

p-Bromodiphenyl ether; CASRN 101-55-3

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 p-Bromodiphenyl ether

File First On-Line 08/01/1990

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	not evaluated	
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	yes	08/01/1990*

*A comprehensive review of toxicological studies was completed (July 14, 2006) - please see section II.D.2. for more information.

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — p-Bromodiphenyl ether
CASRN — 101-55-3

Not available at this time.

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

Substance Name — p-Bromodiphenyl ether
CASRN — 101-55-3

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — p-Bromodiphenyl ether
CASRN — 101-55-3
Last Revised — 08/01/1990

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 data and inadequate animal data.

II.A.2. Human Carcinogenicity Data

None.

II.A.3. Animal Carcinogenicity Data

Inadequate. No long-term animal studies of carcinogenicity are available.

Theiss et al. (1977) tested 4-bromodiphenyl ether in a short-term lung adenoma test in strain A/St male mice (6 to 8 weeks old). Twenty mice/group were injected intraperitoneally with 0, 40, 100, or 200 mg/kg of 4-bromodiphenyl ether in tricapylin 3 times/week for a total of 17 to 24 injections (total doses were 0, 920, 1700, and 3600 mg/kg, respectively). Controls received the vehicle. There was no effect of treatment on survival. Twenty-four weeks after the first injection, the mice were sacrificed and the lungs examined for surface adenomas. The number of pulmonary tumors per mouse was not elevated in treated animals relative to the vehicle controls. This is generally regarded as a short-term in vivo screening bioassay for lung tumors.

II.A.4. Supporting Data for Carcinogenicity

Treatment of CD-1 mice with 4-bromodiphenyl ether at doses ranging from 58 to 579 mg/kg/day by gavage for 14 days did not induce sister chromatid exchanges (SCE) (Borzelleca, 1982).

4-Bromodiphenyl ether is structurally-related to decabromodiphenyl ether, a possible human carcinogen.

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, 1986

The 1986 Health and Environmental Effects Profile for 4-Bromophenyl Phenyl Ether has received Agency Review.

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

Agency Work Group Review — 06/15/1990

Verification Date — 06/15/1990

A comprehensive review of toxicological studies published through July 2006 was conducted. No new health effects data were identified that would be directly useful in the revision of the existing carcinogenicity assessment for p-Bromodiphenyl ether and a change in the assessment 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.

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-Bromodiphenyl ether
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VI.A. Oral RfD References

None

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

Borzelleca, J.F. 1982. A review of volatile organic contaminant data. Proc. AWWA Water Qual. Tech. Conf. p. 225-244.

Thiess, J.C., G.D. Stoner, M.B. Shimkin and E.K. Weisburger. 1977. Test for carcinogenicity of organic contaminants of United States drinking waters by pulmonary tumor response in Strain A mice. Cancer Res. 37: 2717-2720.

U.S. EPA. 1986. Health and Environmental Effects Profile for 4-Bromophenyl phenyl ether. Prepared by Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste and Emergency Response, Washington, DC.

VII. Revision History

Substance Name — p-Bromodiphenyl ether
CASRN — 101-55-3

Date	Section	Description
08/01/1990	II.	Carcinogen assessment on-line
12/03/2002	II.D.2.	Screening-Level Literature Review Findings message has been added.
09/28/2006	II.D.2.	Screening-Level Literature Review Findings message has been removed and replaced by comprehensive literature review conclusions.

VIII. Synonyms

Substance Name — p-Bromodiphenyl ether
CASRN — 101-55-3
Last Revised — 08/01/1990

- 101-55-3
- BENZENE, 1-BROMO-4-PHENOXY-

- 4-BROMODIPHENYL ETHER
- 1-BROMO-4-PHENOXYBENZENE
- 4-BROMOPHENOXYBENZENE
- 4-BROMOPHENYL PHENYL ETHER
- DIPHENYL ETHER, 4-BROMO-
- ETHER, 4-BROMOPHENYL PHENYL
- ETHER, P-BROMOPHENYL PHENYL
- HSDB 2747
- NSC 5619
- P-BROMODIPHENYL ETHER
- P-BROMOPHENOXYBENZENE
- P-BROMOPHENYL PHENYL ETHER
- PHENYL ETHER, 4-BROMO-
- P-PHENOXYBROMOBENZENE