

## Material Safety Data Sheet

### Dimethyl Fumarate

#### Section 1 - Chemical Product and Company Identification

Product Name : Dimethyl Fumarate  
Company Identification : Tradeasia International Pte Limited  
Address : 133 Cecil Street # 12-03 Keck Seng Tower, Singapore  
Tel: +65-6227 6365  
Fax: +65-6225 6286  
Email: contact@chemtradeasia.com

#### Section 2 - Hazard Identification

##### Classification of the Substance or Mixture:

Acute Toxicity: Oral, Category 4

##### Label Elements:



**GHS Signal Word:** Warning

##### **GHS Hazard Phrases:**

H302: Harmful if swallowed.

##### **GHS Precaution Phrases:**

P264: Wash {hands} thoroughly after handling.

##### **GHS Response Phrases:**

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330: Rinse mouth.

**Adverse Human Health:** Harmful if swallowed.

**Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation or skin absorption.

May cause eye or respiratory system irritation.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### Section 3 – Composition/Information on Ingredients

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration	GHS Classification
Dimethyl Fumarate	624-49-7	100%	Acute Tox. (O) 4: H302

### Section 4 – First-Aid Measures

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

In Case of Skin Contact:

Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Ingestion:

Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

### Section 5 – Fire Fighting Measures

#### EXTINGUISHING MEDIA

Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.

Unsuitable Extinguishing Media: A solid water stream may be inefficient.

#### FIRE FIGHTING

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

## FLAMMABILITY PROPERTIES

No data available.

## Section 6 – Accidental Release Measures

Protective Precautions Avoid raising and breathing dust, and provide adequate ventilation.

Protective Equipment and Emergency Procedures As conditions warrant, wear a NIOSH approved self-contained breathing and appropriate personal protection (rubber boots, safety goggles, and heavy rubber of gloves.)

Environmental Precautions Take steps to avoid release into the environment, if safe to do so.

Methods and Material for Containment and Cleaning Up Transfer to a chemical waste container for disposal in accordance with local regulations.

## Section 7 – Handling and Storage

Precautions to be taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray.  
Avoid prolonged or repeated exposure.

Precautions to be taken in Storing: Keep container tightly closed.  
Store in accordance with information listed on the product insert.

## Section 8 – Exposure Controls/Personal Protection

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

### Personal Protection Equipment:

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Respiratory Equipment:** NIOSH approved respirator, as conditions warrant.

**Work/Hygienic/Maintenance Practices:** Do not take internally. Facilities storing or utilizing material should be equipped with an eyewash and a safety shower. Wash thoroughly after handling.

## Section 9 – Physical and Chemical Properties

## 9.1 Information on basic physical and chemical properties

a) Appearance	Form: solid Colour: white
b) Odour	odourless
c) Odour Threshold	No data available
d) pH	4.0 - 6.0 at 10 g/l at 20 ° C suspension
e) Melting point/ freezing point	Melting point: 102 ° C
f) Initial boiling point and boiling range	193 ° C at 1,013 hPa
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	5 hPa at 25 ° C - (calculated)
l) Vapour density	No data available
m) Relative density	1.0283 g/cm <sup>3</sup> at 20 ° C
n) Water solubility	1.6 g/l at 20 ° C
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## Section 10 – Stability and Reactivity

Reactivity: No data available

Chemical Stability: Stable under recommended storage conditions

Possibility of hazardous reactions: No data available

Conditions to avoid: No data available

Incompatible materials: Acids, bases, strong oxidizing agents, reducing agents

Hazardous decomposition products: Hazardous decomposition products formed under fire conditions. -  
Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

## Section 11 – Toxicological Information

### Acute toxicity

No data available

Inhalation: Rapid absorption.

LD50 Dermal - Rabbit - 1,250 mg/kg

Remarks: (RTECS)

### Skin corrosion/irritation

Skin - Rabbit

Result: Irritations

Remarks: (RTECS)

### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Severe irritations

Remarks: (RTECS)

### Respiratory or skin sensitisation

Sensitisation test: - Guinea pig

Result: positive

Remarks: (Lit.)

Germ cell mutagenicity

Ames test

Result: negative

(Lit.)

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity- Rat

Animal testing did not show any effects on fertility.

Developmental Toxicity- Rat

No significant adverse effects were reported

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: EM6125000

Effects due to ingestion may include:, flushing, Nausea, Vomiting, Diarrhoea, Contact with skin can cause:, Dermatitis, Allergic reactions

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption:

Nausea, Vomiting, flush of face, neck and arms

After long-term exposure to the chemical:

Changes in the blood count, weakening of the immune system

Damage to:

Kidney

Further data:

Other dangerous properties can not be excluded.

This substance should be handled with particular care

## **Section 12 – Ecological Information**

### **Toxicity**

#### **Toxicity to fish**

NOEC - Pimephales promelas (fathead minnow) - 0.0457 mg/l (OECD Test Guideline 210)

#### **Toxicity to daphnia and other aquatic invertebrates**

EC50 - Daphnia magna (Water flea) - 1.2 mg/l - 48 h. Remarks: (own results)

NOEC - Daphnia magna (Water flea) - 0.0559 mg/l (OECD Test Guideline 211)

#### **Toxicity to bacteria**

EC50 - activated sludge - 153.6 mg/l - 3 h (OECD Test Guideline 209)

### **Persistence and degradability**

#### **Biodegradability**

Result: 76 % - Readily biodegradable. (OECD Test Guideline 301D)

### **Bioaccumulative potential**

No bioaccumulation is to be expected ( $\log P_{ow} \leq 4$ ).

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### **Other adverse effects**

Toxic to aquatic life with long lasting effects. Discharge into the environment must be avoided.



## Section 13 – Disposal Considerations

### Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

## Section 14 – Transport Information

### UN number

ADR/RID: 3077

IMDG: 3077

IATA-DGR: 3077

### UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dimethyl fumarate)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dimethyl fumarate)

IATA-DGR: Environmentally hazardous substance, solid, n.o.s. (Dimehtyl Fumarate)

### Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA-DGR: 9

### Packaging group

ADR/RID: III

IMDG: III

IATA-DGR: III

### Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA-DGR: yes

### Special precautions for user

### Incompatible materials

acids, Bases, Strong oxidizing agents, Reducing agents

### Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

## Section 15 – Regulatory Information



## **Safety, health and environmental regulations/legislation specific for the substance or mixture**

### **Notification status**

**AICS:** On the inventory, or in compliance with the inventory

**DSL:** None of the components of this product are on the Canadian DSL, but all are on the NDSL

**ENCS:** On the inventory, or in compliance with the inventory

**ISHL:** On the inventory, or in compliance with the inventory

**KECI:** On the inventory, or in compliance with the inventory

**NZIoC:** On the inventory, or in compliance with the inventory

**PICCS:** On the inventory, or in compliance with the inventory

## **Section 16 : Additional Information**

### **Full text of H-Statements referred to under sections 2 and 3.**

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects