

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

May 7, 2003

TO: 4,6-Dimethyl-2-heptanone file (CAS # 19549-80-5)

FROM: Gary Butterfield

SUBJECT: Screening level for 4,6-Dimethyl-2-heptanone

The current ITSL for 4,6-dimethyl-2-heptanone is the trace value of $0.1 \mu\text{g}/\text{m}^3$ with an annual averaging time. This ITSL was developed in June 2000. The AQD recently received a request to re-evaluate this value, and so an updated review of the scientific literature was done to identify any new and relevant data for this compound.

The following references or databases were searched to identify data to determine the screening level: U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH) Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Michigan Department of Environmental Quality (DEQ) library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1968- April 2003), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

An April 16, 2003 CAS and NLM literature search was conducted to find toxicity data upon which a screening level might be based. There were no hits from either of these on-line searches. No toxicity data was located for 4,6-dimethyl-2-heptanone in any of the standard secondary toxicity sources either, not even RTECS. However, numerous sources including MSDS sheets from several different manufacturers of DIBK, identify 4,6-dimethyl-2-heptanone as one of the components of technical grade DIBK. The 4,6-dimethyl-2-heptanone is reported to occur at concentrations ranging from 30% to 10% of technical grade DIBK. It was not possible to find any manufacturer of pure 4,6-dimethyl-2-heptanone.

The ITSL for DIBK is based on 1% of the ACGIH TLV as determined by Rule 232(1)(c). Furthermore, the TLV is based on toxicity studies that used technical grade DIBK, although the TLV documentation does not actually discuss the presence of 4,6-dimethyl-2-heptanone in the DIBK. Because technical grade DIBK was used in the toxicity studies for the TLV, it can be assumed 4,6-dimethyl-2-heptanone was present in the DIBK. Therefore, both of these chemicals, which are found in DIBK, should be considered to be covered by the DIBK screening level.

Considering the above information, if the 4,6-dimethyl-2-heptanone is present as one of the components of DIBK, then the combined impacts of DIBK (CAS # 108-83-8) and 4,6-dimethyl-2-heptanone (CAS #19549-80-5) have to meet the DIBK (CAS #108-83-8) screening level, which is currently set at $1500 \mu\text{g}/\text{m}^3$ with an 8 hour averaging time. This comes from the observation that it appears these two chemicals always occur together, in technical grade DIBK. Furthermore the TLV, which is the basis for the screening level for DIBK, used results from exposures to technical grade DIBK.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

September 7, 2000

TO: File for 4,6-Dimethyl-2-Heptanone (CAS# 19549-80-5)

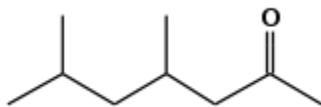
FROM: Michael Depa, Toxics Unit, Air Quality Division

SUBJECT: Screening Level Determination

Since there was no toxicological information available on 4,6-dimethyl-2-heptanone, the initial threshold screening level (ITSL) is $0.1 \mu\text{g}/\text{m}^3$ based on an annual averaging time.

The following references or databases were searched to identify data to determine the screening level: U.S. EPA Integrated Risk Information System (IRIS), Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Hazardous Chemicals, Environmental Protection Bureau Library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1967- April, 2000), National Library of Medicine (NLM), Health Effects Assessment Summary Tables (HEAST), and National Toxicology Program (NTP) Status Report. The EPA has not established a reference dose (RfD) or a reference concentration (RfC) 4,6-dimethyl-2-heptanone. There are no occupational exposure limits (e.g., ACGIH TLV or NIOSH REL). The molecular weight of 4,6-dimethyl-2-heptanone is 142.24g. The molecular formula is $\text{C}_9\text{H}_{18}\text{O}$. The molecular structure is shown in Figure 1.

Figure 1. 4,6-Dimethyl-2-heptanone



Since there was no toxicological data with which to derive a screening level the ITSL was based on Rule 232(1)i.

MD:DB

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

July 5, 2000

TO: File for 4,6-Dimethyl-2-Heptanone (CAS #19549-80-5)

FROM: Marco Bianchi, Toxics Unit, Air Quality Division

SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for 4,6-Dimethyl-2-Heptanone is $0.1 \mu\text{g}/\text{m}^3$ based on an annual averaging time.

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

A review of the above databases provided no information to derive an ITSL for 4,6-Dimethyl-2-Heptanone. Therefore, the ITSL is set at trace.

The ITSL for 4,6-Dimethyl-2-Heptanone = $0.1 \mu\text{g}/\text{m}^3$ based an annual averaging.

MB:SLB

cc: Cathy Simon, AQD

Mary Lee Hultin, AQD