Captan; CASRN 133-06-2

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 Captan

File First On-Line 01/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	03/01/1989
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)

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Last Revised — 03/01/1989

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
Decreased mean body weights **One-Generation and Three-Generation Rat Reproduction Studies** **Stauffer Chemical Co., 1982a; Chevron Chemical Co., 1982**	NOEL: 12.5 mg/kg/day LEL: 25.0 mg/kg/day	100	1	1.3E-1 mg/kg/day

*Conversion Factors -- Actual dose tested

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

Stauffer Chemical Company. 1982a. MRID No. 00120315. Chevron Chemical Company. 1982. MRID No. 00125293. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Male and female COBS CD weanling rats were given captan in the diet at dosage levels of 0, 6, 12.5, and 25 mg/kg/day (Stauffer Chemical Co., 1982a). After 102 days of treatment, 15 males were mated with 30 females for each of the treatment groups. Parents were necropsied after weaning of F1 pups; observations were made for signs of toxicity, changes in general behavior, appearance and survival (in parents and pups); body weights and food consumption (in parents); male and female fertility, length of gestation and litter sizes. No compound related effects were seen at any dosage level.

Captan was administered in the diet at dosage levels of 0, 25, 100, 250, and 500 mg/kg/day to male and female COBS CD rats for three generations (Chevron Chemical Co., 1982). For each generation 15 males were mated with 30 females. Litter parameters recorded were: survival, weight, gross appearance and macroscopic pathology. A teratology examination was performed on 30 F2 females.

No treatment-related effects because of administration of captan in the diet were seen with the exception of body weight reduction and food consumption. A dose-related decreased in both male and female parent body weight was reported at 100, 250, and 500 mg/kg/day. A related decrease in food consumption was reported for all groups except for 25 mg/kg/day in the F1 males and F2 females and 100 mg/kg/day females. Pup survival was reduced at 250 and 500 mg/kg/day. A decrease in pup litter weights was observed in all dosage groups.

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)

The new chronic dog study (10/25/1988), although core grade supplementary is sufficient to complete the required data base. The NOEL from the combined reproduction studies remain the most sensitive endpoint.

Data Considered for Establishing the RfD:

1) 1-Generation and 3-Generation Reproduction - rat: Principal study - see previous description;

2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=2000 ppm (100 mg/kg/day) (HDT); core grade minimum (Makhteshim Chemical Works Ltd., 1983)

3) 1-Year Feeding - dog: NOEL=60 mg/kg/day; LEL=300 mg/kg/day (emesis and soft/mucoid stools); core grade supplementary (ICI Americas, Inc., 1988)

4) Teratology - rabbit: Maternal NOEL=25 mg/kg/day; Maternal LEL=60 mg/kg/day (weight loss); Teratogenic and Fetotoxic NOEL=60 mg/kg/day (HDT); core grade minimum (Chevron Chemical Co., 1981a)

5) Teratology - hamster: Maternal NOEL=50 mg/kg/day; Maternal LEL=200 mg/kg/day (body weight loss, mortality); Fetotoxic NOEL=200 mg/kg/day; Fetotoxic LEL=400 mg/kg/day (HDT; reduced ossification, increased resorptions; decreased body weight); Teratogenic NOEL=400 mg/kg/day (HDT); core grade minimum (Chevron Chemical Co., 1983)

6) Teratology - monkey: Fetotoxic NOEL=12.5 mg/kg/day; Fetotoxic LEL=25 mg/kg/day (HDT; increased mortality); Teratogenic NOEL=25 mg/kg/day (HDT); no core grade (Stauffer Chemical Co., 1968)

Other Data Reviewed:

1) 113-Week Feeding (oncogenic) - mouse: Decreased weight gain and food consumption were observed at all doses [6000, 10000, 16000 ppm (900, 1500, 2400 mg/kg/day)]; core grade guideline (Chevron Chemical Co., 1981b)

2) 2-Year Feeding (oncogenic) - rat: Tentative NOEL=25 mg/kg/day; Tentative LEL=100 mg/kg/day (decreased body weights, hepatocellular hypertrophy, increased weights for kidneys, heart, brain, liver, thyroid, and parathyroid); core grade reserved (Stauffer Chemical Chemical Co., 1982b)

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. Additional studies are supportive and of adequate 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 — Pesticide Registration Standard, March 1986; Special Review Position Document 2/3, June 1985; Pesticide Registration Files

Agency Work Group Review — 03/25/1986, 01/18/1989

Verification Date — 01/18/1989

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 -- Captan
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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Captan
CASRN — 133-06-2

Not available at this time.

