and one death were observed in middle and high dose group (150 and 450 ppm) in male mice, respectively, and five deaths were observed in high dose group (450 ppm) in female mice. Also, four moribund mice were found in high dose group (450 ppm) in male mice. No test substance-related changes in clinical signs, body weights, feed consumption, and hematology were observed in the all surviving animals. The clinical chemistry examination showed statistically no significant changes of AST and ALT in middle dose (150 ppm) male mice, but an increasing tendency was observed. Dystrophic mineralization and pigmentation of the liver were observed in the surviving middle dose group (150 ppm) in male mice, and atrophy, glands dilatation, eosinophilic globules, basal cell hyperplasia in the nasal cavity were observed in low dose group (50 ppm) in male and female mice.

1,2-Dichlorobenzene

49.69 ± 1.05, 147.84 ± 8.35 & 469.65 ± 12.91 ppm

Conclusion

Based on the findings, the no-observed-adverse-effect level (NOAEL) was determined to be 50 ppm in B6C3F1 mice.

Laboratory

Chemicals Research Bureau, Occupational Safety & Health Research Institute
30, Expo-ro 339beon-gil, Yuseong-gu, Daejeon, 34122, Republic of Korea
Tel. +82-42-869-8541 **Fax.** +82-42-869-8691 **Homepage.** http://oshri.kosha.or.kr/eoshri