

Material Safety Data Sheet

Malathion 95% TC

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product information

Name: MALATHION 95% TECHNICAL
 Assay: 95%
 Company: Shanghai Tenglong Agrochem Co.,Ltd.
 Telephone: 0086-21-5506 3225
 Telefax: 0086-21-5506 3699
 Responsible Department Material and Transport Safety Management: Not applicable.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Technical material (TC): MALATHION
 Formula: $C_{10}H_{19}O_6PS_2$
 CAS-No.: 121-75-5

3. HAZARDDS IDENTIFICATION

Emergency Overview:

- Cholinesterase inhibitor.
- Harmful if swallowed.
- Harmful if absorbed through skin or inhaled.
- Causes slight eye irritation.
- Avoid breathing product vapors or spray mist.
- Avoid contact with eyes, skin or clothing.
- Keep out of reach of children.

Symptoms of over exposure are headaches, nausea, vomiting, cramps, weakness, blurred vision, pin point pupils, tightness in chest, labored breathing, nervousness, sweating, watering of eyes, drooling, muscle spasms and coma.

Potential Health Hazards:

EYE CONTACT: May cause eye injury.

SKIN CONTACT: Irritation may occur. The most likely route of entry.

INGESTION: Contact a physician if material is ingested.

INHALATION: Contact a physician if material is inhaled and breathing is difficult.

Signs and symptoms of short-term (acute) exposure:

INHALATION: Malathion is a cholinesterase inhibitor of low mammalian toxicity. However storage at too high temperatures may induce formation of the much more toxic and synergistic contaminant isomalathion. Malathion and isomalathion can affect you when breathed in and can cause organophosphorous poisoning. Symptoms of poisoning may include headache, nausea, vomiting, blurred vision, tightness in chest, drooling, frothing of mouth and nose, convulsions, coma and death.

SKIN CONTACT: Direct skin contact may cause irritation. Malathion and isomalathion can be

rapidly absorbed through all skin surfaces. Causes symptoms similar to those listed for inhalation.

EYE CONTACT: Direct eye contact causes irritation. Malathion and isomalathion can be rapidly absorbed through all skin and eye surfaces. Causes symptoms similar to those listed for inhalation.

INGESTION: Malathion and isomalathion are poisons through ingestion. Causes symptoms similar to those listed for inhalation.

Effects of long-term (chronic) exposure: Prolonged or repeated overexposure may cause behavioural changes. Carcinogenicity: See TOXICOLOGICAL INFORMATION.

4. FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, begin artificial respiration immediately. Transport to a clinic or hospital immediately.

SKIN: Immediately flush skin with running water for at least 15 minutes, while removing contaminated clothing and shoes. Obtain medical attention immediately. Thoroughly clean contaminated clothing before re-use.

EYES: Immediately flush eyes with running water for at least 15 minutes. Get medical attention immediately.

INGESTION: If ingested, have victims drunk 6 to 8 ounces of water. Induce vomiting immediately only under the direct supervision of qualified medical personnel. Never give anything by mouth if victim is unconscious or convulsing. Transport to a clinic or hospital immediately.

NOTE TO PHYSICIAN: Malathion is a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing respiratory and cardiac depression. Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required. If symptoms are present, administer atropine sulphate in large doses. Two to four mg intravenously or intramuscularly as soon as possible. Repeat at 5 to 10 minute's intervals until signs of atropinization appear and maintain full atropinization until all organophosphorous is metabolised. Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), is a pharmacological antidote and may be administered as an adjunct to, but not a substitute for atropine, which is a symptomatic and often life-saving antidote. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of Malathion may occur and relapse may occur after initial improvement. VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS.

5. FIRE-FIGHTING MEASURES

FLASHPOINT: 163 oC (Pensky-Martens closed cup)

FLAMMABLE LIMITS: lower -1, upper -7

FIRE AND EXPLOSION HAZARD: Alert medical personnel to be ready to treat for pesticide poisoning, should treatment be necessary

EXTINGUISHING MEDIA: Dry chemical or carbon dioxide for small fires. Water spray or foam for large fires.

