

## 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCPD); CASRN 93-65-2

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 MCPD

File First On-Line 01/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	01/01/1989
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 — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCPD)

CASRN — 93-65-2

Last Revised — 01/01/1989

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
Increased absolute and relative kidney weights	NOEL: 50 ppm (3 mg/kg/day)	3000	1	1E-3 mg/kg/day
90-Day Rat Feeding Study  BASF Aktiengesellschaft, 1985	LEL: 150 ppm (9 mg/kg/day)			

\*Conversion Factors -- Actual dose tested

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

BASF Aktiengesellschaft. 1985. MRID No. 00158359. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Fifteen Wistar rats/sex/dose were exposed to MCPP in the diet for 90 days at levels of 0, 50, 150, or 450 ppm (0, 3, 9 or 26 mg/kg/day). At 150 ppm (9 mg/kg/day), there was increased absolute and relative kidney weights in males and increased relative kidney weights in females. At 450 ppm (26 mg/kg/day), there was an increased relative and absolute kidney weights in both sexes and increased creatinine levels in females and decreased glucose levels in males. Therefore, the NOEL for this study is 3 mg/kg/day.

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

UF — An uncertainty factor of 1000 was used to account for the inter- intraspecies and for the subchronic nature of the study. An additional UF of 3 was used to account for the lack of a second species toxicity feeding study (e.g. dog), and a reproductive study (rat).

MF — None

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

Data Considered for Establishing the RfD

- 1) 90-Day Feeding - rat: Principal study - see previous description; core grade minimum
- 2) Teratology - rat: Maternal toxic NOEL=125 mg/kg/day; Developmental NOEL=50 mg/kg/day; Developmental LEL=125 mg/kg/day (increased intra-uterine deaths, decreased crown/rump lengths, and incomplete or absent ossification of the sternebrae); core grade minimum (Boots Co., Ltd., 1980)
- 3) Teratology - rabbit: Maternal NOEL=30 mg/kg/day; Maternal LEL=75 mg/kg/day (reduced weight gain); Developmental NOEL=75 mg/kg/day (HDT); core grade minimum (PBI-Gordon Corp., 1980)

Other Data Reviewed:

- 1) 90-Day Feeding - rat: Ten (10) animals/sex/group were fed 0, 50, 400, or 3200 ppm MCPP in the diet [equivalent to 0, 2.5, 20, or 160 mg/kg bw/day for 90 days (Verschuuren et al., 1975)]. The NOAEL of 2.5 mg/kg bw/day was set upon observation of increased relative kidney weights at the higher doses. Male rats had decreased hematocrits at 2.5 and 160 but not at 20 mg/kg/day, indicating that the effect at the lowest feeding level was not dose-related.
- 2) 7-Month Feeding - rat (MCPP diethanolamine): Groups of 10 rats were fed MCPP diethanolamine for 7 months. Increased relative kidney weights were observed at all doses (3.4, 13.4, 33.5, and 83.8 mg/kg bw/day) (Gurd et al., 1965).

Data Gap(s): Chronic Rat Feeding Study; Chronic Dog Feeding Study; Rat Reproduction Study

#### **I.A.5. Confidence in the Oral RfD**

Study — Medium  
Database — Medium  
RfD — Medium

The critical study is of adequate quality and is given a medium confidence rating. A toxicity study in another species and a reproduction study are lacking, therefore, confidence in the

database can be considered medium to low. Confidence in the RfD can also be considered medium to low.

### **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 Standard, August 1988; Pesticide Registration Files

Agency Work Group Review — 10/09/1985, 11/06/1985, 10/12/1988

Verification Date — 10/12/1988

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-(2-Methyl-4-chlorophenoxy)propionic acid 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](mailto: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](mailto:hotline.iris@epa.gov) (internet address).

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

Substance Name — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCP)

CASRN — 93-65-2

Not available at this time.

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## **II. Carcinogenicity Assessment for Lifetime Exposure**

Substance Name — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCP)

CASRN — 93-65-2

This substance/agent has not undergone a complete evaluation and determination under US EPA's IRIS program for evidence of human carcinogenic potential.

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**III. [reserved]**

**IV. [reserved]**

**V. [reserved]**

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## **VI. Bibliography**

Substance Name — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCP)  
CASRN — 93-65-2

### **VI.A. Oral RfD References**

BASF, Aktiengesellschaft. 1985. MRID No. 00158359. Available from EPA. Write to FOI, EPA, Washington DC 20460.

Boots Company, Ltd. 1980. MRID No. 00164569. Available from EPA. Write to FOI, EPA, Washington DC 20460.

Gurd, M., G. Harmer and B. Lessel. 1965. Summary of toxicological data: Acute toxicity and 7-month feeding studies with mecop and MCPA. Food Cosmet. Toxicol. 3: 883-885.

PBI-Gordon Corporation. 1980. MRID No. 00127269. Available from EPA. Write to FOI, EPA, Washington DC 20460.

Verschuuren, H.G., R. Kores and E.M. Den Tonkelar. 1975. Short-term oral and dermal toxicity of MCPA and MCP. The Toxicologist. 3: 349-359.

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### **VI.B. Inhalation RfC References**

None

## VI.C. Carcinogenicity Assessment References

None

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## VII. Revision History

Substance Name — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCP)

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Date	Section	Description
12/01/1988	I.A.	Withdrawn; new RfD verified (in preparation)
01/01/1989	I.A.	Oral RfD summary replaced; RfD changed
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

## VIII. Synonyms

Substance Name — 2-(2-Methyl-4-chlorophenoxy)propionic acid (MCP)

CASRN — 93-65-2

Last Revised — 01/31/1987

- 2M-4CP
- 2M 4KHP
- 93-65-2
- Acide 2-(4-Chloro-2-Methyl-Phenoxy)Propionique
- Acido 2-(4-Chloro-2-Metilfenossi)-Propionico
- BH Mercoprop
- 2-(4-Chloor-2-Methyl-Fenoxy)-Propionzuur
- 2-(4-Chlor-2-Methyl-Phenoxy)-Propionsaeure
- 2-(4-Chloro-2-Methylphenoxy)Propionic Acid
- 4-Chloro-2-Methylphenoxy-alpha-Propionic Acid
- (+)-alpha-(4-Chloro-2-Methylphenoxy) Propionic Acid

- 2-(4-Chlorophenoxy-2-methyl)Propionic Acid
- 2-(p-Chloro-o-Tolyloxy)Propionic Acid
- CMPP
- Compitox
- Iso-cornox
- Kilprop
- Liranox
- MCPP
- 2-MCPP
- Mecopeop
- Mecoper
- Mecopex
- Mecoprop
- Mecoturf
- Mecprop
- Mepro
- Methoxone
- 2-(2-Methyl-4-chlorophenoxy)propionic acid
- Methyl-4-chlorophenoxy)propionic acid, 2-(2-
- 2-Methyl-4-Chlorophenoxy-alpha-Propionic Acid
- alpha-(2-Methyl-4-Chlorophenoxy)Propionic Acid
- N.B. Mecoprop
- Propal
- Propionic Acid, 2-(4-Chloro-2-Methylphenoxy)-
- Propionic Acid, 2-(2-Methyl-4-Chlorophenoxy)-
- Proponex-Plus
- Rankotex
- RD 4593
- Runcatex
- VI-PAR
- VI-PEX