

## Material Safety Data Sheet

### Dimethoate 40% EC

#### 1. Chemical Product / Company Identification

**Product name:** Dimethoate 40% EC

**Active Ingredient:** Dimethoate

**Manufacturer:** Shanghai Tenglong Agrochem Co., Ltd.

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

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#### 2. Composition/Information on Ingredients

Components	CAS Number	%(W/V)
Dimethoate	60-51-5	40%
Other ingredients	-	to 100%

#### 3. Hazard identification

##### 3.1 Health Hazards (Acute and Chronic)

The active ingredient dimethoate is a poison (cholinesterase inhibitor). It rapidly enters the body on contact with all skin surfaces and eyes. Clothing contaminated with material must be removed immediately and all skin washed thoroughly.

Repeated exposures to cholinesterase inhibitors such as dimethoate may, without warning, cause increased susceptibility to doses of any cholinesterase inhibitor.

The product may cause hypersensitivity by skin contact.

##### 3.2 Signs and Symptoms of Exposure

Headache, nausea, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.

##### 3.3 Other Safety Hazards

The product is flammable. It can explode at elevated temperatures.

SUSDP Classification: S6

ADG Classification: 6.1

UN Number: 3017 ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC,  
FLAMMABLE, flash-point not less than 23 °C.

#### **4. First Aid Measures**

**4.1 Skin contact:** Remove contaminated clothing. Wash contaminated skin with soapy water. If skin irritation develops, get medical attention. Wash clothing thoroughly before re-use.

**4.2 Eye contact:** Rinse eye(s) with clean running water for 15 mins. Get medical attention.  
Ingestion: Rinse mouth. Give water to drink if patient is conscious. DO NOT induce

**4.3 vomiting.** If vomiting occurs ensure patient can breathe, then give water to drink. If swallowed, give one atropine tablet every 5 minutes until dryness of the mouth occurs - if poisoned by skin absorption or through lungs, remove any contaminated clothing, wash skin thoroughly and give atropine tablets as above. Get to a doctor or hospital quickly.

Do not give adrenergic amines, aminophylline, succinylcholine, phenothiazines or reserpine alkaloids or oils.

#### **4.4 Cholinesterase Inhibition - Treatment**

Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required.

Antidote: If symptoms are present, administer atropine sulphate, which often is a lifesaving antidote, in large doses, TWO to FOUR mg intravenously or intramuscularly as soon as possible.

Repeat at 5 to 10 minute intervals until signs of atropinisation appear and maintain full atropinisation until all organophosphate is metabolised.

At first sign of pulmonary oedema the patient should be given supplementary oxygen and treated symptomatically.

Relapse can occur after initial improvement. VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS, DEPENDING ON THE SEVERITY OF POISONING.

#### **5. Fire Fighting Measures**

**Suitable extinguishing media:** Carbon dioxide, dry chemical, foam.

**Unsuitable extinguishing media:** Water stream, water fog.

**Special hazards in fire:** Product is flammable. The essential breakdown products are dimethyl sulphide, sulphur dioxide, carbon monoxide, carbon dioxide, nitrogen oxides and phosphorus pentoxide.

**Approach fire from upwind to avoid hazardous vapours and toxic decomposition products.**

**Fight fire from protected location or maximum possible distance. Avoid heavy hose streams.**

**Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.**



## 6. Accidental Release Measures

**Emergency procedures:** Wear protective equipment to prevent skin and eyes being affected. Breathing protection is advised if contact will be prolonged.  
EVACUATE UNPROTECTED AND UNNECESSARY PERSONNEL FROM AREA.

**6.1 Small liquid spills** on the floor or other impervious surface should be swept up by means of an inert absorptive material such as hydrated lime, sawdust, Fuller's earth or other absorbent clays. Scoop into suitable containers and dispose of in accordance with the instructions provided under Disposal. Rinse area with soda lye.

**6.2 Large liquid spills** on the floor or other impervious surface should be contained or diked and then absorbed with an inert absorptive material such as hydrated lime, sawdust, Fuller's earth or other absorbent clays. Collect the contaminated absorbent, place in a metal drum and dispose of in accordance with the instructions provided under Disposal. Rinse area with soda lye.

Washings must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

Dimethoate can be hydrolysed in water by heating and by adjusting the pH (alkaline). The product may also be disposed of through controlled incineration.

