

2,6-Dimethylphenol; CASRN 576-26-1

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 2,6-Dimethylphenol

File First On-Line 09/07/1988

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	09/07/1988*
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	not evaluated	

*A comprehensive review of toxicological studies was completed 01/06/05 - please see section I.A.6 for more information.

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — 2,6-Dimethylphenol

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Last Revised — 09/07/1988

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
Body weight changes and histopathological changes of internal organs (liver, spleen and kidneys)	NOEL: 0.6 mg/kg/day LOAEL: 6.0 mg/kg/day	1000	1	6E-4 mg/kg/day
Rat Subchronic Toxicity Study				
Veldre and Janes, 1979				

*Conversion Factors -- None

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

Veldre, I.A. and H.J. Janes. 1979. Toxicological studies of shale oils, some of their components and commercial products. *Environ. Health Perspect.* 30: 141-146.

White rats (unspecified number) were administered orally 0, 0.6 and 6.0 mg/kg/day isomeric 2,6-dimethylphenol over an 8-month period. No effects were reported at 0.6 mg/kg/day. Animals receiving 6 mg/kg/day exhibited body weight changes, blood pressure changes, changes in protein sulfhydryl groups in blood serum and internal organs, and histopathological changes in liver, kidney and spleen. Dividing the NOEL of 0.6 mg/kg/day by an uncertainty factor of 1000 results in an oral RfD of 6E-4 mg/kg/day.

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

UF — The UF of 1000 includes factors of 10 for species to species extrapolation, 10 to protect sensitive humans and 10 to extrapolate from subchronic to chronic exposure.

MF — None

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

Maazik (1967) reported the results of subchronic oral administration of 2,6- dimethylphenol in rats. No effects were reported at 0.06 mg/kg/day. In the 6.0 mg/kg/day dose group, rats showed decreased weight gain and significant decreased levels of protein sulfhydryl groups in serum. Histological examination showed marked histopathological changes in the liver and kidney.

There are no published data on teratogenicity or reproductive effects.

I.A.5. Confidence in the Oral RfD

Study — Low

Database — Low

RfD — Low

Confidence in the study is low because details of the experiment are not available. There is one subchronic toxicity study supporting the LOAEL, but there are no other reported long-term assays. Therefore, confidence in the database and RfD are rated low.

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

Source Document — U.S. EPA, 1986

Limited peer review and extensive Agency-wide review, 1986.

Other EPA Documentation — None

Agency Work Group Review — 01/22/1986

Verification Date — 01/22/1986

A comprehensive review of toxicological studies published through 2004 was conducted. No new health effects data were identified that would be directly useful in the revision of the

existing RfD for 2,6-Dimethylphenol and a change in the RfD is not warranted at this time. For more information, IRIS users may contact 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)

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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — 2,6-Dimethylphenol
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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 — 2,6-Dimethylphenol
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VI.A. Oral RfD References

Maazik, I.K. 1967. Standards for dimethylphenol isomers in water bodies. *Gig. Sanit.* 11: 28-35.

U.S. EPA. 1986. Health and Environmental Effects Profile for Dimethylphenols. 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, Washington, DC.

Veldre, I.A. and H.J. Janes. 1979. Toxicological studies of shale oils, some of their components and commercial products. *Environ. Health Perspect.* 30: 141-146.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — 2,6-Dimethylphenol

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Date	Section	Description
09/07/1988	I.A.	Oral RfD summary on-line
10/28/2003	I.A.6.	Screening-Level Literature Review Findings message has been added.
03/03/2005	I.A.6.	Screening-Level Literature Review Findings message has been removed and replaced by comprehensive literature review conclusions.

VIII. Synonyms

Substance Name — 2,6-Dimethylphenol

CASRN — 576-26-1

Last Revised — 09/07/1988

- 576-26-1
- 2,6-Dimethylphenol
- Dimethylphenol, 2,6-
- 2,6-DMP
- 3,4-XYLENOL