

## Fluvalinate; CASRN 69409-94-5

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 Fluvalinate

**File First On-Line 06/30/1988**

Category (section)	Assessment Available?	Last Revised
<b>Oral RfD (I.A.)</b>	yes	06/30/1988
<b>Inhalation RfC (I.B.)</b>	not evaluated	
<b>Carcinogenicity Assessment (II.)</b>	not evaluated	

## I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — Fluvalinate

CASRN — 69409-94-5

Primary Synonym — Mavrik

Last Revised — 06/30/1988

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
Decreases in body weight gain; increase in plantar ulcer (females)	NOEL: 1 mg/kg/day LEL: 2.5 mg/kg/day	100	1	1E-2 mg/kg/day
2-Year Feeding/Oncogenicity Study in Rats				
Zoecon, 1984				

\*Conversion Factors and Assumptions — 1 ppm = 0.05 mg/kg/day (assumed rat food consumption)

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

Zoecon Corporation. 1984. MRID No. 00128334, 00128335, 001150111. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Groups of weanling Charles River CD rats (85/sex/group) were administered 0, 0.25, 0.5, 1.0, and 2.5 mg/kg/day of fluvalinate by gavage in corn oil for a period of 2 years. Mean body weight gain was significantly depressed in males and females in the 2.5 mg/kg/day groups. There were no effects on ophthalmology, clinical laboratory parameters, or organ weights. There was an increase in plantar ulcers in females in the 2.5 mg/kg/day group.

A 2-generation rat reproduction study (Zoecon, 1981) supports the principal study. One hundred fifty male and 150 female Charles River rats were assigned to one control and five treatment groups. The test material was administered in the diet at dosage levels of 0 (vehicle control, corn oil), 20, 100, 250, 500, and 1000 ppm (0, 1, 5, 12.5, 25, and 50 mg/kg/day) to the F0 generation.

At 100 ppm (5 mg/kg/day) skin lesions were observed in both generations, and decreases in body weight gain were seen in both parent and offspring. A dosage of 20 ppm (1 mg/kg/day) in the diet was concluded to be a definitive NOEL for this study.

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

UF — Based on a chronic toxicity study, an uncertainty factor of 100 was used to account for inter- and intraspecies differences.

MF — None

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

Data Considered for Establishing the RfD:

- 1) 2-Year Feeding (oncogenic) - rat: Principal study - see previous description; core grade guideline
- 2) 2-Generation Reproduction - rat: Fetotoxic and Systemic NOEL=20 ppm (1 mg/kg/day); Fetotoxic and Systemic LEL=100 ppm (5 mg/kg/day) (decrease in pup weights, decreased female body weight gain, lower F1 maternal body weights during gestation and lactation, and skin lesions); core grade guideline (Zoecon Corp., 1981a)
- 3) 6-Month Feeding - dog: NOEL=5.0 mg/kg/day; LEL=15 mg/kg/day (emesis and diarrhea observed); core grade guideline (study accepted as chronic dog study) (Zoecon Corp., 1980a)
- 4) Teratology - rat: Development NOEL=10 mg/kg/day; LEL=50 mg/kg/day [decreased fetal weight and length, delayed ossification (not teratogenic at 50 mg/kg/day - HDT)]; core grade minimum (Zoecon Corp., 1980b)
- 5) Teratology - rabbit: Developmental NOEL=20 mg/kg/day; LEL=125 mg/kg/day (HDT; curved tibia and fibula); core grade guideline (Zoecon Corp., 1981b)

Data Gap(s): none

### **I.A.5. Confidence in the Oral RfD**

Study — High  
Database — High  
RfD — High

The critical study is of good quality and is given a high confidence rating. The supporting database is also of good quality; therefore, the database is given a high confidence rating. High 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 — Registration Files

Agency Work Group Review — 07/15/1987

Verification Date — 07/15/1987

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 Fluvalinate 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](mailto: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](mailto:hotline.iris@epa.gov) (internet address).

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

Substance Name — Fluvalinate  
CASRN — 69409-94-5  
Primary Synonym — Mavrik

Not available at this time.

## **II. Carcinogenicity Assessment for Lifetime Exposure**

Substance Name — Fluvalinate

CASRN — 69409-94-5

Primary Synonym — Mavrik

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

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**III. [reserved]**

**IV. [reserved]**

**V. [reserved]**

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## **VI. Bibliography**

Substance Name — Fluvalinate

CASRN — 69409-94-5

Primary Synonym — Mavrik

### **VI.A. Oral RfD References**

Zoecon Corporation. 1980a. MRID No. 00077025. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Zoecon Corporation. 1980b. MRID No. 00077027. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Zoecon Corporation. 1981a. MRID No. 00104253. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Zoecon Corporation. 1981b. MRID No. 00094112. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Zoecon Corporation. 1984. MRID No. 00128334, 00128335, 00150111. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

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## VI.B. Inhalation RfD References

None

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## VI.C. Carcinogenicity Assessment References

None

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## VII. Revision History

Substance Name — Fluvalinate

CASRN — 69409-94-5

Primary Synonym — Mavrik

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

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## VIII. Synonyms

Substance Name — Fluvalinate

CASRN — 69409-94-5

Primary Synonym — Mavrik

Last Revised — 06/30/1988

- 69409-94-5
- D-VALINE, N-(2-CHLORO-4-(TRIFLUOROMETHYL)PHENYL)-, CYANO(3-PHENOXYPHENYL)METHYL ESTER
- Fluvalinate
- Mavrik

- MAVRIK HR
- N-(2-CHLORO-4-(TRIFLUOROMETHYL)PHENYL)-D-VALINE CYANO(3-PHENOXYPHENYL)METHYL ESTER
- SPUR