## 7. Handling and Storage

**Handling:** Keep away from food, drink, and animal feedstuff. Personnel should use clothing and equipment as outlined below when handling open containers.

KEEP OUT OF REACH OF CHILDREN.

Wear suitable Personal protective equipment when handling and spraying.

**Storage:** Store in the original container in a dry, cool, ventilated, LOCKED area.

The product should never be heated above 35°C and also local heating above this temperature should be avoided.

DO NOT store in prolonged sunlight.

DO NOT store with food, seed, or animal feedstuff.

## 8. Exposure Controls/Personal Protection

National exposure standards: A time weighted average (TWA) has been established for Cyclohexanone, present in significant quantities in this product. This value is 100mg/ m<sup>3</sup>. The corresponding STEL level is "not set". The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8-hour working day for a 5-day working week.

Biological limit values: The ADI for Dimethoate is set at 0.02mg/kg/day. The corresponding NOEL is set at 0.2 (H) mg/kg/day.

Engineering measures: Use assisted ventilation in enclosed spaces if needed, especially storage areas.

**Personal protection equipment:**

Eye/face protection: Goggles or glasses to AS 1366, AS/NZS1337

Hand/skin protection: Overalls, PVC gloves and apron, face shield

Respiratory protection: Should not be necessary under normal conditions. If spray mist may be encountered, a particulate filter to AS/NZS 1715 should be worn.

**9. Physical and Chemical Properties**

**Active ingredient:** Dimethoate

**Content:** 40%

**Chemical formula:** C<sub>5</sub>H<sub>12</sub>NO<sub>3</sub>PS<sub>2</sub>

**Molecular weight:** 229.3

**Appearance:** pale yellow liquid

**Melting/freezing point:** Below 5°C

**Solubility:** Fully miscible. Active will be insoluble micro-droplets

**Specific gravity - density:** 1.051 g/ml at 20°C

**Flashpoint:** 41°C (Pensky-Martens closed tester)

**10. Stability and Reactivity**

**Chemical stability:** Normally stable. Active may degrade in strong UV light.

**Conditions to avoid:** The product (dimethoate) will decompose rapidly when heated to temperatures above 80°C, significantly increasing the risk of explosion. The decomposition is to a considerable extent dependent on time as well as temperature due to exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerisation releasing volatile malodorous and inflammable compounds such as dimethyl sulphide and methyl mercaptan.

**Materials to avoid:** Strong alkalis and strong oxidising compounds. The product can corrode iron, steel, tin plate and copper. Dimethoate is rapidly hydrolysed at pH > 8.0.

**11. Toxicological Information**

**11.1 Acute toxicity:**

Dimethoate is moderately toxic by ingestion, inhalation and dermal absorption. As with all organophosphates, dimethoate is readily absorbed through the skin. Skin which has come in contact with this material should be washed immediately with soap and water and all contaminated clothing should be removed. Organophosphates are easily absorbed through the lungs. Persons with respiratory ailments, recent exposure to cholinesterase inhibitors, impaired cholinesterase production, or with liver malfunction may be at increased risk from exposure to

dimethoate. High environmental temperatures or exposure of dimethoate to visible or UV light may enhance its toxicity.

Dimethoate is not irritating to the eyes of lab animals. Severe eye irritation has occurred in workers manufacturing dimethoate. Another chemical in the formula is thought to be the cause. Firefighters exposed to fumes of burning dimethoate have developed eye irritations. Splashing of dimethoate into the eye may cause very swollen eyelids and damage to the cornea (the outer surface of the eye). Both of these symptoms should rapidly clear up.

The organophosphate insecticides are cholinesterase inhibitors. They are highly toxic by all routes of exposure. When inhaled, the first effects are usually respiratory and may include bloody or runny nose, coughing, chest discomfort, difficult or short breath, and wheezing due to constriction or excess fluid in the bronchial tubes. Skin contact with organophosphates may cause localized sweating and involuntary muscle contractions. Eye contact will cause pain, bleeding, tears, pupil constriction, and blurred vision. Following exposure by any route, other systemic effects may begin within a few minutes or be delayed for up to 12 hours. These may include pallor, nausea, vomiting, diarrhea, abdominal cramps, headache, dizziness, eye pain, blurred vision, constriction or dilation of the eye pupils, tears, salivation, sweating, and confusion. Severe poisoning will affect the central nervous system, producing incoordination, slurred speech, loss of reflexes, weakness, fatigue, involuntary muscle contractions, twitching, tremors of the tongue or eyelids, and eventually paralysis of the body extremities and the respiratory muscles. In severe cases there may also be involuntary defecation or urination, psychosis, irregular heart beats, unconsciousness, convulsions and coma. Death may be caused by respiratory failure or cardiac arrest.

