

## Endothall; CASRN 145-73-3

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 Endothall

**File First On-Line 03/31/1987**

Category (section)	Assessment Available?	Last Revised
<b>Oral RfD (I.A.)</b>	yes	03/31/1987
<b>Inhalation RfC (I.B.)</b>	not evaluated	
<b>Carcinogenicity Assessment (II.)</b>	not evaluated	

## I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

### I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — Endothall

CASRN — 145-73-3

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
<b>Increased absolute and relative weights of stomach small intestine</b>	NOEL: 100 ppm (diet) mg/kg bw/day)	100	1	2E-2 mg/kg/day
	LEL: 300 ppm (diet) (6 mg/kg bw/day)			
<b>Two-Year Feeding Study in Dogs</b>				
<b>Pennwalt Agchem., 1965</b>				

\*Conversion Factors and Assumptions — Dose adjusted for assumed dog food consumption (2.5% bw/day) and expressed as endoathall ion.

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

Pennwalt Agchem. 1965. MRID No. 00101735. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Three male and 3 female dogs were administered diets that initially contained 0, 100, 300 or 800 ppm of disodium endoathall. The concentration in the high- dose group was gradually increased over months 19-22 to a final concentration of 2000 ppm. The doses were calculated on the basis of the amount of endoathall ion in the diet, and the standard equivalence factor for dogs (0.025 kg of diet/kg of bw/day). No effect on weight gain, hematology, BSP clearance, SGOT or urinalysis was noted. At necropsy, increased absolute and relative weights of stomach and small intestine were noted in intermediate and high-dose dogs. Increased "mucosal gland activity" was noted in the stomachs of high-dose dogs, along with slight edema of the pyloric region.

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

UF — An uncertainty factor of 100 was used to account for inter- and intraspecies differences.

MF — None

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

Data Considered for Establishing the RfD:

- 1) Two-Year Feeding - dog: Principal study - see previous description; no core grade
- 2) 3-Generation Reproduction - rat: NOEL=100 ppm (5 mg/kg/day); LEL=2500 ppm (125 mg/kg/day) [weight loss, kidney and adrenal discoloration, F2B pup mortality (dose discontinued)]; core grade minimum (Pennwalt Corp., 1965)
- 3) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=2500 ppm (125 mg/kg/day) (HDT); no core grade (only 10 animals/sex were used) (Pennwalt Corp., 1977)
- 4) Teratology with postnatal phase - rat: Maternal NOEL=10 mg/kg/day; Maternal LEL=20 mg/kg/day (death); Fetotoxic NOEL=10 mg/kg/day; Fetotoxic LEL=40 mg/kg/day (increased number of skeletal variations); core grade minimum (Pennwalt Corp., 1982)
- 5) Teratology - mouse: Teratogenic NOEL=20 mg/kg/day; Teratogenic LEL= 40 mg/kg/day (HDT) (skeletal malformations noted at HDT with maternal toxicity); Maternal NOEL=5 mg/kg/day; Maternal LEL=20 mg/kg/day (death); Fetotoxic NOEL=20 mg/kg/day; Fetotoxic LEL=40 mg/kg/day (skeletal anomalies); core grade minimum (Pennwalt Corp., 1981)
- 6) 6-Week Feeding - dog: NOEL=10 mg/kg/day; LEL=20 mg/kg/day (100% mortality at this dose level and higher; congested and edematous stomachs with occasional erosion and hemorrhage); no core grade (Pennwalt Corp., 1953)

Data Gap(s): Chronic Rat Feeding Study (repeat study in progress)

### **I.A.5. Confidence in the Oral RfD**

Study — Medium

Database — Medium

RfD — Medium

The critical study appears to be of fair quality and is given a medium confidence rating. The database is generally supportive but since there is a data gap existing for endothall, the database is also 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 — 04/22/1986, 11/25/1986

Verification Date — 11/25/1986

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 Endothall 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](mailto: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](mailto:hotline.iris@epa.gov) (internet address).

---

#### **I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)**

Substance Name — Endothall

CASRN — 145-73-3

Not available at this time.

---

## **II. Carcinogenicity Assessment for Lifetime Exposure**

Substance Name — Endothall

CASRN — 145-73-3

Not available at this time.

**III. [reserved]**

**IV. [reserved]**

**V. [reserved]**

---

## **VI. Bibliography**

Substance Name — Endothall

CASRN — 145-73-3

### **VI.A. Oral RfD References**

Pennwalt Agchem. 1965. MRID No. 00101735. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Pennwalt Corporation. 1953. MRID No. 00040962. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Pennwalt Corporation. 1965. MRID No. 00084610. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Pennwalt Corporation. 1977. MRID No. 00084609. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Pennwalt Corporation. 1981. MRID No. 00073371, 00085940. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Pennwalt Corporation. 1982. MRID No. 00118952. 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 — Endothall

CASRN — 145-73-3

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

---

## VIII. Synonyms

Substance Name — Endothall

CASRN — 145-73-3

Last Revised — 03/31/1987

- 145-73-3
- AQUATHOL
- 1,2-CYCLOHEXANEDICARBOXYLIC ACID, 3,6-endo-EPOXY-
- 3,6-ENDOOXOHEXAHYDROPHTHALIC ACID
- ENDOTHAL
- Endothall
- ENDOTHAL TECHNICAL
- 3,6-ENDOXOHEXAHYDROPHTHALIC ACID
- HYDOUT
- HYDROTHAL-191
- HYDROTHAL-47
- 7-OXABICYCLO(2.2.1)HEPTANE-2,3-DICARBOXYLIC ACID
- PHTHALIC ACID, HEXAHYDRO-3,6-endo-OXY-
- RCRA WASTE NUMBER P088
- TRI-ENDOTHAL