

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

July 15, 1994

TO: File for "Texanol" (CAS # 25265-77-4)

FROM: Mary Lee Hultin

SUBJECT: Initial Threshold Screening Level for "Texanol"

The initial threshold screening level (ITSL) for "Texanol" (2-methyl propionic acid monoester with 2,2,4-trimethyl-1,3-pentanediol) is 55 ug/m<sup>3</sup> based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS, HEAST, RTECS, NTP Management Status Report, EPB Library, IARC Monographs, CAS Online and NLM/Toxline (1967 - March 29, 1994).

No RfC, RfD, ACGIH TLV or NIOSH REL were available for "Texanol". While some epidemiological studies involving human exposure to "Texanol" (as a constituent of water-based paints) have been published (Hansen, 1986; Hansen *et.al.*, 1987; Ulfvarson *et.al.*, 1992), they involve mixed exposures which preclude their use in the screening level development.

A subchronic oral toxicity study has been carried out by Eastman Chemical (1994) which can be used to derive a screening level. In this study, male and female Sprague-Dawley rats were dosed with the material by gavage once daily for 51 days. The only clinical effects observed were transient salivation in all the dose groups other than the controls, which the authors attributed to the taste of the chemical. Both relative and absolute kidney weights were increased significantly in males dosed at 1000 mg/kg day; heavier absolute and relative liver weights were also observed in all of the dose groups (100, 300 and 1000 mg/kg day) in both sexes. Histopathologic changes recorded in these organs were hyaline droplet accumulation in renal cells of the males given 300 and 1000 mg/kg day, and centrilobular hepatocytomegaly in those same dose groups of both sexes. The investigators set the NOEL for this study at 1000 mg/kg; they concluded that the renal effect seen in the males was a species and sex specific effect which had also been noted with exposure to other hydrocarbons and would not be expected in other species, and that consequently, it was not a significant effect. Neither did they consider the hepatic effects significant, as these were considered to be minor and a consequence of metabolic activation. A review board of the Organization for Economic Cooperation and Development (OECD) subsequently considered the kidney effect significant, due to the absence of information on the specific protein composition of the hyaline droplets; they set the NOEL at 100 mg/kg. The AQD ITSL is based on the OECD determined NOEL.

Per section R 336.1232, subrule (1)(e) of Act 348, the ITSL for "Texanol" is derived as follows:

$$ITSL = \frac{100 \frac{mg}{kg} \text{ day}}{20 \times 100} \times \frac{0.475 \frac{kg}{m^3}}{0.435 \frac{m^3}{day}} \times 1 = 55 \frac{ug}{m^3}$$

ITSL = 55 ug/m<sup>3</sup> based on annual averaging

Where, 0.475 kg is the mean body weight (W) for Sprague-Dawley rats, both sexes combined, and 0.435 m<sup>3</sup>/d is the daily inhalation rate (I) for a 0.475 kg rat of the same strain (both values from MDNR Default Animal Data for Risk Assessment, 1991).

The uncertainty factor of 20 is reduced from 35 to adjust for the use of a study of 51 days, rather than 7 days, duration.

---

#### REFERENCES

- Eastman Chemical (1994). Screening Information Data Set, Texanol Ester-alcohol (25265-77-4). Submitted via U.S. EPA to the Organization for Economic Cooperation and Development. Eastman Chemical Company, Kingsport, Tennessee.
- Hansen, M.K. (1986). Vandfortyndbare malevarers arbejdsmiljoegenskaber [Occupational hygiene of waterborne paints]. *Arbejdsmiljofondet*. Copenhagen.
- Hansen, M.K., Larsen, M. and Cohr, K-H. (1987) Waterborne paints: a review of their chemistry and toxicology and the results of determinations made during their use. *Scand. J. Work Environ. Health* 13(6):473-485.
- Ulfvarson, U., Alexandersson, R., Dahlqvist, M., Ekholm, U., Bergstrom, B. and Scullman, J. (1992). Temporary health effects from exposure to water-borne paints. *Scand. J. Work Environ. Health* 18(6):376-387.

MLH:amh