

2,4,5-Trichlorophenol; CASRN 95-95-4

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 2,4,5-Trichlorophenol

File First On-Line 01/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	01/31/1987
Inhalation RfC (I.B.)	message	07/01/1991
Carcinogenicity Assessment (II.)	not evaluated	

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — 2,4,5-Trichlorophenol

CASRN — 95-95-4

Last Revised — 01/31/1987

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
Liver and kidney pathology	NOEL: 100 mg/kg/day (1000 ppm)	1000	1	1E-1 mg/kg/day
Rat Oral Subchronic Study	LOAEL: 300 mg/kg/day (3000 ppm)			
McCollister et al.,1961				

*Conversion Factors: Food consumption 10% of body weight young adult animals; thus, 1000 mg/kg of diet x 0.1 kg of diet/kg bw/day = 100 mg/kg/day

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

McCollister, D.D., D.T. Lockwood and V.K. Rowe. 1961. Toxicologic information on 2,4,5-trichlorophenol. *Toxicol. Appl. Pharmacol.* 3: 63-70.

This is the only subchronic (98 days) oral study in rodents available in the literature. Ten rats of each sex were exposed to different levels (from 100 through 10,000 ppm) of 2,4,5-trichlorophenol for 98 days. Mild diuresis and slight degenerative changes in the liver and kidneys were observed in rats of both sexes in the 3000 ppm and higher doses. In this study 1000 ppm of diet (or 100 mg/kg/day based on food consumption as 10% of body weight in young adults) was considered to be a NOEL, as judged by behavior, mortality, food consumption, growth, body and organ weights, and histopathology. Until further chronic/reproductive studies are available, this RfD, 0.1 mg/kg/day, is recommended.

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

UF — The uncertainty factor of 1000 reflects 10 for both intraspecies and interspecies variability to the toxicity of this chemical in lieu of specific data, and 10 for extrapolation of a subchronic effect level to its chronic equivalent.

MF — None

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

None.

I.A.5. Confidence in the Oral RfD

Study — Medium

Database — Low

RfD — Low

The confidence in the chosen study is medium and not higher because, while five dose groups were tested and several parameters were monitored, only a few animals were tested per dose. Confidence in the database is low because little supporting data exist. Confidence in the RfD is low. Additional chronic/reproductive toxicity studies are needed to support a higher confidence in the RfD.

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

Source Document — U.S. EPA, 1984

Limited Peer Review and Agency-wide Internal Review, 1984.

Other EPA Documentation — None

Agency Work Group Review — 05/20/1985

Verification Date — 05/20/1985

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 2,4,5-Trichlorophenol 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 — 2,4,5-Trichlorophenol
CASRN — 95-95-4

The health effects data for 2,4,5-trichlorophenol were reviewed by the U.S. EPA RfD/RfC workgroup and determined to be inadequate for derivation of an inhalation RfC. For additional information on health effects of this chemical, interested parties are referred to the EPA documentation listed below.

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC.

U.S. EPA. 1983. Reportable Quantity for 2,4,5-Trichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response.

U.S. EPA. 1989. Drinking Water Criteria Document for Chlorophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC.

Agency Work Group Review — 04/24/1991

Screening-Level Literature Review Findings — A screening-level review conducted by an EPA contractor of the more recent toxicology literature pertinent to the RfC for 2,4,5-Trichlorophenol 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.

EPA Contacts:

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).

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — 2,4,5-Trichlorophenol
CASRN — 95-95-4

Not available at this time.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — 2,4,5-Trichlorophenol
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VI.A. Oral RfD References

McCollister, D.D., D.T. Lockwood and V.K. Rowe. 1961. Toxicologic information on 2,4,5-trichlorophenol. *Toxicol. Appl. Pharmacol.* 3: 63-70.

U.S. EPA. 1984. Health Effects Assessment for 2,4,5-Trichlorophenol. Prepared by the Office of Health Effects Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Emergency and Remedial Response, Washington, DC.

VI.B. Inhalation RfC References

U.S. EPA. 1980. Ambient Water Quality Criteria Document for Chlorinated Phenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Water Regulations and Standards, Washington, DC.

U.S. EPA. 1983. Reportable Quantity for 2,4,5-Trichlorophenol. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response.

U.S. EPA. 1989. Drinking Water Criteria Document for Chlorophenols. Prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Drinking Water, Washington, DC.

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — 2,4,5-Trichlorophenol
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Date	Section	Description
07/01/1991	I.B.	Inhalation RfC message on-line
12/03/2002	I.A.6., I.B.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — 2,4,5-Trichlorophenol
CASRN — 95-95-4
Last Revised — 01/31/1987

- 95-95-4
- COLLUNOSOL
- DOWICIDE 2

- DOWICIDE B
- NCI-C61187
- NURELLE
- PREVENTOL I
- RCRA WASTE NUMBER U230
- 2,4,5-Trichlorophenol
- Trichlorophenol, 2,4,5-