

## Cyhalothrin/Karate; CASRN 68085-85-8

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 Cyhalothrin/Karate

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

| Category (section)               | Assessment Available? | Last Revised |
|----------------------------------|-----------------------|--------------|
| Oral RfD (I.A.)                  | yes                   | 06/30/1988   |
| 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 — Cyhalothrin/Karate

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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            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----|----|----------------|
| <b>Reduced body weight gain preceding pregnancy; reduced body weight gain in offspring during weaning period</b><br><br><b>3-Generation Reproduction Study in Rats</b><br><br><b>Coopers Animal Health and Imperial Chemical Industries, 1984</b> | NOEL: 10 ppm (0.5 mg/kg/day)<br><br>LEL: 30 ppm (1.5 mg/kg/day) | 100 | 1  | 5E-3 mg/kg/day |

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

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

Coopers Animal Health, Inc. and Imperial Chemical Industries, Ltd. 1984. MRID No. 00154802. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Cyhalothrin was administered in the diet at dose levels of 0, 10, 30, and 100 ppm throughout the duration of the study. The principal effect noted was a reduction in body weight gain for both males and females during the premating periods and for pups during the weaning period. There also appeared to be a decrease in the number of viable pups in the F2A and F3B generations at the highest dose level.

### **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 was not considered necessary since the chronic rat study and other studies generally showed higher NOELs; thus, the toxicological endpoint in the 3-generation reproduction study is the most sensitive indicator of Cyhalothrin's toxicity.

MF — None

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

Data Considered for Establishing the RfD:

- 1) 3-Generation Reproduction - rat: Principal study - see previous description; core grade guideline (Imperial Chemicals Industries, 1984)
- 2) 2-Year Feeding - rat: NOEL=2.5 mg/kg/day; LEL=12.5 mg/kg/day (reduced body weight gain, food consumption, plasma triglycerides); core grade guideline (Coopers Animal Health, 1984)
- 3) 26-Week Oral (capsule) - dog: NOEL=1 mg/kg/day; LEL=2.5 mg/kg/day (passage of liquid feces); core grade guideline (Imperial Chemicals Industries, 1981a)
- 4) Teratology - rat: Maternal toxicity NOEL=10 mg/kg/day; Maternal toxicity LEL=15 mg/kg/day (reduced body weight, food consumption); Teratogenic and Fetotoxic NOEL=15 mg/kg/day (HDT); core grade minimum (Imperial Chemicals Industries, 1981b)
- 5) Teratology - rabbit: Maternal toxicity NOEL=10 mg/kg/day; Maternal toxicity LEL=30 mg/kg/day (decrease in body weight gain); Teratogenic and Fetotoxic NOEL=30 mg/kg/day (HDT); core grade minimum (Imperial Chemicals Industries, 1981c)

Data Gap(s): none

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

Study — High

Database — High

RfD — High

The critical study on which the RfD is based is of high quality and sufficient duration; therefore, the critical study is given a high confidence rating. The other toxicology studies on Cyhalothrin are also of high quality; thus, 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 — Pesticide 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 Cyhalothrin/Karate 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](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 — Cyhalothrin/Karate

CASRN — 68085-85-8

Not available at this time.

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## II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Cyhalothrin/Karate  
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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 — Cyhalothrin/Karate  
CASRN — 68085-85-8

### VI.A. Oral RfD References

Coopers Animal Health, Inc. 1984. MRID No. 00154803. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Imperial Chemical Industries, Ltd. 1984. MRID No. 00154802. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Imperial Chemical Industries, Ltd. 1981a. MRID No. 00154795. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Imperial Chemical Industries, Ltd. 1981b. MRID No. 00154800. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Imperial Chemical Industries, Ltd. 1981c. MRID No. 00154801. 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 — Cyhalothrin/Karate  
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| Date       | Section | Description                                                        |
|------------|---------|--------------------------------------------------------------------|
| 10/28/2003 | I.A.6.  | Screening-Level Literature Review Findings message has been added. |

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## VIII. Synonyms

Substance Name — Cyhalothrin/Karate  
CASRN — 68085-85-8  
Last Revised — 06/30/1988

- 68085-85-8
- 91465-08-6
- CYCLOPROPANECARBOXYLIC ACID,3-(2-CHLORO-3,3,3-TRIFLUORO-1-PROPENYL)-2,2-DIMETHYL-,CYANO(3-PHENOXYPHENYL)METHYL ESTER

- CYHALOTHRIN
- CYHALOTHRINE
- Cyhalothrin/Karate
- GRENADE
- ICI 146814
- ICI-PP 563
- KARATE
- PP 321
- PP 563