

## Chemical Safety Data Sheet MSDS / SDS

**2-Methyl-4-chlorophenoxyacetic acid**

Revision Date:2025-02-01 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : 2-Methyl-4-chlorophenoxyacetic acid  
CBnumber : CB0165198  
CAS : 94-74-6  
EINECS Number : 202-360-6  
Synonyms : MCP,MCPA

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

**SECTION 2: Hazards identification****Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Skin irritation, Category 2  
Serious eye damage, Category 1  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

**Label elements****Pictogram(s)**

GHS05

Signal word Danger

**Hazard statement(s)**

H225 Highly Flammable liquid and vapour  
H302 Harmful if swallowed  
H312 Harmful in contact with skin  
H315 Causes skin irritation

H318 Causes serious eye damage

H319 Causes serious eye irritation

H332 Harmful if inhaled

H361 Suspected of damaging fertility or the unborn child

H371 May cause damage to organs

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

H412 Harmful to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

P501 Dispose of contents/container to.....

#### **Prevention**

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P321 Specific treatment (see ... on this label).

P332+P317 If skin irritation occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

P391 Collect spillage.

#### **Storage**

none

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and

product characteristics at time of disposal.

### Other hazards

no data available

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: 2-Methyl-4-chlorophenoxyacetic acid
Synonyms	: MCP,MCPA
CAS	: 94-74-6
EC number	: 202-360-6
MF	: C <sub>9</sub> H <sub>9</sub> ClO <sub>3</sub>
MW	: 200.62

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest. Refer for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

#### Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer immediately for medical attention.

### Most important symptoms and effects, both acute and delayed

no data available

### Indication of any immediate medical attention and special treatment needed

Treatment is symptomatic and supportive. Oils should not be used as either cathartics or dermal cleansing agents, as they increase absorption. Gastric lavage and use of activated charcoal and sodium sulfate are indicated for ingestion. If dermal exposure occurred, contaminated clothes should be removed, and the skin should be thoroughly cleansed with soap and water. Management of seizures in both children and adults is with Valium or phenobarbital. Respiratory depression and even respiratory arrest especially with concomitant use of Valium and phenobarbital in children, may occur. These drugs preferably should be used only in critical care areas where emergency endotracheal intubation can be performed. ... Epinephrine can not be utilized in patients with organochlorine poisoning, as the organochlorines induce myocardial irritability and ventricular arrhythmias may occur. However, dopamine may be necessary in the event of hypotension unresponsive to fluid administration, and epinephrin may be necessary in the event of cardiopulmonary arrest. ... In a critically ill patient with unknown insecticide exposure, ... Atropine must be used with caution, as it can cause ventricular irritability, especially when a myocardial irritant such as an organochlorine is present. ... Hematologic, hepatic (especially with endrin, which is markedly hepatotoxic), and renal studies as well as cardiopulmonary monitoring should be carried out in acute intoxication from lindane or other organochlorines for at

least 48 to 72 hr. Long term hematologic follow-up is necessary for the patient with lindane intoxication. As the carrier for these agents may be xylene or a petroleum distillate, management also must include observation and treatment for these entities. Organochlorine pesticides

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## SECTION 5: Firefighting measures

### Extinguishing media

In case of fire in the surroundings, use appropriate extinguishing media.

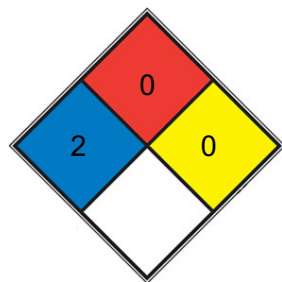
### Specific Hazards Arising from the Chemical

Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion if formulations contain flammable/explosive solvents.

### Advice for firefighters

In case of fire in the surroundings, use appropriate extinguishing media.

### NFPA 704



**HEALTH 2** Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

**SPEC.**

**HAZ.**

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting.

Carefully collect remainder. Then store and dispose of according to local regulations.

### Environmental precautions

Personal protection: filter respirator for organic gases and particulates adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting.

Carefully collect remainder. Then store and dispose of according to local regulations.

### **Methods and materials for containment and cleaning up**

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### **Conditions for safe storage, including any incompatibilities**

Provision to contain effluent from fire extinguishing. Separated from strong bases and food and feedstuffs. Store in an area without drain or sewer access. Cool. Keep in well-ventilated area.

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## **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

#### **Occupational Exposure limit values**

no data available

#### **Biological limit values**

no data available

### **Exposure controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### **Individual protection measures**

#### **Eye/face protection**

Wear safety goggles or eye protection in combination with breathing protection if powder.

#### **Skin protection**

Protective gloves. Protective clothing.

#### **Respiratory protection**

Use local exhaust or breathing protection.

#### **Thermal hazards**

no data available

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## **SECTION 9: Physical and chemical properties**

### **Information on basic physicochemical properties**

Physical state	Solid
Colour	White to light brown solid flakes, crystal powder or liquid.
Odour	no data available
Melting point/freezing point	114-118°C
Boiling point or initial boiling point and boiling range	327°C at 760 mmHg
Flammability	Not combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	151.6°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	water: insoluble(lit.)
Partition coefficient n-octanol/water	log Kow = 3.25
Vapour pressure	5.90X10 <sup>-6</sup> mm Hg
Density and/or relative density	1.313 g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride and phosgene. The substance is a weak acid.  
Attacks many metals in the presence of water.

