

Fluridone; CASRN 59756-60-4

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 Fluridone

File First On-Line 01/31/1987

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 — Fluridone

CASRN — 59756-60-4

Primary Synonym — Sonar

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
Glomerulonephritis, atrophic testes, eye keratitis; decreased body weight and organ weights	NOEL: 200 ppm (8 mg/kg/day)	100	1	8E-2 mg/kg/day
	LEL: 650 ppm (25 mg/kg/day)			
2-Year Rat Feeding Study				
Elanco Products, 1980a				

*Conversion Factors -- Dose in mg/kg/day provided by author of study

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

Elanco Products Company, Division of Eli Lilly and Company. 1980a. MRID No. 00103251, 00103305. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Three studies were conducted concurrently, using Fischer rats fed the same dietary levels of Fluridone [0, 200, 650, 2000 ppm (0, 8, 25, 81 mg/kg/day)]. The first study was a 1-year feeding study (R-1126) in which 120 animals were divided into four groups of 15 animals/sex/dietary level. The other two studies were reported to be replicate 2-year oncogenic assays (Nos. R-1136 and R-1146), in which 240 animals per assay were divided into four groups of 30 animals/sex/dietary level. These three studies constitute a 2-year study with 75 animals/sex/dietary level of which 15 animals/sex/dietary level were sacrificed at 12 months. Effects observed at 650 ppm included glomerulonephritis, atrophic testes, eye keratitis, decreased body weight and organ weights.

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 (oncogenic) - rat: Principal study - see previous description; core grade minimum
- 2) 1-Year Feeding - dog: Systemic NOEL=75 mg/kg/day; Systemic LEL=150 mg/kg/day (weight loss, increased liver weight and alkaline phosphatase); core grade minimum (Elanco Products, 1981)
- 3) 3-Generation Reproduction - rat: Teratogenic, Maternal and Fetotoxic NOEL=2000 ppm (100 mg/kg/day) (HDT); LEL=none; Pup toxic NOEL=650 ppm (32.5 mg/kg/day); Pup toxic LEL=2000 ppm (100 mg/kg/day) (pup weight); core grade minimum for reproduction, supplementary for teratology (Elanco Products, 1980b)
- 4) Teratology - Rat: Maternal NOEL=100 mg/kg/day; Maternal LEL=300 mg/kg/day (decreased body weight); Developmental NOEL=300 mg/kg/day; Developmental LEL=1000 mg/kg/day (decreased fetal weight, delayed ossification); Teratogenic NOEL=1000 mg/kg/day (HDT); LEL=none; core grade minimum (Elanco Products, 1986)
- 5) Teratology - rabbit: Teratogenic NOEL=750 mg/kg/day (HDT); Teratogenic LEL=none; Maternal NOEL=125 mg/kg/day; Maternal LEL=30 mg/kg/day (body weight, abortion); Fetal NOEL=125 mg/kg/day; Fetal LEL=300 mg/kg/day (resorptions); core grade minimum (Elanco Products, 1980c)

Other Data Reviewed:

- 1) 2-Year Feeding (oncogenic) - mouse: Clinical NOEL equal to or greater than the HDT (no deaths, no toxicities, no histopathological lesions); Dose- dependent, increased AP in males [NOEL=100 ppm (15 mg/kg/day)]; MTD was not used, and food consumption not determined; core grade minimum (Elanco Products, 1982)

2) 3-Month Feeding - rat: Systemic NOEL=none; LEL=166 mg/kg/day (LDT; increased liver weight); core grade minimum (Elanco Products, 1978a)

3) 3-Month Feeding - dog: Systemic NOEL=200 mg/kg/day (HDT); LEL=none; core grade minimum (Elanco Products, 1978b)

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 good quality and 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

Pesticide Registration Files

Agency Work Group Review — 11/21/1985, 01/21/1988

Verification Date — 01/21/1988

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 Fluridone 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 — Fluridone
CASRN — 59756-60-4
Primary Synonym — Sonar

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Fluridone
CASRN — 59756-60-4
Primary Synonym — Sonar

Not available at this time.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — Fluridone
CASRN — 59756-60-4
Primary Synonym — Sonar

VI.A. Oral RfD References

Elanco Products Company, Division of Eli Lilly and Company. 1978a. MRID No. 00135208.
Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1978b. MRID No. 0082344.
Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1980a. MRID No. 00103251, 00103305. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1980b. MRID No. 00103304. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1980c. MRID No. 00103302. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1981. MRID No. 00103336. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1982. MRID No. 00103252, 00103305. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Elanco Products Company, Division of Eli Lilly and Company. 1986. MRID No. 00159963. 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 — Fluridone

CASRN — 59756-60-4

Primary Synonym — Sonar

Date	Section	Description
08/22/1988	I.A.	Oral RfD summary replaced; RfD not changed
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Fluridone

CASRN — 59756-60-4

Primary Synonym — Sonar

Last Revised — 01/31/1987

- 59756-60-4
- EL 171
- Fluridone
- 4(1H)-Pyridinone, 1-methyl-3-phenyl-5-(3-(trifluoromethyl)phenyl)-
- Sonar