

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**

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**INTEROFFICE COMMUNICATION**

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November 2, 2015

TO: Diuron (CAS # 330-54-1)  
FROM: Mike Depa, Air Quality Division, Toxics Unit  
SUBJECT: ITSL Derivation

Previously, the averaging time (AT) assigned to diuron was 24 hours, as per the default methodology (Rule 232(2)(b))(see attached memo from Gary Butterfield dated May 20, 1999). The current file review concludes that the AT may appropriately be set at annual, based on the nature and duration of the key study and the ITSL value derivation, as allowed under Rule 229(2)(b). Therefore, the AT is set to annual.

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May 20, 1999

TO: Diuron (CAS # 330-54-1)  
FROM: Gary Butterfield, Toxics Unit, Air Quality Division  
SUBJECT: Initial Threshold Screening Level (ITSL) for Diuron

Diuron is a urea herbicide with the physical properties of being a white crystalline solid with a melting point at 158C, and with a very low vapor pressure ( $0.31 \times 10^{-5}$  mmHg at 50C). It also has very a very low water solubility of 42 mg/L at 25C.

An April 14, 1999, CAS and NLM literature search could find no inhalation toxicity studies conducted with diuron. The majority of toxicity studies were relatively old (conducted in the 1960's and 70's), and examined the oral and dermal routes of exposure. The current literature search found that there were no recent toxicity studies that can be of use in establishing an ITSL.

A review of secondary references found that there is a 1987 EPA oral reference dose (RfD) of 2  $\mu\text{g}/\text{kg}$  for this material. The RfD is based on hematological changes in dogs fed diets containing diuron for two years. The no-observed-effect-level of 25 ppm and the lowest-effect level of 125 ppm were identified in this study, although the Integrated Risk Information System (IRIS) printout indicates that EPA's confidence in this RID is low.

However, it is possible to be exposed by inhalation as evidence shows there are occupational exposure levels (OEL) of  $10 \text{ mg}/\text{m}^3$  time-weighted averages established by ACGIH and NIOSH for diuron. The OELs are set to protect against exposure to diuron dust which causes dermal, respiratory and ocular irritation.

The use of an RfD to establish an ITSL has a higher priority than use of the OELs. There is no information available that indicates it's inappropriate to use oral data for the basis of calculation of the screening level. Therefore, the current ITSL is being established and based on the RfD. This is consistent with R232(b), which results in an ITSL of  $7 \mu\text{g}/\text{m}^3$  with 24 hour averaging.

References:  
EPA. 1999. IRIS.

GB:SLB  
cc: Cathy Simon, AQD