Chlorimuron-ethyl; CASRN 90982-32-4

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 Chlorimuron-ethyl

File First On-Line 11/01/1989

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	11/01/1989
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)

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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
Increase in WBC, decreased in RBC in females, increase in alkaline phosphatase in males **1-Year Dog Study** **Oral Exposure (diet)** **duPont, 1985**	NOEL: 250 ppm (6.25 mg/kg/day) LEL: 1500 ppm (37.5 mg/kg/day)	300	1	2E-2 mg/kg/day

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

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

E.I. duPont de Nemours and Company, Inc. 1985. MRID No. 00149579. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Twenty-four male and 24 female beagle dogs were randomly distributed into four dose groups consisting of six males and six females. Each animal was given a daily allotment Purina Certified Canine Diet No 5007 (350 g) containing INF- 6025 at 0, 25, 250, or 1500 ppm (0, 0.625, 6.25, 37.5 mg/kg/day) for 1 year. Dogs were housed individually in stainless steel cages. Water was provided ad libitum.

Mortality was not affected by the test substance. Compound-related decreases were seen in RBC counts, HCT values, and Hb concentrations. Although occasional changes in RBC mass was parameters were seen in the 250 ppm group, these changes did not exhibit a dose-relationship and it was concluded that they were a function of the small sample size. In the high-dose group (1500 ppm) males, ALP activity was significantly elevated at 3, 6, 9, and 12 months. The high-dose females had significantly elevated ALP activity at 6 months and elevated WBC counts with

increased neutrophils and monocytes. These effects were considered compound-related. Although there were no changes in liver morphology, the increase in relative liver weight for the female high-dose group was considered compound-related, primarily because of the associated increase in ALP activities.

The NOEL for INF-6025 is 250 ppm (6.25 mg/kg/day). The LEL is 1500 ppm (37.5 mg/kg/day) based on increased mean relative liver weight in female dogs and effects on hematology [increased alkaline phosphatase (ALP) in male dogs and decreased erythrocyte (RBC) counts and other effects related to RBC mass and increased leukocyte (WBC) counts in male and female dogs].

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 lack of an adequate reproduction study.

MF — None

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

Data Considered for Establishing the RfD

1) 1-Year Feeding - dog: Principal study - see previous description;

2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=250 ppm (12.5 mg/kg/day); Systemic LEL=2500 ppm (125 mg/kg/day) (lower body weights, changes in organ weights, effects on clinical chemistry and hematology parameters); core grade minimum (duPont, 1985b)

3) Teratology - rat: Maternal NOEL=30 mg/kg/day; Maternal LEL=150 mg/kg/day (decreased body weight); Developmental toxicity NOEL=30 mg/kg/day; Developmental toxicity LEL=150 mg/kg/day (increased incidence of partially ossified or unossified sternebrae); core grade minimum (duPont, 1983a)

4) Teratology - rabbit: Maternal NOEL=48.3 mg/kg/day; Maternal LEL=300 mg/kg/day (decreased weight gain); Developmental toxicity NOEL=12.8 mg/kg/day; Developmental toxicity LEL=48.3 mg/kg/day (delayed ossification); core grade minimum (duPont, 1985c)

Other Data Reviewed:

1) 18-Month Feeding (oncogenic) - mouse: Systemic NOEL=125 ppm (18.75 mg/kg/day); Systemic LEL=1250 ppm (187.5 mg/kg/day) (centrilobular hepatocellular hypertrophy at 90 days); core grade minimum (duPont, 1985d)

2) 90-Day Feeding and One-Generation Reproduction - rat: NOEL=100 ppm (5 mg/kg/day); LEL=2500 ppm (125 mg/kg/day) (body weight changes and histopathology); core grade minimum (duPont, 1983b)

3) 90-Day Feeding - dog: NOEL=100 ppm (2.5 mg/kg/day); LEL=1250 ppm (hematology changes, organ weight changes and atrophy of thymus and prostate); core grade guideline (duPont, 1983c)

4) 90-Day Feeding - mouse: NOEL=125 ppm (18.75 mg/kg/day); LEL=1250 ppm (187.5 mg/kg/day) (centrilobular hepatocellular atrophy); core grade minimum (duPont, 1984)

Data Gap(s): Rat Reproduction Study (current study to be reevaluated)

I.A.5. Confidence in the Oral RfD

Study — Medium
Database — Medium
RfD — Medium

The critical study is of good quality and is given a high confidence rating. Additional studies are also of good quality but an adequate reproduction study is not available, therefore the database is given a medium confidence rating. Medium 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 Files

Agency Work Group Review — 06/15/1989

Verification Date — 06/15/1989

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 Chlorimuron-ethyl conducted in September 2002 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 — Chlorimuron-ethyl
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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Chlorimuron-ethyl
CASRN — 90982-32-4

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 — Chlorimuron-ethyl
CASRN — 90982-32-4

VI.A. Oral RfD References

E.I. duPont de Nemours and Company. 1983a. MRID No. 00131582 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1983b. MRID No. 00131581 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1983c. MRID No. 00132745 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1984. MRID No. 00143127 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1985a. MRID No. 00149579 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1985b. MRID No. 00143128 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1985c. MRID No. 00149578 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

E.I. duPont de Nemours and Company. 1985d. MRID No. 00145781 Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Chlorimuron-ethyl
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Date	Section	Description
11/01/1989	I.A.	Oral RfD summary on-line
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Chlorimuron-ethyl
CASRN — 90982-32-4
Last Revised — 11/01/1989

- 90982-32-4
- BENZOIC ACID, 2-(((((4-CHLORO-6-METHOXY-2-PYRIMIDINYL)AMINO)CARBONYL)AMINO)SULFONYL)-, ETHYL ESTER
- CASWELL NO. 193B
- CHLORIMURON ETHYL ESTER
- DPX-F 6025
- EPA PESTICIDE CHEMICAL CODE 128901
- ETHYL 2-(((((4-CHLORO-6-METHOXY-2-PYRIMIDINYL)AMINO)CARBONYL)AMINO)SULFONYL) BENZOATE
- ETHYL 2-(((4-CHLORO-6-METHOXYPYRIMIDINE-2-YL)AMINOCARBONYL)AMINOSULFONYL)BENZOATE