

Dr. David Adenuga submitted a study for the Science Advisory Board's Trimethylbenzenes Panel's consideration but could not provide copyright permission to post the article on the SAB website. The citation and PubMed abstract are provided. A copy is available for review at the Science Advisory Board offices. Please contact the DFO Thomas Carpenter at 202 564 2221 or email carpenter.thomas@epa.gov.

The sub-chronic oral toxicity of 1,3,5-trimethylbenzene in Sprague-Dawley rats. Adenuga, D., Carrillo, J.C., McKee, R.H.. *Regulatory Toxicology and Pharmacology*. 69. 143-153. 2014.

[Regul Toxicol Pharmacol](#). 2014 Jul;69(2):143-53. doi: 10.1016/j.yrtph.2014.03.006. Epub 2014 Apr 2.

The sub-chronic oral toxicity of 1,3,5-trimethylbenzene in Sprague-Dawley rats.

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Abstract

The systemic toxicity of a trimethylbenzene isomer and constituent of C9 aromatic solvents (1,3,5-trimethylbenzene, 135-TMB) was studied in Sprague-Dawley rats following a 90-day oral gavage exposure to 0, 50, 200 and 600mg/kg/day. No statistically significant effects on body weight, body weight gain or food consumption were observed at study termination. Treatment-related changes in clinical chemistry parameters at the end of the 90-day dosing period were limited to small, but statistically significant, increases in phosphorus levels in high dose males and females. Liver enlargement in high dose male/female rats was considered an adaptive response as this was reversible and was not associated with histopathological lesions or increased liver enzyme markers indicative of liver damage. Kidney weight changes were limited to a small, but statistically significant, increase in relative weights in high dose males. This was not associated with histopathological lesions and thus not considered toxicologically relevant. Overall, the No-Observed-Adverse-Effect-Level (NOAEL) was the highest concentration tested (600mg/kg/day). The results of the present study are relevant for assessing the risk of trimethylbenzenes through the oral route of exposure and provide a basis for the development of provisional screening values for trimethylbenzene isomers while avoiding the uncertainty associated with route-to-route extrapolation.

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KEYWORDS:

C9 aromatics; Hydrocarbon solvent; Liver enlargement; Mesitylene; Occupational exposure limit; Oral toxicity; RfD; Trimethylbenzene

PMID:

24704044

[PubMed - in process]