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S-Ethyl dipropylthiocarbamate (EPTC); CASRN 759-94-4

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 EPTC

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 — S-Ethyl dipropylthiocarbamate (EPTC)

CASRN — 759-94-4

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.

I.A.1. Oral RfD Summary

Critical Effect	Experimental Doses*	UF	MF	RfD
Degenerative cardiomyopathy	NOEL: 50 ppm diet (2.5 mg/kg/day)	100	1	2.5E-2 mg/kg/day
2-Generation Reproduction Rat Study	LEL: 200 ppm diet (10 mg/kg/day)			
PPG Industries, 1986a				

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

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

PPG Industries, Inc. 1986a. MRID No. 00161597. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

CrI:CD(SD)Br rats (30/sex/group) were fed diets providing 0, 50, 200, and 800 ppm EPTC. At 200 ppm and above, parental toxicity consisted of reduced body weights and weight gains, and a dose-related increased incidence of degenerative cardiomyopathy. Reproductive/developmental toxicity consisted of reduced pup weights at 800 ppm in both generations.

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-Generation Reproduction - rat: Principal study - see previous description; core grade minimum
- 2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=5 mg/kg/day; Systemic LEL=25 mg/kg/day (neuropathy; body weight loss); core grade minimum (Stauffer Chemical, 1984)
- 3) 1-Year Feeding - dog: NOEL=600 ppm (15 mg/kg/day); LEL=800 ppm (45 mg/kg/day) (decreased testes weight); core grade minimum (higher doses should have been used) (PPG Industries, 1986b)
- 4) Teratology - rat: Maternal/Fetal NOEL=100 mg/kg/day; Maternal/Fetal LEL=300 mg/kg/day (based on maternal mortality and reduced body weight gain; increased resorptions and fetal growth retardation; decreased fetal weight); Teratogenic NOEL=300 mg/kg/day; Teratogenic LEL=none; No effects at the LDT (30 mg/kg/day); core grade minimum (Stauffer Chemical, 1983)
- 5) Teratology - rabbit: Maternal NOEL=300 mg/kg/day; Maternal LEL=none; Fetotoxic NOEL=300 mg/kg/day; Fetotoxic LEL=none; core grade supplementary (PPG Industries, 1985)

Other Data Reviewed:

- 1) 2-Generation Reproduction - rat: Reported NOEL=200 ppm (10 mg/kg/day); Provisionally reported LEL=1000 ppm (50 mg/kg/day) (including decreased parental and F1 body and brain weight; decreased pup weight); No histopathology reported; core grade supplementary (Stauffer Chemical, 1982)
- 2) Subchronic Feeding - rat: NOEL=3 mg/kg/day (LDT); LEL=15 mg/kg/day (decreased body weight gains and food consumption); in HDT females only, depressed brain cholinesterase activity (PPG Industries, 1983)

Data Gap(s): Rabbit Teratology Study

I.A.5. Confidence in the Oral RfD

Study — Medium
Database — Medium
RfD — Medium

The principal study is of adequate quality and is given a medium confidence rating. Since the database consists of core-minimum rated studies and a second chronic rat study is to be submitted, confidence in the database can be considered medium to high. Confidence in the RfD can also be considered medium to high.

I.A.6. EPA Documentation and Review of the Oral RfD

Pesticide Registration Standard, September 1983

Pesticide Registration Files

Agency Work Group Review — 11/21/1985, 10/28/1986, 05/20/1987

Verification Date — 05/20/1987

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 S-Ethyl dipropylthiocarbamate (EPTC) 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 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 — S-Ethyl dipropylthiocarbamate (EPTC)
CASRN — 759-94-4

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — S-Ethyl dipropylthiocarbamate (EPTC)
CASRN — 759-94-4

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 — S-Ethyl dipropylthiocarbamate (EPTC)
CASRN — 759-94-4

VI.A. Oral RfD References

PPG Industries, Inc. 1983. MRID No. 00144651. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

PPG Industries, Inc. 1985. MRID No. 00161599. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

PPG Industries, Inc. 1986a. MRID No. 00161597. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

PPG Industries, Inc. 1986b. MRID No. 00161595. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Stauffer Chemical Company. 1982. MRID No. 001121284, 40420408. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Stauffer Chemical Company. 1983. MRID No. 00138919. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Stauffer Chemical Company. 1984. MRID No. 00145004. 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 — S-Ethyl dipropylthiocarbamate (EPTC)
CASRN — 759-94-4

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

VIII. Synonyms

Substance Name — S-Ethyl dipropylthiocarbamate (EPTC)
CASRN — 759-94-4
Last Revised — 09/30/1987

- 759-94-4
- CARBAMIC ACID, DIPROPYLTHIO-, S-ETHYL ESTER
- DIPROPYLCARBAMOTHIOIC ACID S-ETHYL ESTER
- EPTAM
- EPTC
- Ethyl dipropylthiocarbamate, S-
- ETHYL DI-n-PROPYLTHIOLCARBAMATE
- ETHYL-N,N-DIPROPYLTHIOLCARBAMATE

- ETHYL N,N-DI-n-PROPYLTHIOLCARBAMATE
- FDA 1541
- N,N-DIPROPYLTHIOCARBAMIC ACID S-ETHYL ESTER
- R-1608
- S-AETHYL-N,N-DIPROPYLTHIOLCARBAMAT
- S-Ethyl dipropylthiocarbamate
- S-ETHYL-N,N-DIPROPYLTHIOCARBAMATE
- S-ETHYL N,N-DI-n-PROPYLTHIOCARBAMATE

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