

**Product Name** Isobutyric anhydride  
**MSDS number** 80186  
**Revision Number** 4.02

**Revision Date** Apr.29.2014  
**Issuing date** Feb.12.2019

AGHS/EN

## **1. Identification of the substance/preparation and the company/undertaking**

**Product Name**

**Isobutyric anhydride**

**Manufacturer or supplier's details**

**Celanese (Shanghai) International Trading Co., Ltd.**

Room 239, Xinmao Building  
South Taizhong Road  
Waigaoqiao Free Trade Zone  
Shanghai, China

**Celanese Pte Ltd**

60 Anson Road  
Maple Tree Anson #13-02  
Singapore 079914

**Emergency telephone number**

+(65) 62656917 (Operations Room direct dial)  
or fax request to +(65) 62664696 (Facsimile to Operations Room)  
or email to posh.er@paccoffshore.com.sg

**In China Emergency Number:** 86-532-83889090 (NRCC)

**Identified uses**

Chemical intermediate

## **2. Hazards identification**

**GHS Classification**

**Hazards**

Flammable liquid  
Acute dermal toxicity  
Acute inhalation toxicity  
Skin corrosion/irritation  
Serious eye damage/eye irritation  
Acute aquatic toxicity

**Category**

Category 4  
Category 3  
Category 3  
Category 1B  
Category 1  
Category 3

**Labeling**

# SAFETY DATA SHEET



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## Symbol(s)



## Signal Word

Danger

## Hazard Statements

H227 - Combustible liquid  
H311 - Toxic in contact with skin  
H331 - Toxic if inhaled  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H402 - Harmful to aquatic life

## Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
P260 - Do not breathe dust/fume/gas/mist/spray/spray.  
P264 - Wash hands thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P273 - Avoid release to the environment  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/physician.  
P370 + P378 - In case of fire, use water/water spray/water jet/carbon dioxide/sand/foam/alcohol resistant foam/chemical powder for extinction  
P361 - Remove/Take off immediately all contaminated clothing  
P363 - Wash contaminated clothing before reuse  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up  
P501 - Dispose of contents/container in accordance with local regulations.

## Statements of Hazard

Reacts with the following substances: water

## 3. Composition/Information on ingredients

Components	CAS-No	Percent %
Isobutyric anhydride	97-72-3	min 98
Isobutyric acid	79-31-2	max 2

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## **4. First aid measures**

### **General Information**

Remove contaminated, soaked clothing immediately and dispose of safely. Pay attention to own protection. In any case show the physician the Safety Data Sheet.

### **Skin**

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

### **Eyes**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

### **Inhalation**

Keep at rest. Move to fresh air. Call a physician immediately.

### **Ingestion**

If conscious, drink plenty of water. If swallowed, do not induce vomiting - seek medical advice.

### **Notes to physician**

Observe for latent pulmonary edema.

## **5. Fire-fighting measures**

**NFPA:**      **Health:** 3

**Flammability:** 2

**Instability:** 0

### **Suitable extinguishing media**

Foam, Dry chemical, Carbon dioxide (CO<sub>2</sub>), Water spray

### **Extinguishing media which must not be used for safety reasons**

Do not use a solid water stream as it may scatter and spread fire.

### **Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases**

Under conditions giving incomplete combustion, hazardous gases produced may consist of

Carbon monoxide

Carbon dioxide (CO<sub>2</sub>)

Combustion gases of organic materials must in principle be graded as inhalation poisons

### **Special protective equipment for fire-fighters**

self-contained breathing apparatus (EN 133).

### **Environmental precautions**

Water used to fight fire runoff can cause environmental damage. Dike and collect water used to fight fire.

### **Other Information**

Cool containers / tanks with water spray.

## **6. Accidental release measures**

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## **6. Accidental release measures**

### **Personal precautions**

Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation.

### **Environmental precautions**

Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater. Dike and collect water used to fight fire.

### **Methods for cleaning up**

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

## **7. Handling and storage**

### **Advice on safe handling**

Provide sufficient air exchange and/or exhaust in work rooms.

### **Incompatible products**

Keep away from:., Bases, Amines, Alcohols

### **Protection - fire and explosion:**

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

### **Material storage**

Store locked up. Keep in a dry, cool and well-ventilated place.

### **Incompatible products**

Keep away from:., Bases, Amines, Alcohols

### **Technical measures/Storage conditions**

Keep tightly closed in a dry, cool and well-ventilated place. Never allow product to get in contact with water during storage. Keep container tightly closed.

## **8. Exposure controls / personal protection**

### **ACGIH Exposure Limits**

No exposure limits established.

### **OSHA Exposure Limits**

No exposure limits established.

