

Propiconazole; CASRN 60207-90-1

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 Propiconazole

File First On-Line 06/30/1988

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 — Propiconazole

CASRN — 60207-90-1

Primary Synonym — Banner

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
Gastric mucosal irritation	NOEL: 50 ppm (1.25 mg/kg/day)	100	1	1.3E-2 mg/kg/day
1-Year Dog Feeding Study	LEL: 250 ppm (6.25 mg/kg/day)			
Ciba Geigy, 1985a				

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

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

Ciba Geigy Corporation. 1985a. MRID No. 00151515, 93194036. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Beagle dogs (5 to 7/sex/group) were fed diets containing propiconazole technical material at levels of 0, 5, 50, or 250 ppm (0, 0.125, 1.25, 6.25 mg/kg/day) for 12 months. No dose-related effects were found on mortality, organ or body weights, food consumption, or clinical laboratory parameters. Necropsy and histopathologic examinations revealed evidence of mild irritation of the stomach in males given the highest dietary concentration (250 ppm).

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.

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; core grade minimum
- 2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=100 ppm (5 mg/kg/day); Systemic LEL=500 ppm (25 mg/kg/day) (hepatotoxicity in males and exocrine atrophy of pancreas in females); core grade minimum (Ciba Geigy, 1982a)
- 3) 2-Generation Reproduction - rat: Parental NOEL=none; LEL=100 ppm (5 mg/kg/day) (LDT; hepatic clear-cell change); Reproductive NOEL=2500 ppm (125 mg/kg/day) (HDT); Developmental NOEL=500 ppm (25 mg/kg/day); Developmental LEL=2500 ppm (125 mg/kg/day) (reduced survival, reduced body weight, increased hepatocellular swelling); core grade minimum (Ciba Geigy, 1985b)
- 4) Teratology - rat: Teratogenic NOEL=300 mg/kg/day (HDT); Fetal NOEL=30 mg/kg/day; Fetal LEL=100 mg/kg/day (ossification retardation); Maternal NOEL=100 mg/kg/day; Maternal LEL=300 mg/kg/day (decreased body weight gain and food consumption); core grade minimum (Ciba Geigy, 1979a)
- 5) Teratology - rabbit: Maternal, Fetal, and Teratogenic NOEL=180 mg/kg/day (HDT); core grade minimum (Ciba Geigy, 1979b)

Other Data Reviewed:

- 1) 2-Year Feeding (oncogenic) - mouse: Systemic NOEL=100 ppm (15 mg/kg/day); Systemic LEL=500 ppm (75 mg/kg/day) (decreased body weight gain, hepatotoxicity); core grade minimum (Ciba Geigy, 1982b)
- 2) 90-Day Feeding - dog: Systemic NOEL=50 ppm (1.25 mg/kg/day); Systemic LEL=250 ppm (6.25 mg/kg/day) (inflammation of gastric mucosa); core grade minimum (Ciba Geigy, 1979c)
- 3) 90-Day Feeding - rat: Systemic NOEL=240 ppm (12 mg/kg/day); Systemic LEL=1200 ppm (60 mg/kg/day) (reduced body weight gain); core grade minimum (Ciba Geigy, 1979d)

Data Gap(s): None

I.A.5. Confidence in the Oral RfD

Study — Medium

Database — High

RfD — High

The critical study is of adequate quality and is given a medium confidence rating. The database on chronic exposure toxicity is also of adequate quality and the findings of a 3-month subchronic dog study correlate well with those of the critical study; 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 — Pesticide Registration Files

Agency Work Group Review — 07/15/1987, 05/25/1988

Verification Date — 05/25/1988

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 propiconazole 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 — Propiconazole

CASRN — 60207-90-1

Primary Synonym — Banner

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Propiconazole

CASRN — 60207-90-1

Primary Synonym — Banner

Not available at this time.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — Propiconazole

CASRN — 60207-90-1

Primary Synonym — Banner

VI.A. Oral RfD References

Ciba Geigy Corporation. 1979a. MRID No. 00058604, 00143454. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1979b. MRID No. 00058605, 00143454. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1979c. MRID No. 00058607, 93194032, 93194084. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1979d. MRID No. 00058606, 93194033, 93194083. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1982a. MRID No. 00074494, 00129918, 00151502, 93194035. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1982b. MRID No. 00129570, 00084153, 00130844, 00151503, 93194037. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1985a. MRID No. 00151515, 93194036. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Ciba Geigy Corporation. 1985b. MRID No. 00138167, 00151514, 00163164. 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 — Propiconazole

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Primary Synonym — Banner

Date	Section	Description
08/22/1988	I.A.1.	Dose conversion factor changed; RfD changed
10/28/2003	I.A.6	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Propiconazole

CASRN — 60207-90-1

Primary Synonym — Banner

Last Revised — 06/30/1988

- 60207-90-1
- Banner
- CGA-64250
- CGD 92710F
- DESMEL
- 1-(2-(2,4-DICHLOROPHENYL)-4-PROPYL-1,3-DIOXOLAN-2-YLMETHYL)-1H-1,2,4-TRIAZOLE PROCONAZOLE
- Propiconazole
- RADAR
- TILT
- 1H-1,2,4-TRIAZOLE, 1-((2-(2,4-DICHLOROPHENYL)-4-PROPYL-1,3-DIOXOLAN-2-YL) METHYL)-