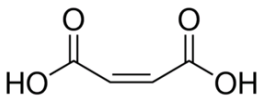


CAS No: 110-16-7 MSDS

## MATERIAL SAFETY DATA SHEET (MSDS)

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
 :  
 EC index no : 607-095-00-3  
 EC no : 203-742-5  
 CAS No : 110-16-7  
 Product code : 04487  
 Chemical structure :  
  
 Synonyms : Toxilic acid / cis-Butenedioic acid

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.  
 107 Wode House Road, Jehangir Villa, Colaba  
 400005 Mumbai - INDIA  
 T +91 22 6663 6663 - F +91 22 6663 6699  
[info@lobachemie.com](mailto:info@lobachemie.com) - [www.lobachemie.com](http://www.lobachemie.com)

#### 1.4. Emergency telephone number

Emergency number : + 91 22 6663 6663 (9:00am - 6:00 pm)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Acute toxicity (dermal), Category 4	H312
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Sensitisation — Skin, category 1	H317
Specific target organ toxicity — Single	H335

# MALEIC ACID FOR SYNTHESIS

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exposure, Category 3,  
Respiratory tract irritation

Full text of classification categories and H statements : see section 16

### Classification according to Directive 67/548/EEC or 1999/45/EC

Xn; R22  
Xi; R36/37/38

Full text of R-phrases: see section 16

### Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H302+H312 - Harmful if swallowed or in contact with skin  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H335 - May cause respiratory irritation

Precautionary statements (CLP) :

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing

## 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Name : MALEIC ACID FOR SYNTHESIS  
CAS No : 110-16-7  
EC no : 203-742-5  
EC index no : 607-095-00-3

Full text of R- and H-phrases: see section 16

# MALEIC ACID FOR SYNTHESIS

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### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
- First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see ... on this label).
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May cause respiratory irritation.
- Symptoms/injuries after skin contact : Causes skin irritation. Harmful in contact with skin. May cause an allergic skin reaction.
- Symptoms/injuries after eye contact : Causes serious eye damage.
- Symptoms/injuries after ingestion : Harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

No additional information available

### 5.3. Advice for firefighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Use personal protective equipment as required.
- Emergency procedures : Stop release.

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Clear up rapidly by scoop or vacuum.

### 6.4. Reference to other sections

No additional information available

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling	: Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash ... thoroughly after handling.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep container tightly closed.
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#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Exposure controls

Hand protection	: protective gloves
Eye protection	: Chemical goggles or safety glasses
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: Wear appropriate mask

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Molecular mass	: 116.08 g/mol
Colour	: White crystalline.
Odour	: faint, acidulous odor.
Odour threshold	: No data available
pH	: 7
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 137 - 140
Freezing point	: No data available
Boiling point	: 160 °C
Flash point	: 127 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available

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Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.58 g/cm <sup>3</sup>
Solubility	: Water: 788 g/l at 20 °C
Log Pow	: 0.48
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: ≥ 0.027 vol %

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Direct sunlight. Air contact. Moisture.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

No additional information available

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Harmful in contact with skin.

Skin corrosion/irritation : Causes skin irritation.  
pH: 7

Serious eye damage/irritation : Causes serious eye damage.  
pH: 7

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

# MALEIC ACID FOR SYNTHESIS

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Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity

No additional information available

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

##### MALEIC ACID FOR SYNTHESIS (110-16-7)

Log Pow	0.48
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#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose of contents/container to ...

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

UN-No. (ADR) : 3261  
UN-No. (IMDG) : 3261  
UN-No.(IATA) : 3261

# MALEIC ACID FOR SYNTHESIS

## Safety Data Sheet

UN-No.(ADN) : 3261  
UN-No. (RID) : 3261

### 14.2. UN proper shipping name

Proper Shipping Name (ADR) : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Proper Shipping Name (IMDG) : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Proper Shipping Name (IATA) : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Proper Shipping Name (ADN) : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Proper Shipping Name (RID) : CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Transport document description (ADR) : UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, III, (E)  
Transport document description (IMDG) : UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, III  
Transport document description (IATA) : UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, III  
Transport document description (ADN) : UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, III  
Transport document description (RID) : UN 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, III

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : 8  
Danger labels (ADR) : 8



#### IMDG

Transport hazard class(es) (IMDG) : 8  
Danger labels (IMDG) : 8



#### IATA

Transport hazard class(es) (IATA) : 8  
Hazard labels (IATA) : 8



#### ADN

Transport hazard class(es) (ADN) : 8  
Danger labels (ADN) : 8



#### RID

# MALEIC ACID FOR SYNTHESIS

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Transport hazard class(es) (RID) : 8  
Danger labels (RID) : 8



### 14.4. Packing group

Packing group (ADR) : III  
Packing group (IMDG) : III  
Packing group (IATA) : III  
Packing group (ADN) : III  
Packing group (RID) : III

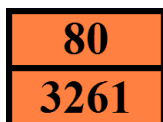
### 14.5. Environmental hazards

Dangerous for the environment : No  
Marine pollutant : No  
Other information : No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR) : C4  
Special provision (ADR) : 274  
Limited quantities (ADR) : 5kg  
Excepted quantities (ADR) : E1  
Packing instructions (ADR) : P002, IBC08, LP02, R001  
Special packing provisions (ADR) : B3  
Mixed packing provisions (ADR) : MP10  
Portable tank and bulk container instructions (ADR) : T1  
Portable tank and bulk container special provisions (ADR) : TP33  
Tank code (ADR) : SGAV, L4BN  
Vehicle for tank carriage : AT  
Transport category (ADR) : 3  
Special provisions for carriage - Bulk (ADR) : VC1, VC2, AP7  
Hazard identification number (Kemler No.) : 80  
Orange plates :



Tunnel restriction code (ADR) : E  
EAC code : 2X

#### - Transport by sea

Special provision (IMDG) : 223, 274  
Limited quantities (IMDG) : 5 kg  
Excepted quantities (IMDG) : E1  
Packing instructions (IMDG) : P002, LP02  
IBC packing instructions (IMDG) : IBC08  
IBC special provisions (IMDG) : B3  
Tank instructions (IMDG) : T1



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Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: A
MFAG-No	: 154

### - Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y845
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 860
PCA max net quantity (IATA)	: 25kg
CAO packing instructions (IATA)	: 864
CAO max net quantity (IATA)	: 100kg
Special provision (IATA)	: A3
ERG code (IATA)	: 8L

### - Inland waterway transport

Classification code (ADN)	: C4
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

### - Rail transport

Classification code (RID)	: C4
Special provision (RID)	: 274
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAV, L4BN
Transport category (RID)	: 3
Special provisions for carriage – Bulk (RID)	: VC1, VC2, AP7
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 80

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

MALEIC ACID FOR SYNTHESIS is not on the REACH Candidate List

MALEIC ACID FOR SYNTHESIS is not on the REACH Annex XIV List

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### 15.1.2. National regulations

#### Germany

AwSV/VwVwS Annex reference : Water hazard class (WGK) 1, slightly hazardous to water (Classification according to VwVwS, Annex 2; WGK No 260)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

#### Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product  
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H335	May cause respiratory irritation
R22	Harmful if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
Xi	Irritant
Xn	Harmful

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*

# MALEIC ACID FOR SYNTHESIS

Safety Data Sheet

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