Special fire fighting procedure: wear self-contained breathing apparatus and full fire fighting clothing. Use as little water as possible. Dike area to prevent pesticide runoff. Use spray or fog. Conduct fire fighting upwind.



6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Restrict access to area until completion of clean up. Ensure clean-trained personnel conduct up only. All persons dealing with clean up should wear the appropriate chemically protective equipment. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

ENVIRONMENTAL PRECAUTIONS: Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Dike far ahead of the spill for later recovery or disposal. Washings must be prevented from entering surface water drains. Uncontrolled discharge into watercourses must be alerted to the appropriate regulatory body.

SPILL RESPONSE/CLEANUP: Eliminate all sources of heat, sparks and flame. Ventilate area of release. Stop leak if you can do so without risk. Notify the appropriate authorities. For spills on the floor or other impervious surfaces, absorb spill with inert, non-combustible absorbent material, such as hydrated lime. Fuller's earth or other absorbent clays. Scoop up and place contaminated absorbent material into suitable containers for later disposal. Rinse spills area with soda lye. Do not flush to sewer or allow entering confined spaces. Large spills that soak into the ground should be dug up, placed in suitable containers and disposed of appropriately. Notify the appropriate authorities.

PROHIBITED MATERIALS: None known.

7. HANDLING AND STORAGE

HANDLING: keep out of reach of children. Very dangerous. Poisonous if absorbed by skin contact, inhaled or swallowed. Avoid contact with eyes and skin. Do not touch or rub eyes, nose or mouth with hand when handling granules. Wear protective clothing and equipment as above. Keep away from volatile chemicals and sources of ignition.

If product on skin, immediately wash area with soap and water. After use and before eating, drinking or smoking washes hands, arms and face thoroughly with soap and water. After each day's use, wash gloves respirator and contaminated clothing with detergent and warm water.

STORAGE: KEEP OUT OF REACH OF CHILDREN: Store in the closed, original container in a dry, cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers. DO NOT store in or around the home. Store below 45°C. Avoid extreme heat.

Keep dry — moisture can increase handling hazards.

Flammability Non-flammable. However, dust / air mixtures can build up static electrical charges and fine dust may form explosive mixtures in air.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: If handled indoors, provide mechanical exhaust ventilation to keep concentrations below specified TLV's and pel's.

RESPIRATORY PROTECTION: Respiratory protection is required. Wear a pesticide respirator jointly approved by the MSHA and NIOSH. Advice should be sought from respiratory protection specialists.

PROTECTIVE GLOVES: Wear impervious chemical gloves, such as barrier laminate, butyl



rubber, nitrile rubber or viton. Advice should be sought from glove suppliers on the proper selection of gloves.

EYE PROTECTION: Wear safety glasses with side shields or chemical splash goggles to prevent splashes from entering the eyes.

OTHER PROTECTIVE EQUIPMENT: Wear appropriate protective clothing to prevent skin contact, such as coveralls or long sleeved shirt, long pants, and shoes and socks. Other protective equipment, such as an eyewash station and safety shower, may be required depending on exposure and on workplace standards.

GENERAL HYGIENE CONSIDERATIONS: Do not breathe vapors or mists. Avoid contact all contact with eyes, skin and clothing. Before removing gloves, wash them with soap and water. Always wash hands, face and arms with soap and water before smoking, eating or drinking. After work, take off all protective equipment, work clothes and shoes, and wash with soap and water. Respirator should be cleaned and filter replaced according to manufacturer's instructions. Wear only clean, uncontaminated clothes when leaving place of work. Persons working with this product for a longer period should have frequent blood tests for cholinesterase levels. If the cholinesterase levels fall below a critical point, no further exposure should be allowed until it has been determined, by means of blood tests that cholinesterase levels have returned to normal.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION: Clear, amber liquid.

ODOR: A mild mercaptan-like odor (skunk) of moderate intensity.

MOLECULAR WEIGHT: 330.3

MOLECULAR FORMULA: $C_{10}H_{19}O_6PS_2$

BOILING POINT: 156-157°C/0.7 mmHg.

