

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

December 2, 1999

TO: File for distillates (petroleum) solvent-refined light paraffinic (CAS #64741-89-5)

FROM: Marco Bianchi, Toxics Unit, Air Quality Division

SUBJECT: Initial Threshold Screening Level

The initial risk screening level (ITSL) for *distillates (petroleum) solvent-refined light paraffinic* is 50 $\mu\text{g}/\text{m}^3$ based on an 8 hr averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS-online, HEAST, NTP Management Status Report-online, RTECS, EPB-CCD, EPB library, CAS-online, NLM-online, IARC-online, NIOSH Pocket Guide, and 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 *distillates (petroleum) solvent-refined light paraffinic*. The definition goes on to characterize the compound as "a complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists mostly of saturated hydrocarbons having carbon numbers predominately in the range of C_{15} through C_{30} and produces a finished oil with a viscosity of less than 100 SUS at 100°F (19°C at 40°C)". With respect to the number of carbons and the finished oil viscosity, this compound is similar to another compound known as hydrotreated light paraffinic distillate (64742-55-8). Hydrotreated light paraffinic distillate has been assigned a screening level of 50 $\mu\text{g}/\text{m}^3$ (8 hr averaging) based on a toxicity study of white mineral oil (8042-47-5), (Butterfield, 1993). *Distillate (petroleum) solvent-refined paraffinic* 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 TLV, NIOSH REL and OSHA PEL of 5 mg/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. Two TSCA submittals (8EHQ-0292-2430S; 8EHQ-0292-2424S) listing toxicity testing on a number of petroleum distillates described *distillates (petroleum) solvent-refined light paraffinic* (64741-89-5) as a severely hydrotreated/ solvent refined light paraffinic distillate. This information supports using the ACGIH TLV of 5 mg/m^3 rather than the TLV of 0.2 mg/m^3 as a value to derive a screening level.

Due to *distillates (petroleum) solvent-refined light paraffinic*'s similarity to white mineral oil, the ITSL for this compound will be based on 1% of the TLV for mineral oil, or 50 ug/m³ 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 hydrotreated light paraffinic distillate (64742-55-8) dated 7/8/93.
2. Butterfield G (1993). Memo to AQD Toxics Unit chemical file for white mineral oil (8042-47-5) dated 7/19/93.
3. 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.
4. Documentation of Threshold Limit Values and Biological Exposure Indices. 1992. White mineral oil. American Conference of Governmental Industrial Hygienists (ACGIH), 6th Edition.
5. TSCA 8(e) Submittal. 1992. Initial submission: lifetime dermal carcinogenesis bioassay of selected petroleum streams in CD1 mice (final) w-attachments & letter 022892 (appendix 5 & table 10 only)(sanitized). EPA/OTS;Doc#88-920001071S. 8EHQ-0292-2430S. OTS0535767.
6. TSCA 8(e) Submittal. 1992. Initial submission: lifetime dermal carcinogenesis bioassay of selected petroleum streams in mice (final report) on fifteen chemicals with attachments and cover letter dated 022192 (sanitized). EPA/OTS;Doc#88-920001065S. 8EHQ-0292-2424S. OTS0535761.

MB:SLB

cc: Cathy Simon, AQD
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