

# MATERIAL SAFETY DATA SHEET

## Introductory Details

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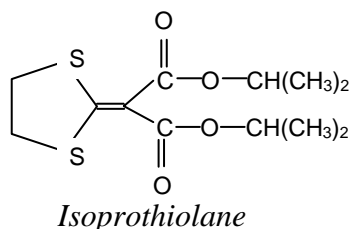
Date of preparation : 31 March 2004

Date revised : 11 June 2008

## SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product Details

Product Name : Isoprothiolane 40% EC  
Trade Name : FUJIONE 40 EC / FUJIONE EC  
Chemical Name : Diisopropyl 1,3-dithiolan-2-ylidenemalonate  
Chemical Formula :  $C_{12}H_{18}O_4S_2$   
Molar Mass : 290  
Chemical Family : Organo-sulphur  
Manufacturer's Code : -  
Use : Fungicide  
Structural Formula :



### 1.2 Company Identification

#### **Manufacturer**

Name and Address : Agricultural Chemical (M) Sdn. Bhd.  
962, Lorong Perusahaan 8, Taman Perindustrian Perai,  
13600 Perai, Pulau Pinang, Malaysia.  
Telephone Number : 604-390 7988  
Emergency Telephone Number : 604-390 7988

### 1.3 Contact Point

Designation : Ms. Cheong Wai Ching, Product Support Manager /  
En. Ahmad Labib bin Yusof, Administrative Assistant  
Tel. No. : 604-390 7988

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## SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	CAS No.	Proportion	Exposure Limit	Toxicity Data
Diisopropyl 1,3-dithiolan-2-ylidene malonate	50512-35-1	40%	Refer to Section 9	Refer to Section 11
Surfactant	-	5 - 15%		
Solvent	-	Balance		

## SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Yellow oily liquid
Odour	: Characteristic odour
Solubility	: Miscible with water
Boiling Point	: No data available
Melting Point (technical)	: 50 - 51°C
Vapour Pressure (technical)	: $1.41 \times 10^{-4}$ mmHg at 25°C
Percentage Volatiles	: No data available
Evaporation Rate	: No data available
Vapour Density	: No data available
Specific Gravity	: 1.00
Flash Point	: 40°C
Autoignition temperature	: No data available
Flammable Limit (%)	: No data available
Partion coefficient (technical)	: $\log P_{o/w} = 3.3$

## SECTION 4 : HAZARD IDENTIFICATION

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes, respiratory system and skin.

Flammable.

Toxic to aquatic organisms.

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## SECTION 5 : FIRST AID MEASURES

- Ingestion : If swallowed, give large quantity of water and induce vomiting. Carefully not to draw into lungs. Get prompt medical attention.
- Eye contact : Flush with plenty of water for at least 15 minutes. If irritation persists, get medical attention.
- Skin contact : Wash with plenty of water and soap. If irritation persists, get medical attention. Sensitized person should avoid further contact and reuse of contaminated clothing.
- Inhalation : Remove patient to fresh air.
- Notes to physician :
- Signs and Symptoms of Exposure :
- Skin contact : Skin contact may cause skin irritation and allergic reaction. Repeated contact may cause allergic reaction in susceptible individuals.
- Eye contact : Contact with this product may cause slight eye irritation. But, temporary injury.
- Ingestion : Ingestion of large amount of this product may cause hypoactivity.

## SECTION 6 : FIRE FIGHTING MEASURES

- Extinguishing Media : Water spray (mist), foam, CO<sub>2</sub>, dry chemical.
- Fire fighting instruction : Fire fighters should wear full-faced self contained breathing apparatus and protective clothing.
- Special hazards : No data available

## SECTION 7 : ACCIDENTAL RELEASE MEASURE

Leak and/or Spill :

Wear protective clothing. Eliminate ignition source. Ventilate area. Absorb spills with inert material such as clay, sand, earth, sawdust etc. and collect in a drum. Cover up the contaminated area with household detergent and small amount of water. Brush the slurry and spread inert absorbents on the slurry liquid and collect the absorbed material in a drum. Seal drum and dispose of. Do not contaminate water resources.

