

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for Dichlorvos (CAS # 62-73-7)

FROM: Robert Sills, AQD Toxics Unit Supervisor

SUBJECT: Screening levels for Dichlorvos

DATE: August 13, 2015

The initial threshold screening level (ITSL) for dichlorvos is $0.5 \mu\text{g}/\text{m}^3$ with an annual averaging time (AT). The ITSL was established on 6/1/94, at $0.5 \mu\text{g}/\text{m}^3$ with a 24-hr AT as per the default AT (Rule 232(2)(b)). The AT is being changed at this time to annual, as allowed under Rule 229(1)(c) because the key study involved continuous inhalation exposure of rats for two years and annual AT appears to be appropriate.

The basis for the ITSL is EPA (1994; IRIS) which established an RfC of $0.5 \mu\text{g}/\text{m}^3$. The RfC was based on Blair et al. (1976), in which Carworth Farm E strain rats were exposed by inhalation continuously for two years. The NOAEL was $0.05 \text{ mg}/\text{m}^3$ and the LOAEL was $0.48 \text{ mg}/\text{m}^3$ based on decreased brain cholinesterase activity (EPA, 1994). The reported NOAEL, $\text{NOAEL}_{\text{ADJ}}$, and $\text{NOAEL}_{\text{HEC}}$ calculated for a gas extrarrespiratory effect were all $0.05 \text{ mg}/\text{m}^3$. EPA (1994) applied a total uncertainty factor (UF_T) of 100, consisting of $\text{UF}_H = 10$, $\text{UF}_A = 3$, and $\text{UF}_D = 3$ for database gaps, specifically the lack of a multigenerational reproductive study and chronic data in a second species. AQD will retain this UF_T including the UF_D that was applied by EPA (1994) considering the nature of the critical effect, the database gaps identified by EPA, and in the interest of consistency with EPA (1994).

$$\text{ITSL} = \frac{\text{NOAEL}_{\text{HEC}}}{\text{UF}_T} = \frac{50 \mu\text{g}/\text{m}^3}{100} = 0.5 \mu\text{g}/\text{m}^3 \text{ (annual AT)}$$

References

EPA. 1994. IRIS database. Chemical entry for dichlorvos. Inhalation RfC assessment. Last revised 6/1/94. Still current as of 8/13/15.

RS:lh