

Diuron; CASRN 330-54-1

Human health assessment information on a chemical substance is included in the IRIS database only after a comprehensive review of toxicity data, as outlined in the [IRIS assessment development process](#). Sections I (Health Hazard Assessments for Noncarcinogenic Effects) and II (Carcinogenicity Assessment for Lifetime Exposure) present the conclusions that were reached during the assessment development process. Supporting information and explanations of the methods used to derive the values given in IRIS are provided in the [guidance documents located on the IRIS website](#).

STATUS OF DATA FOR Diuron

File First On-Line 09/30/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	08/22/1988
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	not evaluated	

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — Diuron

CASRN — 330-54-1

Last Revised — 08/22/1988

The oral Reference Dose (RfD) is based on the assumption that thresholds exist for certain toxic effects such as cellular necrosis. It is expressed in units of mg/kg-day. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Please refer to the Background Document for an elaboration of these concepts. RfDs can also be derived for the noncarcinogenic health effects of substances that are also carcinogens. Therefore, it is essential to refer to other sources of

information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file.

I.A.1. Oral RfD Summary

Critical Effect	Experimental Doses*	UF	MF	RfD
Abnormal pigments in blood	NOEL: 25 ppm (0.625 mg/kg/day)	300	1	2E-3 mg/kg/day
2-Year Dog Feeding Study	LEL: 125 ppm (3.125 mg/kg/day)			
du Pont, 1964a				

*Conversion Factors -- 1 ppm = 0.025 mg/kg/day (assumed dog food consumption)

I.A.2. Principal and Supporting Studies (Oral RfD)

E.I. du Pont de Nemours and Company, Inc. 1964a. MRID No. 00017763, 00091192. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

A 2-year dog feeding study in 2 male and 3 female dogs was done at levels of 0, 25, 125, 250, and 1250 ppm (0, 0.625, 3.125, 6.25, and 31.25 mg/kg/day) diuron in the diet. The 1250 ppm (31.25 mg/kg/day) dose caused weight loss, depressed red cell counts, erythrogenic activity in bone marrow, elevated liver weight, and increased pigment deposition in liver cells. Also, abnormal pigments were found in the blood of males at levels higher than 25 ppm (0.625 mg/kg/day) and females above 125 ppm (3.125 mg/kg/day).

I.A.3. Uncertainty and Modifying Factors (Oral RfD)

UF — An uncertainty factor of 100 was used to account for the inter- and intraspecies differences. An additional UF of 3 was used to account for the fact that the database on chronic toxicity is of poor quality and incomplete.

MF — None

I.A.4. Additional Studies/Comments (Oral RfD)

Data Considered for Establishing the RfD

- 1) 2-Year Feeding - dog: Principal study - see previous description; core grade minimum
- 2) 2-Year Feeding/(oncogenic) - rat: Systemic NOEL=25 ppm (1.25 mg/kg/day); Systemic LEL=125 ppm (6.25 mg/kg/day) (slight anemia, enlarged spleens, increased erythrogenic activity in bone marrow and abnormal pigments in the blood); no core grade (du Pont, 1964b)
- 3) 3-Generation Reproduction - rat: Reproductive NOEL=125 ppm (6.25 mg/kg/day) (only dose tested); Reproductive LEL=none; Systemic NOEL=none; Systemic LEL=125 ppm (6.25 mg/kg/day) (body weight depression in F2b and F3a litters); no core grade (du Pont, 1964b)
- 4) Teratology - rat: Fetotoxic NOEL=none; Fetotoxic LEL=125 mg/kg/day (LDT; wavy ribs, extra ribs, and delayed ossification); Teratogenic NOEL=500 mg/kg/day (HDT); Teratogenic LEL=none; core grade supplementary (Khera et al., 1979)

Other Data Reviewed:

- 1) 3-Month Feeding - rat: Systemic NOEL=50 ppm (2.5 mg/kg/day); Systemic LEL=500 ppm (25 mg/kg/day) (at 5000 ppm growth retardation, methemoglobinemia); no core grade (du Pont, 1981)

Data Gap(s): Rat Teratology Study; Rabbit Teratology Study

I.A.5. Confidence in the Oral RfD

Study — Low
Database — Low
RfD — Low

The critical study is of fair quality and is given a low confidence rating. The database is given a low confidence rating since the database on chronic toxicity is of poor quality and incomplete. Low confidence in the RfD follows.

I.A.6. EPA Documentation and Review of the Oral RfD

Source Document — This assessment is not presented in any existing U.S. EPA document.

Other EPA Documentation — Pesticide Registration Standard, September 1983; Pesticide Registration Files

Agency Work Group Review — 06/10/1986, 03/18/1987, 07/20/1988

Verification Date — 03/18/1987

Screening-Level Literature Review Findings — A screening-level review conducted by an EPA contractor of the more recent toxicology literature pertinent to the RfD for Diuron conducted in August 2003 did not identify any critical new studies. IRIS users who know of important new studies may provide that information to the IRIS Hotline at hotline.iris@epa.gov or 202-566-1676.

I.A.7. EPA Contacts (Oral RfD)

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (internet address).

I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — Diuron

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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Diuron

CASRN — 330-54-1

This substance/agent has not undergone a complete evaluation and determination under US EPA's IRIS program for evidence of human carcinogenic potential.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — Diuron
CASRN — 330-54-1

VI.A. Oral RfD References

E.I. du Pont de Nemours and Company, Inc. 1964a. MRID No. 00017763, 00091192. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

E.I. du Pont de Nemours and Company, Inc. 1964b. MRID No. 00017763, 00080899. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Khera, K.S., C. Whalen, G. Trivett and G. Angers. 1979. Teratogenicity studies on pesticidal formulations of dimethoate, diuron and lindane in rats. *Bull. Environ. Contam. Toxicol.* 22: 522-529.

E.I. du Pont de Nemours and Company, Inc. 1981. MRID No. 00068036. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

VI.B. Inhalation RfD References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Diuron
CASRN — 330-54-1

Date	Section	Description
08/22/1988	I.A.1.	Oral RfD corrected
10/28/2003	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Diuron
CASRN — 330-54-1
Last Revised — 09/30/1987

- 330-54-1
- AF 101
- CEKIURON
- CRISURON
- DAILON
- DCMU
- DIATER
- 3-(3,4-DICHLOR-FENYL)-1,1-DIMETHYLUREUM
- DICHLORFENIDIM
- 3-(3,4-DICHLOROPHENOL)-1,1-DIMETHYLUREA
- 3-(3,4-DICHLOROPHENYL)-1,1-DIMETHYLUREA
- 1-(3,4-DICHLOROPHENYL)-3,3-DIMETHYLUREE
- 3-(3,4-DICHLOR-PHENYL)-1,1-DIMETHYL-HARNSTOFF
- 3-(3,4-DICLORO-FENYL)-1,1-DIMETIL-UREA
- 1,1-DIMETHYL-3-(3,4-DICHLOROPHENYL)UREA
- DI-ON
- DIREX 4L
- DIUREX
- DIUROL

- Diuron
- DIURON 4L
- DMU
- DREXEL
- DREXEL DIURON 4L
- DURAN
- DYNEX
- FARMCO DIURON
- HERBATOX
- HW 920
- KARMEX
- KARMEX DW
- MARMER
- NA 2767
- N'-(3,4-DICHLOROPHENYL)-N,N-DIMETHYLUREA
- SUP'R FLO
- TELVAR
- UNIDRON
- UREA, 3-(3,4-DICHLOROPHENYL)-1,1-DIMETHYL-
- UROX D
- USAF P-7
- USAF XR-42
- VONDURON