### **Exposure controls**

#### **Engineering measures**

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

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## Personal protective equipment

<b>General advice</b>	Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.
<b>Hygiene measures</b>	When using, do not eat, drink or smoke.. Take off all contaminated clothing immediately.. Wash hands before breaks and immediately after handling the product..
<b>Respiratory protection</b>	If aerosols or vapors are present, respiratory protection is required (gas filter A) . Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.
<b>Eye protection</b>	Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.. Equipment should conform to EN 166.
<b>Skin protection</b>	impervious clothing
<b>Hand protection</b>	Chemicals resistant gloves
<b>Suitable material</b>	Butyl-rubber
<b>Type</b>	Butoject (Company KCL) or comparable article; or refer to glove manufacturer's recommendation
<b>Evaluation</b>	according to EN 374: level 6
<b>Material thickness</b>	Approx. 0.3 mm
<b>Break through time</b>	480 min

## 9. Physical and chemical properties

### Appearance

<b>Form</b>	liquid
<b>Color</b>	colourless
<b>Odor</b>	pungent

<b>Flash point</b>	68°C
<b>Method</b>	closed cup
<b>Ignition temperature</b>	329°C
<b>Lower explosion limit</b>	1 Vol. %
<b>Upper explosion limit</b>	6.2 Vol. %
<b>Melting point/range</b>	-55°C
<b>Method</b>	EU A.1
<b>Boiling point/range</b>	182.9°C @ 1013 hPa
<b>Density</b>	0.952 g/ml @ 20°C
<b>Viscosity</b>	1.23 mPa*s @ 25°C, dynamic
<b>Method</b>	OECD 114
<b>Vapor pressure</b>	86 Pa @ 20°C
<b>Method</b>	EU A.4
<b>Water solubility</b>	618 g/l @ 20°C
<b>Method</b>	OECD 105
<b>Partition coefficient (n-octanol/water)</b>	1.1 @ 25°C (data based on isobutyric acid)

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## 9. Physical and chemical properties

<b>Method</b>	OECD 117
<b>Explosive Properties</b>	not applicable based on consideration of the structure
<b>Oxidizing Properties</b>	not applicable based on consideration of the structure
<b>Surface Tension</b>	26.32 mN/m @ 21.4°C
<b>Method</b>	EU A.5

## 10. Stability and reactivity

### Reactivity

Stable under normal conditions of handling, use and transportation.

### Conditions to avoid

Avoid any source of ignition.. Avoid contact with heat, sparks, open flame, and static discharge..

### Incompatible Materials

Keep away from:., Amines, Bases, Alcohols

### Hazardous Combustion or Decomposition Products:

Thermal decomposition products may include oxides of carbon.

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## **11. Toxicological information**

### **Potential health effects**

**Routes of exposure** Skin, eyes, inhalation, ingestion.

#### **Immediate effects**

- Skin** Causes skin burns. Harmful if absorbed through skin. Symptoms of overexposure include: Redness or discoloration, swelling, itching, burning or blistering of skin.
- Eyes** Exposure to vapors Causes severe eye burns, damage irreversible. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision. Transient visual disturbances characterized by mildly blurred vision and a blue-gray discoloration of sight. This effect is commonly referred to as blue haze, or halo vision, with halo vision getting its name from the appearance of a halo when looking at light sources. These effects are due to mild corneal irritation and edema and normally disappear several hours after exposure.
- Inhalation** Causes respiratory tract irritation. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema); symptoms can be delayed for several hours.
- Ingestion** Causes digestive tract burns. Harmful if swallowed. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea. Severe damage to the mouth, throat esophagus and/or stomach.

**Target organ effects** Overexposure (prolonged or repeated exposure) may cause:  
Injury to the eyes  
Irritation of the respiratory tract  
Digestive tract damage  
Respiratory tract damage  
Skin damage.

**Medical conditions which may be aggravated by exposure:** Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:  
Respiratory Tract  
Skin  
Eyes  
Digestive tract

#### **Isobutyric anhydride**

- Acute oral toxicity** LD50: 7700 mg/kg  
Data based on isobutyric acid
- Acute dermal toxicity** LD50: 474 mg/kg  
Data based on isobutyric acid
- Acute inhalation toxicity** LC50 (7h): 4210 mg/m<sup>3</sup>