Some organophosphates may cause delayed symptoms beginning 1 to 4 weeks after an acute exposure which may or may not have produced immediate symptoms. In such cases, numbness, tingling, weakness and cramping may appear in the lower limbs and progress to incoordination and paralysis. Improvement may occur over months or years, but some residual impairment will remain.

The amount of a chemical that is lethal to one-half (50%) of experimental animals fed the material is referred to as its acute oral lethal dose fifty, or LD<sub>50</sub>. The oral LD<sub>50</sub> for technical dimethoate in rats is 60 to 387 mg/kg, 60 mg/kg in mice, 400 mg/kg in dogs, 200 mg/kg in hamsters, 300 mg/kg in rabbits, 350 mg/kg in guinea pigs, and 100 mg/kg in cats. The dermal LD<sub>50</sub> in rabbits is 1,000 mg/kg, and 353 mg/kg in rats. A dermal LD<sub>50</sub> of greater than 2,000 mg/kg in rats.

### **11.2 Chronic toxicity:**

**Possible routes of exposure:** Inhalation of spray mist is the most likely cause of exposure.

**Range of effects:** Excessive exposure may affect human health. The product may cause sensitization by skin contact.

**Carcinogenicity:** Dimethoate is not carcinogenic in rats and mice.

**Reproductive Effects:** No embryotoxic effects of dimethoate are found in rats and rabbits at maternal non-toxic doses.

**Teratogenicity:** Dimethoate is not teratogenic.

**Mutagenicity:** Dimethoate is mutagenic in bacterial tests, but not in mammalian cells or in in vivo tests.

## 12. Ecological Information

The active ingredient dimethoate is biodegradable. It undergoes rapid degradation in the environment and in waste water treatment plants. No adverse effects are observed at concentrations up to 100 mg/l in waste water treatment plants. Degradation occurs both aerobically and anaerobically, biologically as well as abiologically.

Dimethoate has a potentially high mobility in soil, but is relatively unstable. Degradation products are not mobile in soil.

Dimethoate does not bioaccumulate. The product is toxic to wildlife and aquatic invertebrates and highly toxic to bees. The acute toxicity measured on this product is:

- Fish	96-h LC <sub>50</sub> , rainbow trout ( <i>Salmo gairdneri</i> ) .....	61.3 ppm
- Invertebrates	48-h EC <sub>50</sub> , daphnids ( <i>Daphnia magna</i> ) .....	5.4 ppm
- Algae	72-h EC <sub>50</sub> , green algae ( <i>Selenastrum capricornutum</i> ) .....	233 mg/l
- Bees	24-h LD <sub>50</sub> , bees, topical .....	< 1 µg/bee
	24-h LD <sub>50</sub> , bees, oral.....	< 1 µg/bee

## 13. Disposal Considerations

**Product:** Whenever possible, product should be used for its intended purpose, even if reclaimed from spillage (reclaimed product must be uncontaminated).

**Containers:** Whenever possible, follow directions given on container.

If not available, triple or pressure rinse plastic or metal containers before disposal. Recycle containers if possible (replace cap and return clean containers to recycler or designated collection point). Treat rinsings as for product above.

If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

**Sewage:** Do not dispose of product or rinsings into sewage systems or septic tanks.

## 14. Transportation Information

UN CLASSIFICATION:

Proper Shipping Name .....	Organophosphorus Pesticide, Liquid, Toxic, Flammable
UN No. ....	3017
Class .....	6.1
Packaging Group .....	III
Primary Hazard .....	Toxic
Subsidiary Risk .....	3
Marine Pollutant (P/PP) .....	Marine Pollutant

**15. Regulatory Information**

There is no special information for it.

**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.

Tenglong Agrochem