III. [reserved]
IV. [reserved]
V. [reserved]

VI. Bibliography

Substance Name — Captan
CASRN — 133-06-2

VI.A. Oral RfD References

Chevron Chemical Company. 1981a. MRID No. 00093883. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Chevron Chemical Company. 1981b. MRID No. 00068076. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Chevron Chemical Company. 1982. MRID No. 00125293. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Chevron Chemical Company. 1983. MRID No. 00126348. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

ICI Americas, Inc. 1988. MRID No. 40893604. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Makhteshim Chemical Works Ltd. 1983. MRID No. 00126529, 00138179. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Stauffer Chemical Company. 1968. MRID No. 00082274. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

Stauffer Chemical Company. 1982a. MRID No. 00120315. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Stauffer Chemical Company. 1982b. MRID No. 00120316. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Captan
CASRN — 133-06-2

Date	Section	Description
02/01/1989	I.A.	Withdrawn; new RfD verified (in preparation)
03/01/1989	I.A.	Revised oral RfD summary added

VIII. Synonyms

Substance Name — Captan
CASRN — 133-06-2
Last Revised — 01/31/1987

- 133-06-2
- AACAPTAN
- AGROSOL S
- AGROX 2-WAY AND 3-WAY
- AMERCIDE
- BANGTON
- CAPTAF
- CAPTAF 85W
- Captan
- CAPTAN 50W
- CAPTANCAPTENEET 26,538
- CAPTANE
- CAPTEX
- 4-CYCLOHEXENE-1,2-DICARBOXIMIDE, N-(TRICHLOROMETHYL)THIO-
- ENT 26,538
- ESSOFUNGICIDE 406
- FLIT 406
- GLYODEX 3722

- GRANOX PFM
- GUSTAFSON CAPTAN 30-DD
- HEXACAP
- 1H-ISOINDOLE-1,3(2H)-DIONE, 3a,4,7,7a-TETRAHYDRO-2-((TRICHLOROMETHYL)THIO)-
- KAPTAN
- LE CAPTANE
- MALIPUR
- MERPAN
- NA 9099
- NCI-C00077
- NERACID
- N-(TRICHLOR-METHYLTHIO)-PHTHALIMID
- N-TRICHLOROMETHYLMERCAPTO-4-CYCLOHEXENE-1,2-DICARBOXIMIDE
- N-(TRICHLOROMETHYLMERCAPTO)-delta(sup 4)-TETRAHYDRO-PHTHALIMIDE
- N-TRICHLOROMETHYLTHIOCYCLOHEX-4-ENE-1,2-DICARBOXIMIDE
- N-TRICHLOROMETHYLTHIO-cis-delta(sup 4)-CYCLOHEXENE-1,2-DICARBOXIMIDE
- N-((TRICHLOROMETHYL)THIO) TETRAHYDROPHTHALIMIDE
- N-TRICHLOROMETHYLTHIO-3a,4,7,7a-TETRAHYDROPHTHALIMIDE
- ORTHOCIDE
- ORTHOCIDE 406
- ORTHOCIDE 50
- ORTHOCIDE 7.5
- OSOCIDE
- SR406
- STAUFFER CAPTAN
- 3a,4,7,7a-TETRAHYDRO-N-(TRICHLOROMETHANESULPHENYL)PHTHALIMIDE
- 1,2,3,6-TETRAHYDRO-N-(TRICHLOROMETHYLTHIO)PHTHALIMIDE
- TRICHLOROMETHYL-THIO-1,2,5,6-TETRAHYDROPHTHALAMIDE
- VANCIDE 89
- VANCIDE 89RE
- VANCIDE P-75
- VANGARD K
- VANGUARD K
- VANICIDE
- VONDCAPTAN