

Quinalphos; CASRN 13593-03-8

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 Quinalphos

File First On-Line 03/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	03/31/1987
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 — Quinalphos

CASRN — 13593-03-8

Last Revised — 03/31/1987

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
No adverse effects reported	NOEL: 0.05 mg/kg/day	100	1	5E-4 mg/kg/day
Two-year Feeding Dog Study	LEL: none			
Sandoz, Ltd., 1980a				

*Dose Conversion Factors & Assumptions: none

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

Sandoz, Ltd. 1980a. MRID No. 00080571; HED Doc. No. 004976. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Quinalphos was administered in the diet at 0, 0.0025, 0.0125 or 0.05 mg/kg/day to 4 male and 4 female dogs/group for 2 years. Although there were no signs of systemic toxicity, plasma cholinesterase (P ChE) was decreased at 0.05 mg/kg/day. The NOEL for P ChE depression is 0.0125 mg/kg/day.

I.A.3. Uncertainty and Modifying Factors (Oral RfD)

UF — The UF of 100 accounts for the inter- and intraspecies differences.

MF — None

I.A.4. Additional Studies/Comments (Oral RfD)

None

Data Considered for Establishing the RfD:

- 1) 2-Year Feeding - dog: Principal study - see previous description; core grade minimum
- 2) 2-Year Feeding/Oncogenic - rat: Systemic NOEL=1.0 mg/kg/day; LEL not established; ChE NOEL = 0.15 mg/kg/day; LEL=1.0 mg/kg/day (decreased plasma and RBC ChE); core grade minimum (Sandoz, Inc., 1979a)
- 3) Teratology - rabbit: Maternal NOEL=4 mg/kg/day; LEL=8 mg/kg/day (decreased weight gain, ataxia, weakness, diarrhea); Fetotoxic NOEL=4 mg/kg/day; LEL=8 mg/kg/day (increased resorptions/litter); core grade minimum (Sandoz, Inc., 1979b)
- 4) Reproduction - rat: Maternal NOEL=0.5 mg/kg/day (HDT); LEL not established; Fetotoxic NOEL=0.5 mg/kg/day (HDT); LEL not established; ChE NOEL (Maternal and Pup)=0.15 mg/kg/day; ChE LEL=0.5 mg/kg/day (decreased RBC and plasma ChE); core grade minimum (Sandoz, Inc., 1980b)

Other Data Reviewed:

- 1) 18 month oncogenic - mouse: Systemic NOEL=0.075 mg/kg/day (HDT); LEL not established; ChE NOEL=0.03 mg/kg/day; LEL=0.15 mg/kg/day (decreased plasma ChE); core grade minimum (Sandoz, Inc., 1980c)

Data Gap(s): Rat Teratology

I.A.5. Confidence in the Oral RfD

Study — High
Database — Medium
RfD — Medium

The principal study appears to be of good quality and is given a high confidence rating. The database on chronic toxicity is of fair quality; therefore, 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 Files

Agency Work Group Review — 10/28/1986, 12/16/1986

Verification Date — 12/16/1986

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 Quinalphos conducted in September 2002 identified one or more significant new studies. IRIS users may request the references for those studies from 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 — Quinalphos

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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Quinalphos

CASRN — 13593-03-8

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 — Quinalphos
CASRN — 13593-03-8

VI.A. Oral RfD References

Sandoz, Ltd. 1979a. MRID No. 00084267; HED Doc. No. 004976. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Sandoz, Ltd. 1979b. MRID No. 00081691; HED Doc. No. 004976. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Sandoz, Ltd. 1980a. MRID No. 00080571; HED Doc. No. 004976. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Sandoz, Ltd. 1980b. MRID No. 00081690; HED Doc. No. 004976. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Sandoz, Ltd. 1980c. MRID No. 00081689; HED Doc. No. 004976. 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 — Quinalphos
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Date	Section	Description
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Quinalphos
CASRN — 13593-03-8
Last Revised — 03/31/1987

- 13593-03-8
- BAY 5821
- BAY 77049
- BAYRUSIL
- CHINALPHOS
- DIETHQUINALPHION
- DIETHQUINALPHIONE
- EKALUX
- ENT 27394
- NSC 190986
- O,O-DIAETHYL-O-(CHINOXALYL-(2))-MONOTHIOPHOSPHAT
- O,O-DIETHYL O-(2-CHINOXALYL)-PHOSPHOROTHIOATE
- O,O-DIETHYL O-QUINOXALIN-2-YL PHOSPHOROTHIOATE
- O,O-DIETHYL-O-(2-QUINOXALYL) PHOSPHOROTHIOATE
- O,O-DIETHYL-O-2-QUINOXALYL-THIOPHOSPHATE
- PHOSPHOROTHIOIC ACID, O,O-DIETHYL O-(2-QUINOXALINYL) ESTER
- Quinalphos
- S-6538
- SAN 6538 I
- SAN 6626 I
- SANDOZ 6538

- SPENCER S-6538
- SRA 7312
- WIE OBEN