

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for Monochloroacetic acid (CAS # 79-11-8)
FROM: Robert Sills, AQD Toxics Unit Supervisor
SUBJECT: Monochloroacetic acid ITSL justification
DATE: October 30, 2015

The ITSL for monochloroacetic acid (MCAA) is 20 ug/m³ with an 8 hour averaging time.

A literature review conducted in March, 2015 indicated that the ACGIH TLV for MCAA provided the most appropriate and defensible basis for the ITSL. ACGIH (2006) established the TLV at 0.5 ppm (2 mg/m³ or 2000 ug/m³) to protect against potential irritant and systemic effects. MCAA is moderately to highly toxic via the oral route but is highly toxic via dermal administration. It is also corrosive to the eyes and skin and highly irritating to the respiratory tract. In repeated-dose oral studies in mice and rats, administration of 15 mg/kg-d resulted in decreased body weights and survival, while dosages of 30 mg/kg-d or more were required to produce microscopic damage to the heart liver, lung, spleen, and kidneys. The LOAEL of 15 mg/kg-d corresponds to an 8-hour inhalation exposure of 105 mg/m³ (ACGIH, 2006). Microscopic evidence of organ damage was first observed in animals at dosages 2 to 4 times this level of exposure (ACGIH, 2006). ACGIH (2006) noted that data on minimal irritating concentrations in humans were poorly documented but suggest a threshold for irritation in humans of about 6 mg/m³. MCAA is not carcinogenic in experimental animals (ACGIH, 2006). The ITSL was derived as follows:

$$\text{ITSL} = \text{TLV} / 100 = 2000 \text{ ug/m}^3 / 100 = 20 \text{ ug/m}^3.$$

References

ACGIH. 2006. TLV for Monochloroacetic acid. ACGIH Documentation of Threshold Limit Values and Biological Exposure Indices. 7th Edition.