

p-Chlorophenyl methyl sulfone; CASRN 98-57-7

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 p-Chlorophenyl methyl sulfone

File First On-Line 02/01/1993

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	message	06/01/1993
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	yes	02/01/1993

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — p-Chlorophenyl methyl sulfone
 CASRN — 98-57-7

The health effects data for p-chlorophenyl methyl sulfone were reviewed by the U.S. EPA RfD/RfC Work Group and determined to be inadequate for the derivation of an oral RfD. For additional information on the health effects of this chemical, interested parties are referred to the EPA documentation listed below.

U.S. EPA. 1992. Data Deficiencies, Problem Areas, and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, Sulfoxide, and Sulfone (PCPMS, PCPMSO, and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC. Available from the National Technical Information Service (NTIS), Springfield, VA. PB93-116986.

Agency Work Group Review — 06/24/1992

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).

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 p-Chlorophenyl methyl sulfone conducted in August 2003 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.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — p-Chlorophenyl methyl sulfone
CASRN — 98-57-7

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — p-Chlorophenyl methyl sulfone
CASRN — 98-57-7
Last Revised — 02/01/1993

Section II provides information on three aspects of the carcinogenic assessment for the substance in question; the weight-of-evidence judgment of the likelihood that the substance is a human carcinogen, and quantitative estimates of risk from oral exposure and from inhalation exposure. The quantitative risk estimates are presented in three ways. The slope factor is the result of application of a low-dose extrapolation procedure and is presented as the risk per (mg/kg)/day.

The unit risk is the quantitative estimate in terms of either risk per ug/L drinking water or risk per ug/cu.m air breathed. The third form in which risk is presented is a drinking water or air concentration providing cancer risks of 1 in 10,000, 1 in 100,000 or 1 in 1,000,000. The rationale and methods used to develop the carcinogenicity information in IRIS are described in The Risk Assessment Guidelines of 1986 (EPA/600/8-87/045) and in the IRIS Background Document. IRIS summaries developed since the publication of EPA's more recent Proposed Guidelines for Carcinogen Risk Assessment also utilize those Guidelines where indicated (Federal Register 61(79):17960-18011, April 23, 1996). Users are referred to Section I of this IRIS file for information on long-term toxic effects other than carcinogenicity.

II.A. Evidence for Human Carcinogenicity

II.A.1. Weight-of-Evidence Characterization

Classification — D; not classifiable as to human carcinogenicity

Basis — No human or animal studies found in the available literature

II.A.2. Human Carcinogenicity Data

None.

II.A.3. Animal Carcinogenicity Data

None.

II.A.4. Supporting Data for Carcinogenicity

Thake et al. (1979) evaluated the mutagenic potential of p-chlorophenyl methyl sulfone in a reverse mutation assay with Salmonella typhimurium strains TA1535, TA1537, TA1538, TA98 and TA100. Dose ranges evaluated were 0.1 to 500 uL/plate with and without Arochlor S9, and 10 to 1000 uL/plate with and without phenobarbital S9. Under both nonactivated and S9-activated conditions, the test material was neither cytotoxic nor mutagenic in any test strain.

II.B. Quantitative Estimate of Carcinogenic Risk from Oral Exposure

None.

II.C. Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure

None.

II.D. EPA Documentation, Review, and Contacts (Carcinogenicity Assessment)

II.D.1. EPA Documentation

Source Document — U.S. EPA, 1992

The document, Data Deficiencies, Problem Areas and Recommendations for Additional database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide and -Sulfone (PCPMS, PCPMSO and PCPMSO₂) has been reviewed by the Office of Water.

II.D.2. EPA Review (Carcinogenicity Assessment)

Agency Work Group Review — 12/03/1991

Verification Date — 12/03/1991

Screening-Level Literature Review Findings — A screening-level review conducted by an EPA contractor of the more recent toxicology literature pertinent to the cancer assessment for p-Chlorophenyl methyl sulfone conducted in August 2003 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.

II.D.3. EPA Contacts (Carcinogenicity Assessment)

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).

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — p-Chlorophenyl methyl sulfone
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VI.A. Oral RfD References

U.S. EPA. 1992. Data Deficiencies, Problem Areas, and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, Sulfoxide, and Sulfone (PCPMS, PCPMSO, and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC. Available from the National Technical Information Service (NTIS), Springfield, VA. PB93-116986.

VI.B. Inhalation RfD References

None

VI.C. Carcinogenicity Assessment References

Thake D., D. Mays, P. Leber, D. Metcalf and L. Bavda. 1979. Mammalian toxicological evaluation of p-chlorophenyl methyl sulfide, p-chlorophenyl methyl sulfoxide and p-chlorophenyl methyl sulfone. U.S. Army Medical Research and Development Command, Fort Detrick, MD. Contract No. DAMD17-77-C- 7038. Available from NTIS, Springfield, VA. Order No. ADA082824.

U.S. EPA. 1992. Data Deficiencies, Problem Areas and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide, and -Sulfone (PCPMS, PCPMSO and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC.

VII. Revision History

Substance Name — p-Chlorophenyl methyl sulfone

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Date	Section	Description
02/01/1993	II.	Carcinogenicity assessment on-line
06/01/1993	I.A.	Oral RfD message on-line
10/28/2003	I.A., II.D.2.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — p-Chlorophenyl methyl sulfone

CASRN — 98-57-7

Last Revised — 08/01/1992

- 98-57-7
- Benzene, 1-chloro-4-(methylsulfonyl)-
- 4-chlorophenyl methyl sulfone
- METHYL 4-CHLOROPHENYL SULFONE
- p-CHLOROPHENYL METHYL SULFONE
- Sulfone, p-chlorophenyl methyl
- 1-Chloro-4-(methylsulfonyl)benzene
- 4-CHLOROPHENYL METHYL SULFONE