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<b>Skin corrosion/irritation</b>	corrosive
Species	rabbit
<b>Serious eye damage/eye irritation</b>	corrosive
Species	rabbit eye
Method	similar to OECD 405
<b>in vitro Mutagenicity</b>	Ames Test: negative - with and without metabolic activation - Method: OECD 471 Data based on isobutyric acid. Cell gene-mutation in Chinese Hamster Cells: negative - with and without metabolic activation - Method: OECD 476 Data based on isobutyric acid.
<b>in vivo Mutagenicity</b>	Mammalian Erythrocyte Micronucleus Test in mice: negative - Method: OECD 474 (Reference substance: 2- methylpropan-1-ol)
<b>Reproductive toxicity</b>	No adverse reproductive effects at the highest dose tested (Reference substance: 2-Methylpropanol)
Routes of exposure	inhalation
Species	rat
	NOAEL= 2500 ppm
<b>Developmental effects</b>	No evidence of maternal or developmental toxicity (Reference substance: 2-Methylpropanol)
Routes of exposure	Inhalation
Species	rat
	NOAEL: 10 mg/L
<b>Repeated exposure</b>	No adverse effects (Reference substance: 2- Methylpropanol)
Routes of exposure	oral gavage
Species	rat
<b>Method</b>	OECD 408
	NOEL: 316 mg/kg bw/day
<b>Repeated Exposure</b>	No adverse effects (Reference substance: 2- Methylpropanol)
Routes of exposure	Inhalation
Species	rat
Method	OECD 413
	NOAEC: ~ 7700 mg/m <sup>3</sup>

## 12. Ecological Information

### Isobutyric anhydride

#### Acute fish toxicity

Species:  
Method

LC50: 26 mg/l (96h)  
Leuciscus idus (Golden orfe)  
DIN 38412 T.15

#### Acute daphnia toxicity

Species:  
Method

EC50: 51.25 mg/l (48h)  
(Reference substance: Isobutyric acid)  
Daphnia magna

#### Toxicity to aquatic plants

DIN 38412, Part 11  
EC50: 45.1 mg/l (72h)  
(Reference substance: Isobutyric acid)



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## 12. Ecological Information

Species:	Desmodesmus subspicatus
Method	DIN 38412 T.9
<b>Toxicity to bacteria</b>	IC50: 2.15 mg/l (40h) (Reference substance: Isobutyric acid)
Species:	Tetrahymena pyriformis
<b>Biodegradation</b>	Readily biodegradable (Reference substance: Isobutyric acid)
Method	OECD 301
<b>Other potential hazards</b>	The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

## 13. Disposal considerations

### Product information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

### Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse

## 14. Transport information

### US Department of Transportation

<b>UN/NA Number:</b>	UN 2739
<b>Proper Shipping Name</b>	Butyric anhydride
<b>Hazard class</b>	8
<b>Packing Group</b>	III
<b>Emergency Resp. Guide</b>	156

### ADR/RID

<b>UN/ID No.</b>	UN 2739
<b>Proper Shipping Name</b>	Butyric anhydride
<b>Hazard Class</b>	8
<b>Classification Code</b>	C3
<b>Packing group</b>	III
<b>Environmentally hazardous</b>	no
<b>Tunnel Restriction Code</b>	(E)
<b>Hazard Label(s)</b>	8
<b>Hazard Number</b>	80

### ADN

	ADN: Container
<b>UN/ID No.</b>	UN 2739
<b>Proper Shipping Name</b>	Butyric anhydride
<b>Hazard Class</b>	8
<b>Classification Code</b>	C3
<b>Packing group</b>	III

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## **14. Transport information**

**Environmentally hazardous** no  
**Hazard Labels** 8

**ADN Tanker** FORBIDDEN

### **ICAO/IATA**

**UN-No.** UN 2739  
**Proper Shipping Name** Butyric anhydride  
**Hazard Class** 8  
**Packing group** III  
**Environmentally hazardous** no  
**Hazard Labels** 8

### **IMDG**

**UN/ID No.** UN 2739  
**Proper Shipping Name** Butyric anhydride  
**Hazard Class** 8  
**Packing group** III  
**Marine pollutant** no  
**Hazard Labels** 8  
**EmS Code** F-A, S-B

## **15. Regulatory information**

### **International Inventories**

Listed on the chemical inventories of the following countries or qualifies for an exemption:

Australia (AICS)  
Canada (DSL)  
China (IECSC)  
Europe (EINECS)  
Korea (KECI)  
New Zealand (NZIoC)  
Philippines (PICCS)  
United States (TSCA)

## **16. Other information**

HMIS: Health: 3

Flammability: 2

Physical Hazard: 0

### **Prepared By**

Product Stewardship Department  
Celanese

For further information, see:

For more information, other material safety data sheets or technical data sheets please consult the Celanese homepage ([www.celanese.com](http://www.celanese.com)).

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## Other Information:

Observe national and local legal requirements.

Changes against the previous version are marked by \*\*\*

## Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 1907/2006/EC indicates that no data meeting these requirements is available.

## Further information

This information is based on our present state of knowledge. It shall describe our products regarding safety requirements and shall not be construed as a guarantee or statement of condition and/or quality. For more information, other material safety data sheets or technical data sheets please consult the Celanese homepage ([www.celanese.com](http://www.celanese.com))