

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

To: File for Phosphine (CAS No. 7803-51-2)

From: Keisha Williams, Air Quality Division (AQD), Toxics Unit

Date: July 23, 2015

Subject: Screening Level for Phosphine

The initial threshold screening level (ITSL) for phosphine is $0.3 \mu\text{g}/\text{m}^3$ (annual averaging time) based on the Environmental Protection Agency's (EPA's) reference concentration (RfC) (EPA, 1995). The ITSL value was established by AQD on July 5, 1995 (MDEQ, 1995; see attached).

The ITSL was originally established with an averaging time set at 24 hours, the default averaging time, per Rule 232 (2). It is being changed at this time to annual, as allowed per Rule 229 (2), because the EPA derivation of the RfC included extrapolation to chronic exposure.

References:

EPA. 1995. Summary for Phosphine (CASRN 7803-51-2). Integrated Risk Information System, US Environmental Protection Agency, Accessed on July 23, 2015.
<http://www.epa.gov/iris/subst/0090.htm>

MDEQ. 1995. Memo from Gary Butterfield to File for Phosphine (CAS No. 7803-51-2). Subject: Screening level for phosphine. July 5, 1995. AQD, MDEQ.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

July 5, 1995

TO: Phosphine file (CAS # 7803-51-2)
FROM: Gary Butterfield
SUBJECT: Screening level for phosphine

The reference concentration (RfC) for phosphine was recently updated by EPA. The new ITSL of $0.3 \mu\text{g}/\text{m}^3$ with 24-hour averaging reflects the newer RfC.

EPA's RfC is based on the no observable adverse effect level (NOAEL) of $1.4 \text{ mg}/\text{m}^3$ or 1 ppm identified in the subchronic mouse inhalation study reported by Barbosa et al (1994). The critical effect observed when identifying this NOAEL was body weight loss, which occurred at the next higher, $6.3 \text{ mg}/\text{m}^3$ or 4.5 ppm, dose level. An uncertainty factor of 1000 was applied to the NOAEL human equivalent concentration (HEC) of $0.25 \text{ mg}/\text{m}^3$ to arrive at the RfC.

Refer to the IRIS write-up for further details and discussion on how the RfC was derived.

GB:ma