Terbacil; CASRN 5902-51-2

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 Terbacil

File First On-Line 01/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	01/31/1987
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 — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar
Last Revised — 01/31/1987

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.

I.A.1. Oral RfD Summary

Critical Effect	Experimental Doses*	UF	MF	RfD
Increase in thyroid/ body weight ratio; slight increase in liver weights; elevated alkaline phosphatase **2-Year Dog Feeding Study** **duPont, 1967a**	NOEL: 50 ppm (1.25 mg/kg/day) LEL: 250 ppm (6.25 mg/kg/day)	100	1	1.3E-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 & Company, Inc. 1967a. MRID No. 00060851. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

In the 2-year feeding study young purebred male and female beagle dogs (4/sex/dose group) 4 to 6 months old were fed diets containing terbacil (80% wettable powder) at levels of 0, 50, 250, or 2500 ppm (0, 1.25, 6.25, and 62.5 mg/kg/day). The highest dose tested was periodically increased from the 26th to the 46th week of the study to a final concentration of 10,000 ppm (500 mg/kg/day). All the animals had periodic physical examinations, individual food consumption and individual body weight measurements weekly. After 12 months of compound administration one male and one female from the control and each of the test groups were sacrificed and necropsied. Periodic hematological and 24 hour urine studies were obtained. Periodic blood glucose, total protein, total albumin, BUN, BSP, alkaline phosphatase,

prothrombin time, SGOT and SGPT, plus cholesterol determinations were done.

No adverse effects of the test compound were observed with respect to biochemical parameters, food consumption, body weight, or gross or microscopic changes. The NOEL was 50 ppm (1.25 mg/kg/day) based on increased thyroid/body weight ratio, slight increase in liver weights and elevated alkaline phosphatase in dogs administered 250 ppm (6.25 mg/kg/day) and above.

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) 2-Year Feeding - dog: Principal study - see discussion above; core grade minimum

2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=250 ppm (12.5 mg/kg/day), Systemic LEL=2500/10,000 ppm (125/500 mg/kg/day) (HDT; impaired weight gain, slight increase in liver weight); core grade supplementary (duPont, 1967b)

3) 3-Generation Reproduction - rat: Systemic NOEL=none; Systemic LEL=50 ppm (2.5 mg/kg/day (LDT; slight decrease in body weight gain); Reproductive NOEL=250 ppm (12.5 mg/kg/day) (HDT); Reproductive LEL=none; core grade minimum (duPont, 1967c)

4) Teratology - rat: Maternal NOEL=250 ppm (12.5 mg/kg/day); Maternal LEL=1250 ppm (62.5 mg/kg/day) (reduction in body weight); Embryotoxic NOEL=250 ppm (12.5 mg/kg/day); Embryotoxic LEL=1250 ppm (62.5 mg/kg/day); Teratogenic NOEL=5000 ppm (250 mg/kg/day) (HDT); Teratogenic LEL=none; core grade minimum (duPont, 1980)

5) Teratology - rabbit: Maternal NOEL=200 mg/kg/day; Maternal LEL=600 mg/kg/day (HDT; body weight loss); Embyrotoxic NOEL=200 mg/kg/day; Embyrotoxic LEL=600 mg/kg/day (HDT; significantly reduced mean live fetal weights); Teratogenic NOEL=600 mg/kg/day (HDT); Teratogenic LEL=none; core grade minimum (duPont, 1984)

Other Data Reviewed

1) 2-Year Feeding (oncogenic) - mouse: Systemic NOEL=50 ppm (7.5 mg/kg/day); Systemic LEL=1250 ppm (187.5 mg/kg/day) (hypertrophy of centrilobular hepatocytes in males; decreased pituitary weights in males and high-dose females); decreased survival (significant in males at 5000/7500 ppm (750/1125 mg/kg/day); core grade supplementary (pending re-analysis of liver slides) (duPont, 1981)

2) 90-Day Feeding - rat: NOEL=100 ppm (5 mg/kg/day); LEL=500 ppm (25 mg/kg/day) (increased liver weight, vacuolization and hypertrophy of hepatocytes); core grade minimum (duPont, 1964)

Data Gap(s): Chronic Rat Feeding Oncogenicity Study; Mouse Oncogenicity Study

I.A.5. Confidence in the Oral RfD

Study — Medium
Database — Medium
RfD — Medium

The critical study is of adequate quality and is given a medium confidence rating. Since and adequate chronic rodent feeding study is lacking, 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

Pesticide Registration Standard, March 1989

Pesticide Registration Files

Agency Work Group Review — 06/10/1986

Verification Date — 06/10/1986

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 terbacil 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 — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar

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

VI. Bibliography

Substance Name — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar

VI.A. Oral RfD References

E.I. duPont de Nemours & Company, Inc. 1964. MRID No. 00068035. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1967a. MRID No. 00060851. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1967b. MRID No. 00060850. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1967c. MRID No. 00060852. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1980. MRID No. 00050467. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1981. MRID No. 00126770. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

E.I. duPont de Nemours & Company, Inc. 1984. MRID No. 00150945. Available from EPA. Write to FOI, EPA, Washington DC. 20460.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar

Date	Section	Description
10/28/2003	I.A.6	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Terbacil
CASRN — 5902-51-2
Primary Synonym — Sinbar
Last Revised — 01/31/1987

- 5902-51-2
- 5-CHLORO-3-(1,1-DIMETHYLETHYL)-6-METHYL-2,4(1H,3H)-PYRIMIDINEDIONE
- 5-CHLORO-3-tert-BUTYL-6-METHYLURACIL
- DU PONT 732
- 2,4(1H,3H)-PYRIMIDINEDIONE, 5-CHLORO-3-(1,1-DIMETHYLETHYL)-6-METHYL-
- SINBAR
- Terbacil
- 3-tert-BUTYL-5-CHLORO-6-METHYLURACIL
- TURBACIL
- URACIL, 3-tert-BUTYL-5-CHLORO-6-METHYL-