### Chemical stability

NONVOLATILE

### Possibility of hazardous reactions

Nonflammable

### Conditions to avoid

no data available

### Incompatible materials

Reacts with alkalis to form salts

### Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride and nitrogen oxides/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat male oral 700 mg/kg
- Inhalation: no data available
- Dermal: LD50 Rat percutaneous >1000 mg/kg

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

Cancer Classification: Not Likely to be Carcinogenic to Humans

### Reproductive toxicity

no data available

### STOT-single exposure

The substance is irritating to the skin and respiratory tract. The substance is corrosive to the eyes. The substance may cause effects on the nervous system and heart when ingested in large amounts.

### STOT-repeated exposure

no data available

### Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

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## SECTION 12: Ecological information

### Toxicity

Toxicity to fish: LC50 *Salmo gairdneri* (Rainbow trout) 232 mg/l/96 hr /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

## Persistence and degradability

**AEROBIC:** Microbial degradation of MCPA in soil was followed by measuring radiolabeled  $^{14}\text{C}$ -CO<sub>2</sub> evolution(1); in non-acclimated soil, CO<sub>2</sub> evolution reached 40-50% after 78 days of incubation(1). At an initial MCPA concn of 5 mg/kg, CO<sub>2</sub> evolution increased markedly after a 2-3 week lag period indicating that microbial adaptation will increase the degradation rate(1); optimum degradation occurred in soil with a moisture content of 0.6 to 1.2 field capacity(1) while degradation in dry soil was negligible(1). The importance of acclimation was demonstrated in soil degradation tests in which degradation in unacclimated soil required 46-82 days, but only 5-14.5 days were required for a subsequent degradation in the same soil(2); sterilization tests (via sodium azide) indicated that all soil degradation was microbial in nature(2). The results of laboratory studies indicated that  $^{14}\text{C}$ -labeled MCPA would degrade faster in soils that had received previous applications than in untreated soils(3). Microbial degradation in soil is probably due to hydroxylation with cleavage of the ether linkage (4). The dechlorination of MCPA was indicated as an acid-yielding reaction and was observed to reduce the pH in a mixed culture medium; no degradation occurred in cultures above pH 8.5 and degradation was slower at higher concns(5). In samples of sandy clay soil (pH 5.2, organic matter 6.3%) at field capacity moisture content (18.2%) and incubated at 23 deg C for up to 32 weeks, MCPA, at initial concns of 10, 100, 200 and 500 ppm, degraded more rapidly at the lower concns(6). Respective losses of 40%, 60% and 90% were observed at 2, 8 and 32 weeks; the degradates were identified as 4-chloro-o-cresol, 5-chloro-3-methylcatechol, and 2,6-dimethoxyphenol(6).

## Bioaccumulative potential

A BCF of 1 was determined for trout at MCPA aqueous concns of 10-100 mg/l and using an exposure period of 10-28 day(1). In a model aquatic ecosystem study, BCFs of <1 were measured in fish and snails for the sodium salt of 2-methyl-4-chlorophenoxyacetic acid(2,3). According to a classification scheme(3), these BCF values suggest the potential for bioconcentration in aquatic organisms is low. MCPA is absorbed through leaves or roots and is readily translocated in plants(4).

## Mobility in soil

MCPA adsorption coefficients ( $K_d$ ) of 0.7 to 1.0 were measured in three soils (loamy sand and sandy loam types)(1); based upon humus contents of 2.4-3.0%(1), the  $K_{oc}$  values of the three soils are approximately 60, 52 and 50, respectively. A similar  $K_d$  value of 0.4 was observed in a garden soil(2). Using soil thin-layer chromatography,  $R_f$  values of 0.6-1.0 were measured for Chillum silt loam (3.1% organic matter), Lakeland sand loam (0.9% organic matter) and Hagerstown silty clay loam (1.4% organic matter)(3,4); these  $R_f$  values classify MCPA as mobile in soil(3,4). When MCPA was applied to a rice field, an observed 70% decrease in MCPA was attributed to losses through soil percolation(5). In a laboratory study of leaching columns with either turf grass soil or two subsoils, most of the applied MCPA (95.4-99.0%) eluted with the first 100-ml fraction of leaching water applied to the columns, indicating that MCPA did not bind to the soils(6). According to a classification scheme(7), these  $K_{oc}$  values suggest that MCPA is expected to have high mobility in soil.

## Other adverse effects

no data available

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# SECTION 13: Disposal considerations

## Disposal methods

### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to



make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### UN Number

ADR/RID: UN3077 (For reference only, please check.)

IMDG: UN3077 (For reference only, please check.)

IATA: UN3077 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)

IMDG: 9 (For reference only, please check.)

IATA: 9 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

### Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### Safety, health and environmental regulations specific for the product in question

#### European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

#### EC Inventory

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Listed.

#### **Korea Existing Chemicals List (KECL)**

Listed.

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## **SECTION 16: Other information**

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### **Other Information**

MCPA is a chlorophenoxy-herbicide which, as a group, has been classified as possibly carcinogenic to humans. Depending on the degree of

exposure, periodic medical examination is suggested. Carrier solvents used in commercial formulations may change physical and toxicological properties.

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.