

MW = 132

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

December 30, 1992

TO: File for t-butyl peroxyacetate (CAS# 107-71-1)
FROM: Mary Lee Hultin, Toxics Unit
SUBJECT: ITSL for t-butyl peroxyacetate

A search was conducted of the following sources in order to find data sufficient for a risk assessment:

- RTECS
EPA IRIS database
DNR Nutshell (library) and EPB databases
ACGIH TLV, NIOSH REL references
NTP Management Status Report
CAS Online database
NLM Toxline and Toxlit databases

No chronic studies were found. The only reference available for use in risk assessment was a subacute inhalation toxicity study (Gage, J., 1970) with a NOAEL of 0.15 ppm. In the Gage study, groups of 4 rats per dose were exposed to 0.15, 0.7, 1.6 ppm or a saturated atmosphere via inhalation for 6 hours per day, 5 days per week for up to 20 exposures. The rats in the saturated atmosphere received one 4 hr. exposure and exhibited nose irritation and respiratory difficulty, upon autopsy revealed oedema of the lungs. Rats receiving 8, 6 hr. exposures to 1.6 ppm had nose irritation, respiratory difficulty, lethargy and weight loss. The 0.7 ppm group received 20, 6 hr exposures and exhibited lethargy, diminished weight increase and nose irritation. No effects were noted in the 0.15 ppm group either upon observation or autopsy. (0.01, 3.78, 8.64 mg/m3)

Russian authors (2) have noted effects in rats on reproductive and immunologic endpoints at doses ranging from 0.01 - 0.001 mg/l for up to 4 months. One Russian author recommended a maximum permissible concentration for industrial buildings of 0.0001 mg/l. None of these studies are available in English, only the abstracts

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were translated.

The NOAEL of 0.15 ppm from the Gage study was used for derivation of an Interim Threshold Screening Level:

Using the conversion equation from the EPA Interim Methods for Development of Inhalation Reference Concentrations for dose conversion to mg/m³:

$$\begin{aligned} \text{mg/m}^3 &= (\text{ppm} \times \text{mw})/24.45 \\ (0.15 \text{ ppm} \times 132.18)/24.45 &= 0.81 \text{ mg/m}^3 \end{aligned}$$

$$\text{ITSL} = \text{NOAEL}/(35 \times 100) * (\text{hours exposed per day}/24 \text{ hr per day})$$

$$\text{ITSL} = 0.81 \text{ m/m}^3/(35 \times 100) * (6/24) = 0.0000579 \text{ mg/m}^3 \text{ or } 0.06 \text{ ug/m}^3 \text{ based on 1 year averaging.}$$

References:

1. Gage, J.C., 1970, "The subacute inhalation toxicity of 109 industrial chemicals", Brit. J. Ind. Med., v.27, p. 1-18.
2. Russian abstracts as cited in Chemical Abstracts from:
 - a) Toksikol. Gig. Prod. Neftekhim Proizvod., 1968, p. 96-7
 - b) Mater. Nauch. -Prakt. Konf. Molodykh Gig. Sanit. Vrachei 11th, 1967, p. 241-3
 - c) Toksikol. Nov. Prom. Khim. Veshchestv. No. 10, p. 44-55, 1967