

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Monocrotophos Solution Reference Material in Acetone

1.2 Other means of identification

Product number CPRM5768

Other names 3-dimethoxyphosphinoyloxy-N-methylisocrotonamide; phosphoric acid dimethyl (1-methyl-3(methylamino)-3-oxo-n-propenyl) ester; Monocrotophos

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral

Acute toxicity - Category 3, Dermal

Acute toxicity - Category 2, Inhalation

Germ cell mutagenicity, Category 2

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H300 Fatal if swallowed

H311 Toxic in contact with skin

H330 Fatal if inhaled

H341 Suspected of causing genetic defects

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

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/...

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

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

P284 [In case of inadequate ventilation] wear respiratory protection.

P203 Obtain, read and follow all safety instructions before use.

P273 Avoid release to the environment.

Response	P301+P316 IF SWALLOWED: Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P316 Get emergency medical help immediately. P361+P364 Take off immediately all contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P320 Specific treatment is urgent (see ... on this label). P318 IF exposed or concerned, get medical advice. P391 Collect spillage.
Storage	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Monocrotophos Solution Reference Material in Acetone	Monocrotophos	6923-22-4	230-042-7	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer immediately for medical attention. Wear protective gloves when administering first aid.

Following eye contact

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

Following ingestion

Rinse mouth. Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting. Refer immediately for medical attention. See Notes.

4.2 Most important symptoms/effects, acute and delayed

Monocrotophos is an organophosphorus pesticide. It is a cholinesterase inhibitor and acts on the nervous system. Extremely toxic; probable oral lethal dose to humans 5-50 mg/kg or between 7 drops and 1 teaspoon for a 70 kg (150 lb.) person. Repeated inhalation or skin contact with this material may, without symptoms, progressively increase susceptibility to poisoning. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Antidote: Atropine combined with oxime preparation, e.g. PAM or Toxogonin. Atropine is the emergency antidote for Azodrin poisoning. 2-PAM is also antidotal and may be used in conjunction with atropine. Do not use morphine.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water, foam, carbon dioxide, or dry chemical to extinguish fires. Malathion

5.2 Specific hazards arising from the chemical

Wear positive pressure breathing apparatus and full protective clothing. Container may explode in heat of fire. Toxic fumes evolved when heated to decomposition. Incompatible with alkaline compounds. Unstable in aqueous solution above pH 7.0; in low molecular weight alcohols and glycols. Stable in ketones and higher molecular weight alcohols and glycols. Stable when stored in glass or polyethylene containers. Relatively stable in sunlight. Keep away from temperatures above 80°F; do not store below 70°F. Corrosive to black iron, drum steel, stainless steel 304 and brass, but not to glass, aluminum, or stainless steel 316. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Use water spray, dry powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the

environment. Sweep spilled substance into covered sealable, plastic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable, plastic containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Spills of malathion on floors shall be absorbed with absorbing clay. Sweeping compound may be utilized to facilitate the removal of all visible traces of malathion contaminated clay. Equipment and fixtures contaminated with malathion shall be decontaminated with an alkaline solution (5% sodium hydroxide). Malathion

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. 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.

7.2 Conditions for safe storage, including any incompatibilities

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Dry. Well closed. Keep in a well-ventilated room. Store in an area without drain or sewer access. DO NOT STORE /AZODRIN 5/ BELOW 70 DEG F OR ABOVE 80 DEG F FOR PROLONGED PERIODS. AZODRIN 5 IS EXTREMELY FLAMMABLE.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 0.05 mg/m³, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield or eye protection in combination with breathing protection if powder.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Monocrotophos is a colorless crystals with a mild ester odor, commercial product is a reddish-brown solid. Used as a fast acting insecticide with both systemic and contact action against a wide range of pests on cotton, sugar cane, tobacco, potatoes, peanuts, tomatoes, and ornamentals. Very toxic.
Colour	Reddish brown solid
Odour	Mild, ester odor.
Melting point/freezing point	54-55°C
Boiling point or initial boiling point and boiling range	125°C (0.0005 torr)
Flammability	Combustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	2°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available

Solubility	Miscible (NIOSH, 2016)
Partition coefficient n-octanol/water	log Kow = -0.20
Vapour pressure	7e-06 mm Hg at 68° F (EPA, 1998)
Density and/or relative density	1.195g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating and on burning. This produces toxic and irritating fumes including nitrogen oxides and phosphorus oxides. Attacks iron, steel and brass.

10.2 Chemical stability

On hydrolysis @ 20 deg C, the calculated half-life at pH 5 = 96 days, at pH 7 = 66 days, and at pH 9 = 17 days.

10.3 Possibility of hazardous reactions

AZODRIN 5 IS EXTREMELY FLAMMABLE.MONOCROTOPHOS is incompatible with the following: Metals, low molecular weight alcohols & glycols [Note: Corrosive to black iron, drum steel, stainless steel 304 & brass. Should be stored at 70-80°F.] (NIOSH, 2016). Incompatible with alkaline compounds.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with /pesticides/ which are alkaline in reaction.

10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 21 mg/kg
- Inhalation: LC50 rat inhalation (4 hr) = circa 0.08 mg/L
- Dermal: LD50 Rabbit percutaneous 112-709 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

A4; Not classifiable as a human carcinogen.

Reproductive toxicity

no data available

STOT-single exposure

Cholinesterase inhibition. The substance may cause effects on the nervous system. This may result in convulsions and respiratory failure. Medical observation is indicated. Exposure could cause death. The effects may be delayed. See Notes.

STOT-repeated exposure

Cholinesterase inhibition. Cumulative effects are possible. See Acute Hazards/Symptoms.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 Bluegill 12.1 mg/l/96 hr (95% confidence limit 7.2-10.1 mg/l) /as stated in source/, wt 1.0 g. Static bioassay

- without aeration, pH 7.2-7.5, water hardness 40-50 mg/l as calcium carbonate and alkalinity of 30-35 mg/l. /Technical material, 100%
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

The soil algae, *Chlorella vulgaris*, *Scenedesmus bijugatus*, *Synechococcus elongatus*, *Phormidium tenue*, and *Nostoc linckia*, began metabolizing monocrotophos following 10 days of incubation(1). Monocrotophos is rapidly degraded in soil with half-lives ranging from 1 to 5 days(2). The half-life of azodrin in culture solution was 4.6 days(3). 100% of monocrotophos persisted after eight weeks incubation in raw river water(4).

12.3 Bioaccumulative potential

An estimated BCF value of 0.41 was calculated for monocrotophos(SRC), using an estimated log Kow of -0.20(1,SRC) and a recommended regression-derived equation(2). According to a classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of monocrotophos is estimated as approximately 19(SRC), using a measured log Kow of -0.20(1) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that monocrotophos is expected to have very high mobility in soil(SRC).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN2783 (For reference only, please check.) IMDG: UN2783 (For reference only, please check.) IATA: UN2783 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (For reference only, please check.) IMDG: ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (For reference only, please check.) IATA: ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Monocrotophos	Monocrotophos	6923-22-4	230-042-7

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Not Listed.
China Catalog of Hazardous chemicals 2015	Listed.
New Zealand Inventory of Chemicals (NZIoC)	Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

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?pageID=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

This card applies to trans-monocrotophos. Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. If the substance is formulated with solvents also consult the ICSCs of these materials. Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home. CAS 919-44-8 is cis-monocrotophos, and CAS 2157-98-4 is unspecified monocrotophos.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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