

4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB); CASRN 94-81-5

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 MCPB

File First On-Line 09/26/1988

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	09/26/1988
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	not evaluated	

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

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

Substance Name — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

Last Revised — 09/26/1988

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
Male reproductive toxicity and other effects	NOEL: 480 ppm diet (12 mg/kg/day)	1000	1	1E-2 mg/kg/day
13-Week Dog Feeding Study	LEL: 1600 ppm diet (40 mg/kg/day)			
Rhodia, Inc., 1970a				
Increased liver and kidney weights	NOEL: 12 mg/kg/day LEL: 40 mg/kg/day			
90-Day Rat Feeding Study				
Rhodia, Inc., 1970b				

*Conversion Factors -- 1 ppm = 0.025 mg/kg/day (assumed dog food consumption)

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

Rhodia, Inc. 1970a. MRID No. 00116345. Rhodia, Inc. 1970b. MRID No. 00116344. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Young purebred beagles (4/sex/dose) were fed diets containing 0, 160, 480, or 1600 ppm (0, 4, 12, or 40 mg/kg/day) MCPB for 13 weeks (Rhodia, Inc., 1970a). The following effects were observed at 1600 ppm (HDT): increase in BSP retention, small testicles, decrease in organ

weight ratios, curtailment of spermatogenic activity, tubular atrophy, immature or atrophic prostate, and inhibited body weight gain.

Charles River CD rats (10/sex/dose) were fed diets containing 0, 4, 12, or 40 mg/kg/day MCPB for 13 weeks (Rhodia, Inc., 1970b). Discolored liver lobes and elevated absolute and relative liver and kidney weights were observed at the highest dose level. No treatment-related effects on behavior, appearance, growth rate, food consumption, or selected hematology or urinalysis were found.

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

UF — The uncertainty factor of 1000 includes factors of 10 each to account for the inter- and intraspecies differences, and a factor of 10 to account for the subchronic-to-chronic extrapolation and for the lack of a complete data base on toxicity.

MF — None

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

Data Considered for Establishing the RfD:

- 1) 13-Week Feeding - dog: Principal study - see previous description; core grade minimum
- 2) 90-Day Feeding - rat: Co-principal study - see previous description; core grade minimum

Data Gaps: Chronic Rat Study; Chronic Dog Study; Rat Reproduction Study; Rat Teratology Study; Rabbit Teratology Study

I.A.5. Confidence in the Oral RfD

Study — Medium

Database — Low

RfD — Low

The critical study is of adequate quality and is given a medium confidence rating. Since there is an extensive data gap for chronic toxicity, the data base is given a low confidence rating. Low confidence in the RfD follows.

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

Source Document — This assessment is not presented in any existing U.S. EPA document.

Other EPA Documentation — Pesticide Registration Files

Agency Work Group Review — 07/22/1985, 09/17/1987, 10/14/1987

Verification Date — 10/14/1987

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 4-(2-Methyl-4-chlorophenoxy) butyric acid conducted in November 2001 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 — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

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 — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

VI.A. Oral RfD References

Rhodia, Inc. 1970a. MRID No. 00116345. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Rhodia, Inc. 1970b. MRID No. 00116344. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

VI.B. Inhalation RfD References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

Date	Section	Description
09/26/1988	I.A.	Oral RfD summary on-line
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — 4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)

CASRN — 94-81-5

Last Revised — 09/26/1988

- 2M 4KhM
- 4MCPB
- 94-81-5
- bexane
- bexone
- butanoic acid, 4-(4-chloro-2-methylphenoxy)-
- butyric acid, 4-((4-chloro-o-tolyl)oxy)-
- can-trol
- 4-(4-chlor-2-methylphenoxy)-buttersaeure
- 4-(4-chloro-2-methylphenoxy)butyric acid
- gamma-(4-chloro-2-methylphenoxy)butyric acid
- 4-(4-chloro-o-tolyl)oxy)butyric acid
- (4-chloro-o-tolyloxy)butyric acid
- kyselina 4-(4-chlor-2-methylfenoxy)maselna
- legumex
- MB 3046
- 4-(MCB)
- MCPB
- 2,4-MCPB
- gamma-MCPB
- MCP-butyric
- 2-methyl-4-chlorophenoxybutyric acid

- Methyl-4-chlorophenoxy butyric acid, 4-(2-
- 4-(2-Methyl-4-chlorophenoxy) butyric acid
- gamma-2-methyl-4-chlorophenoxybutyric acid
- 4-(2-methyl-4-chlorophenoxy)-buttersaeure
- PDQ
- thistrol
- trifolex
- tritrol
- tropotox
- trotox
- U46 MCPB