MELTING POINT: 2.85°C

SPECIFIC GRAVITY: 1.23 (°C)

VAPOR PRESSURE: 5.3 mPa (30°C)

SOLUBILITY: In water 145 mg/l (25°C).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Relatively stable in neutral aqueous media. Decomposed by strong acid and alkali; hydrolysis DT₅₀ 107 d (pH 5), 0.5 d (pH 9) (all 25°C)

CONDITIONS TO AVOID: Extreme heat and sparks. Avoid contact with iron, strong alkali and storage above 120°F.

INCOMPATIBILITY WITH OTHER MATERIALS: Incompatible with alkaline materials and strong oxidizers.

HAZARDOUS POLYMERIZATION: Will not occur under normal temperature and pressure.

11. TOXICOLOGICAL INFORMATION

Oral: LD₅₀ for Rats (M): 1375-5500 mg/kg.

LD₅₀ for mice: 775-3320 mg/kg.

Dermal: LD₅₀ for Rats: > 2000 mg/kg

LD₅₀ for Rabbits: 4100-8800 mg/kg.

Inhalation: LC₅₀ (4h) for Rats > 5.2 mg/l air.

Eye Irritation: Slight eye irritant (rabbits).

Skin Irritation: Mild irritant to skin (rabbits).

NOEL: In (2y) on rats, the only effect seen at 500 ppm (29 mg/kg b.w daily) was inhibition of cholinesterase in plasma and red blood cells.

Target Organs: Central Nervous System.

Carcinogenicity: Not classified in humans

ADI: 0.3 mg/kg b.w

12. ECOLOGICAL INFORMATION

CHEMICAL FATE INFORMATION: The active ingredient, Malathion, is readily biodegradable. It undergoes rapid degradation in the environment and, without problems, in sewage treatment plants. No adverse effects are observed at concentrations up to 100 mg/L in wastewater treatment plants. Degradation occurs aerobically and anaerobically, and biologically as well as biologically. Under normal conditions, Malathion is of medium mobility in soil, but is degraded rapidly. The product should not be allowed to enter drains or watercourses or be deposited where it can affect ground or surface waters. Do not discharge product unmonitored into the environment.

ECOTOXICOLOGICAL INFORMATION: The bioconcentration factor (BCF) of Malathion is 96 (average for several fish species). Malathion is toxic to birds, fish, aquatic invertebrates, and aquatic life stages of amphibians and highly toxic to bees. The acute toxicity to wildlife species is:

Fish: 96-Hr LC₅₀, Rainbow trout (*Salmo gairdneri*) = 110 ppb, LC₅₀, Bluegill sunfish = 120 ppb

Invertebrates: 48-HrEC₅₀, Daphnids (*Daphnia magna*) = 1.0 µg/L.

Birds: LD₅₀, Bobwhite quail (*Colinus virginianus*) = 400 mg/kg.

LD₅₀ mallard ducks 1485 ppm

Bees: 24-HrLD₅₀, worker honeybees, acute oral = 0.38 µg/bee.

24-Hr LD₅₀, worker honey-bees, topical = 0.27 µg/bee

13. DISPOSAL CONSIDERATIONS

WASTE: Pesticide wastes are toxic and hazardous. Dispose of in accordance with applicable and local laws and regulations. Do not discharge or pour into soil, drainage system or bodies of water.

CONTAINER: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning (plastic containers). If burned, stay out of smoke.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME: Environmentally Hazardous Substance, Liquid, N.O.S.

UN NUMBER: UN 3082

DOT HAZARD CLASS: 9

DOT PACKING GROUP: PG III

DOT PRIMARY/SUBSIDIARY LABEL: Keep Away From Food

DOT PRIMARY/SUBSIDIARY PLACARD: Keep Away From Food

15. REGULATORY INFORMATION

Risk Symbols

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Add: Yangpu building 24B, No.2005, Huangxing Road, Yangpu Shanghai

Xn: Harmful,

Risk Phrases

R22: Harmful if swallowed

16. OTHER INFORMATION

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company. Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.