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## SECTION 8 : HANDLING AND STORAGE

Handling : Protective clothing should be changed at least daily. Persons exposed routinely to the active material should shower prior to leaving work each day. Avoid handling near open flame, source of heat or source of ignition.

Storage : Keep in original container, tightly closed, out of reach of children. Keep away from food, drinks and animal feeding stuffs. Avoid direct sunlight and do not store near heat and flame. Read the label before use. Do not contaminate water. Open dumping is prohibited.

## SECTION 9 : EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limit (Technical) :

Japan Association of Industrial Health : 5 mg/m<sup>3</sup>

Nihon Nohyaku exposure limit : 2 mg/m<sup>3</sup>

Engineering measures : Local exhaust ventilation

Personal protection : Wear pesticide respiratory masks, protective gloves and chemical safety goggles.

## SECTION 10 : STABILITY AND REACTIVITY

Conditions to avoid : Direct sunlight, heat and extreme temperature

Incompatible : No data available

Decomposition Products : No data available

Hazardous polymerization : No data available

Stability : Stable for at least 3 years under normal warehouse conditions.

## SECTION 11 : TOXICOLOGICAL INFORMATION

Toxicity Data :

Acute Oral LD<sub>50</sub> : (Rat) male 2429 mg/kg

female 2698 mg/kg

Acute Dermal LD<sub>50</sub> : (Rat) male > 2000 mg/kg

female > 2000 mg/kg

Inhalation LD<sub>50</sub> (4h) : (Rat) male > 2.77 mg/l (isoprothiolane)

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Carcinogenicity : No data available  
Reproductive Effect : No birth defects were noted in rats and rabbits given isoprothiolane orally during pregnancy. No effects were seen on the ability of male and female rats to reproduce when fed isoprothiolane for 2 successive generations.  
Effects of overexposure : Eye Irritation : Slight irritating  
Skin Irritating : Slight irritating  
Sensitivity : Positive  
Chronic effects : Rats fed isoprothiolane for 2 years showed only body weight depression. In dog 1 year study, dogs fed isoprothiolane (50 mg/kg/day) showed slight body weight depression and increase of alkaline phosphatase activity in plasma (male).  
Target organs : Any clinical parameters showing organ toxicity were not observed.  
Genetic effects : Isoprothiolane did not produce genetic changes in Rec-assay and Ames test.  
Pharmacological effects : Isoprothiolane did not show any specific pharmacological effects.

Medical Conditions Generally Aggravated by Exposure : No data available

## **SECTION 12 : ECOLOGICAL INFORMATION (TECHNICAL)**

Mobility & Bioaccumulation : No data available  
Biodegradability : No data available  
Fish Toxicity LC50 (48 hr) : (Carp) 6.7 mg/l  
LC50 (3 hr) : (Daphnia) 40 mg/l

## **SECTION 13 : DISPOSAL INFORMATION**

Dispose of according to local regulation.

## **SECTION 14 : TRANSPORT INFORMATION**

Follow the precaution indicated in the storage and handling section. Follow all regulations in your country.

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## SECTION 15 : REGULATORY INFORMATION

Pesticides Act : Class III - Harmful

CPL Regulations : Class - Harmful

Risk Phrases : R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
R36/37/38 Irritating to eyes, respiratory system and skin.  
R10 Flammable.  
R51 Toxic to aquatic organisms.

Safety Phrases : S2 Keep out of reach of children.  
S13 Keep away from food, drink and animal feeding stuff.  
S24/25 Avoid contact with skin and eyes.  
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

## SECTION 16 : OTHER INFORMATION

Reference : (a) Material Safety Data Sheet - Fujione 40 EC  
Date : 6-12-1996

(b) Nihon Nohyaku Material Data Sheet - FUJI-ONE 40 EC  
MSDS number : 94017  
Date of preparation : July 27, 1994

(c) Material Safety Data Sheet - Fujione Technical  
Date : 2 January 2008

(d) Guidelines for The Classification of Hazardous Chemicals, DOSH 1997

(e) Guidelines for The Formulation of A Chemical Safety Data Sheet, DOSH 1997

(f) Guidelines for Labelling of Hazardous Chemicals, DOSH 1997

To the best of our knowledge, the information contained herein is accurate. However, we cannot assume any liability whatsoever for the accuracy or completeness of the information contained herein.