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Glufosinate-ammonium; CASRN 77182-82-2

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 Glufosinate-ammonium

File First On-Line 09/30/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	09/30/1987
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 — Glufosinate-ammonium
CASRN — 77182-82-2
Primary Synonym — Hoe 39866
Last Revised — 09/30/1987

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.

NOTE: The Oral RfD for glufosinate-ammonium may change in the near future pending the outcome of a further review now being conducted by the RfD/RfC Work Group.

I.A.1. Oral RfD Summary

Critical Effect	Experimental Doses*	UF	MF	RfD
Increased absolute and relative kidney weights in males	NOEL: 8 ppm diet (0.4 mg/kg/day)	1000	1	4E-4 mg/kg/day
13-Week Rat Feeding Study	LEL: 64 ppm diet (3.2 mg/kg/day)			
Hoescht AG, 1982a				

*Conversion Factors -- 1 ppm = 0.05 mg/kg/day (assumed rat food consumption)

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

Hoescht AG. 1982a. MRID No. 00142443. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Twenty rats/sex/dose were fed diets containing 0, 8, 64, 500 or 4000 ppm of HOE 39866 (monoammonium 2-amino-4-[hydroxymethylphosphinyl]butanoate) for 13 weeks. An additional 10 rats/sex/dose were similarly treated, but were allowed a 4-week recovery period. An increase in absolute and relative kidney weights was noted in males treated with 64 ppm and above.

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

UF — An uncertainty factor of 100 was used to account for intra- and interspecies differences in sensitivity. An additional factor of 10 was used because the study was only of 90 days duration.

MF — None

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

The 90-day feeding study using dogs (NOEL = 16 ppm, equivalent to 0.4 mg/kg/day) is considered as co-principal.

Data Considered for Establishing the RfD:

- 1) 13-Week Feeding - rat: Principal study - see previous description; core grade minimum
- 2) 90-Day Feeding - dog: NOEL=16 ppm (0.4 mg/kg/day); LEL=64 ppm (1.6 mg/kg/day) (decreased weight gain, decreased absolute and relative thyroid weights in females); core grade minimum (Hoechst AG, 1982b)
- 3) Teratology - rat: Developmental NOEL=2.24 mg/kg/day; LEL=10 mg/kg/day (dilated renal pelvis and hydroureter); Maternal NOEL=2.24 mg/kg/day; LEL=10 mg/kg/day (hyperactivity); core grade minimum (Hoechst AG, 1985a)
- 4) Teratology - rat: Developmental NOEL = none; LEL=10 mg/kg/day (dilated renal pelvis and hydroureter); Maternal NOEL=none; LEL=10 mg/kg/day (hyperactivity); core grade supplementary (Hoechst AG, 1985b)

Data Gap(s): Chronic Dog Feeding Study; Chronic Rat Feeding Study; Rat Reproduction Study; Rabbit Teratology Study

I.A.5. Confidence in the Oral RfD

Study — High

Database — Medium

RfD — Medium

The principal study is of good quality and is given a high confidence rating. Since the database on chronic toxicity and reproduction is incomplete, confidence in the database can be considered medium to low. Confidence in the RfD can also be considered medium to low.

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 — 02/18/1987

Verification Date — 02/18/1987

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 Glufosinate-ammonium conducted in November 2001 identified one or more significant new studies. IRIS users may request the references for those studies from 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 — Glufosinate-ammonium

CASRN — 77182-82-2

Primary Synonym — Hoe 39866

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Glufosinate-ammonium

CASRN — 77182-82-2

Primary Synonym — Hoe 39866

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 — Glufosinate-ammonium

CASRN — 77182-82-2

Primary Synonym — Hoe 39866

VI.A. Oral RfD References

Hoescht AG. 1982a. MRID No. 00142443. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Hoescht AG. 1982b. MRID No. 00149239. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Hoescht AG. 1985a. MRID No. 00151499. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Hoescht AG. 1985b. MRID No. 00151500. 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 — Glufosinate-ammonium

CASRN — 77182-82-2

Primary Synonym — Hoe 39866

Date	Section	Description
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Glufosinate-ammonium

CASRN — 77182-82-2

Primary Synonym — Hoe 39866

Last Revised — 09/30/1987

- 77182-82-2
- Basta
- Caswell No. 580I
- EPA Pesticide Chemical Code 128850
- Glufosinate-ammonium
- HOE 00661
- Hoe 39866
- Monoammonium-2-amino-4-(hydroxymethylphosphinyl)butanoate