

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

June 18, 1999

TO: File for petroleum distillates, acid treated (64742-14-9)

FROM: Dan O'Brien, Toxics Unit

SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for petroleum distillates, acid treated is 24 $\mu\text{g}/\text{m}^3$ based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: AQD chemical files; EPA's Integrated Risk Information System (IRIS) and Health Effects Assessment Summary Tables (HEAST); American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) Booklet; National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards and Registry of Toxic Effects of Chemical Substances (RTECS); National Toxicology Program (NTP) World Wide Website (WWW), MDEQ Library; International Agency for Research on Cancer (IARC) WWW; Chemical Abstract Service (CAS) On-line and National Library of Medicine (NLM) Toxline (1967–April 14, 1999), Chemical Evaluation Search And Retrieval System (CESARS), Handbook of Environmental Data on Organic Chemicals, Patty's Industrial Hygiene and Toxicology, Merck Index and the Condensed Chemical Dictionary.

No adequate toxicological data specific to this chemical were found which could be used for the independent derivation of a screening level. However, search of the Toxic Substance Control Act (TSCA) Chemical Substance Inventory (EPA, 1979) yielded a specific chemical substance definition for this CAS number; it refers to this chemical as distillates (petroleum), acid-treated light. The definition goes on to characterize the compound as consisting of "hydrocarbons having carbon numbers predominantly in the range of C₉ through C₁₆ and boiling in the range of approximately 150°C to 290°C (302°F to 554°F)". With respect to number of carbons and boiling point range, this compound is similar to compounds such as kerosene (8008-20-6) and hydrotreated light distillate (64742-47-8). The latter has been assigned a screening level of 24 $\mu\text{g}/\text{m}^3$, annual averaging. That ITSL is based on a toxicity study of deodorized kerosene (8020-83-5) (Butterfield, 1994; Carpenter *et al.* 1976).

For occupational exposures, NIOSH (1977) considered petroleum hydrocarbons falling within similar carbon chain lengths and boiling point ranges as likely to have sufficiently similar toxicity to justify a health-based standard applicable to all compounds in the group. This characterization of individual petroleum hydrocarbons as having similar

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toxicity across the group has also been employed previously by AQD in the setting of screening levels. In light of this, and because the physical characteristics of the acid treated petroleum distillates identified by this CAS number fall within the ranges which characterize kerosene and hydrotreated light distillates, it is considered appropriate to base their ITSL on the previously derived ITSL for hydrotreated light distillates.

Thus, the **ITSL** for petroleum distillates, acid treated (64742-14-9) is set to **24 $\mu\text{g}/\text{m}^3$, annual averaging.**

Note that this chemical is one of a group of petroleum hydrocarbon materials the toxicity of which (generally respiratory irritation and central nervous system toxicity) is anticipated to be exerted *via* similar mechanisms. Consequently, the *combined* impact of this compound and all other petroleum hydrocarbons materials so designated in the Michigan Department of Environmental Quality's Chemical Criteria Database (EPBCCD) should be evaluated against the ITSL of 3500 $\mu\text{g}/\text{m}^3$, 8-hour averaging.

References

Butterfield G (1994). Memo to AQD Toxics Unit chemical file for hydrotreated light distillates (64742-47-8), dated 10/26/94.

Carpenter CP, Geary DL, Myers RC (1976). Petroleum hydrocarbon toxicity studies. XI. Animal and human response to vapors of deodorized kerosene. *Toxicol Applied Pharmacol* 36:443-456.

EPA (1979). Toxic Substances Control Act (TSCA) Chemical Substance Inventory. Volume I: Initial Inventory. Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. Appendix A: Chemical Substance Definitions, p. 9.

NIOSH (1977). Criteria For a Recommended Standard...Occupational Exposure to Refined Petroleum Solvents. Cincinnati OH: National Institute for Occupational Safety and Health, Center for Disease Control, Public Health Service, U.S. Department of Health, Education and Welfare. DHEW (NIOSH) Publication #77-192; 245 + 10 pp. (7/1977).

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