

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

August 15, 2000

TO: File for residual oils (petroleum) solvent-dewaxed (CAS No. 64742-62-7)
FROM: Marco Bianchi, Toxics Unit, Air Quality Division
SUBJECT: Initial Threshold Screening Level

The initial risk screening level (ITSL) for *residual oils (petroleum) solvent-dewaxed* is 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) based on an 8-hour averaging time.

The following references or databases were searched to identify data to determine the ITSL: Integrated Risk Information System-online, Health Effects Assessment Summary Table, National Toxicology Program Management Status Report-online, Registry of Toxic Effects of Chemical Substances, Environmental Protection Bureau (EPB)-Chemical Criteria Database, EPB library, Chemical Abstract Service (CAS)-online, National Library of Medicine-online, International Agency for Research on Cancer-online, National Institute for Occupational Safety and Health (NIOSH) Pocket Guide, and American Conference of Governmental Industrial Hygienists (ACGIH) Guide.

No adequate toxicological data specific to this chemical was found which could be used to independently derive a screening level. However, a search of the Toxic Substance Control Act (TSCA) Chemical Substance Inventory (EPA, 1979) yielded a specific chemical substance definition for this CAS number referring to this chemical as *residual oils (petroleum) solvent-dewaxed*. The definition goes on to characterize the compound as "a complex combination of hydrocarbons obtained by removal of long, branched chain hydrocarbons from a residual oil by solvent crystallization. It consists of hydrocarbons having carbon numbers predominately greater than C_{25} and boiling above approximately 400°C ." With respect to the number of carbons and boiling range, this compound is similar to other petroleum distillate oils, (CAS Nos. 64742-65-0, 64742-54-7, and 64741-88-4). These compounds have been assigned a screening level of $50 \mu\text{g}/\text{m}^3$ (8-hour averaging) based on a toxicity study of white mineral oil (CAS No. 8042-47-5) (Butterfield, 1993). *Residual oils (petroleum) solvent-dewaxed* also has chemical properties similar to white mineral oil to be considered a subset of this compound.

White mineral oil is described by TSCA as being saturated hydrocarbons having carbon numbers in the range of C_{15} through C_{50} with a boiling point range of $300\text{-}600^{\circ}\text{C}$. An ACGIH threshold limit value (TLV), the NIOSH recommended exposure level, and the U.S. Occupational Safety and Health Administration permissible exposure limit of $5 \text{ mg}/\text{m}^3$, has been established for white mineral oil and other oils that are

severely-, refined, acid treated, and hydrotreated. However, the ACGIH proposes a TLV of 0.2 mg/m^3 for less refined oils such as cyclohexane soluble-particulate containing polynuclear aromatic hydrocarbons; mildly solvent-refined, mildly hydrotreated, mildly acid-treated, aromatic distillate extracts; catalytically cracked oils; and untreated oils as compounds which could cause carcinogenicity.

Due to *residual oils (petroleum) solvent-dewaxed's* similarity to white mineral oil, the ITSL for this compound will be based on 1% of the TLV for mineral oil, or $50 \text{ } \mu\text{g/m}^3$ with an 8-hour averaging time. Additionally, because this compound is one of a group of petroleum hydrocarbons where the toxicity is anticipated to act via similar mechanisms, the combined ambient impact of all petroleum hydrocarbon materials listed in the same air permit must be below this ITSL.

References:

1. Butterfield G (1993). Memo to AQD Toxics Unit chemical file for white mineral oil (CAS No. 8042-47-5), dated 7/19/93.
2. EPA 1979. 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.13.
3. Documentation of Threshold Limit Values and Biological Exposure Indices. 1992. White mineral oil. ACGIH, 6th Edition.

MB:SLB

cc: Cathy Simon, AQD
Mary Lee Hultin, AQD