

# OTTO CHEMIE PVT LTD

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ISO 9001: 2015

## MATERIAL SAFETY DATA SHEET

### Identification

1.1 GHS Product identifier  
Isophorone, 99%  
Code I 1663

### 2. Hazard identification

2.1 Classification of the substance or mixture  
Acute toxicity - Oral, Category 4  
Acute toxicity - Dermal, Category 4  
Eye irritation, Category 2  
Specific target organ toxicity \u2013 single exposure, Category 3  
Carcinogenicity, Category 2  
2.2 GHS label elements, including precautionary statements  
Pictogram(s)



### Signal word

Hazard statement(s)

Warning  
H302 Harmful if swallowed  
H312 Harmful in contact with skin  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation  
H351 Suspected of causing cancer

### Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.

### Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/\u2026if you feel unwell.  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P312 Call a POISON CENTER/doctor/\u2026if you feel unwell.  
P321 Specific treatment (see ... on this label).  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308+P313 IF exposed or concerned: Get medical advice/attention.

### Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

### Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification  
none

### 3. Composition/information on ingredients

#### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
isophorone	isophorone	78-59-1	none	100%

#### 4. First-aid measures

##### 4.1 Description of necessary first-aid measures

###### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

###### If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

###### In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

###### In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

###### If swallowed

Rinse mouth. Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting.

##### 4.2 Most important symptoms/effects, acute and delayed

LIQUID: Irritating to skin and eyes. Harmful if swallowed. (USCG, 1999)

##### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... . For contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal ... . /Ketones and related compounds/

#### 5. Fire-fighting measures

##### 5.1 Extinguishing media

###### Suitable extinguishing media

Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide.

##### 5.2 Specific hazards arising from the chemical

Combustible. (USCG, 1999)

##### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 6. Accidental release measures

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

##### 6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

##### 6.3 Methods and materials for containment and cleaning up

If leak or spill has not ignited, use water spray to disperse vapors & to protect men attempting to stop leak.

#### 7. Handling and storage

##### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

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

Separated from strong oxidants, strong bases and amines. store in a cool, dry, well-ventilated location. Outside or detached storage is preferred. Separate from oxidizing materials.

#### 8. Exposure controls/personal protection

##### 8.1 Control parameters

###### Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 4 ppm (23 mg/cu m).

###### Biological limit values

no data available

##### 8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

##### 8.3 Individual protection measures, such as personal protective equipment (PPE)

###### Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

###### Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

#### 9. Physical and chemical properties

Physical state	light yellow liquid
Colour	Water-white liquid
Odour	Peppermint-like odor
Melting point/ freezing point	-8\°C (lit.)
Boiling point or initial boiling point and boiling range	215\°C
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 60\°C and below 93.33\°C. Combustible.
Lower and upper explosion limit / flammability limit	Lower 0.8% by vol; upper 3.8%
Flash point	84\°C (lit.)
Auto-ignition temperature	462.22\°C (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	2.62 cP @ 20\°C
Solubility	0.1 to 1 mg/mL at 17.78\°C
Partition coefficient n-octanol/water (log value)	log Kow = 1.70
Vapour pressure	0.2 mm Hg ( 20 \°C)
Density and/or relative density	0.923
Relative vapour density	4.77 (vs air)
Particle characteristics	no data available

#### 10. Stability and reactivity

##### 10.1 Reactivity

no data available

##### 10.2 Chemical stability

Stable under recommended storage conditions.

##### 10.3 Possibility of hazardous reactions

Flammable & explosive when exposed to heat or flame. Ketones, such as ISOPHORONE, are reactive with many acids and bases liberating heat and flammable gases (e.g., H<sub>2</sub>). The amount of heat may be sufficient to start a fire in the unreacted portion of the ketone. Ketones react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H<sub>2</sub>) and heat. Ketones are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. They react violently with aldehydes, HNO<sub>3</sub>, HNO<sub>3</sub> + H<sub>2</sub>O<sub>2</sub>, and HClO<sub>4</sub>. Forms explosive peroxides

##### 10.4 Conditions to avoid

no data available

##### 10.5 Incompatible materials

Incompatible with strong oxidizers

##### 10.6 Hazardous decomposition products

no data available

#### 11. Toxicological information

Acute toxicity

Oral: LD<sub>50</sub> Rat oral 1000-3450 mg/kg.

Inhalation: LC<sub>50</sub> Rat inhalation 7000 mg/cu m/4 hr

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Group C Possible Human Carcinogen

Reproductive toxicity

No studies were located regarding developmental or reproductive effects in humans. (-) Limited evidence in animal studies suggests that isophorone may cause birth defects such as fetal malformations and growth retardation from inhalation exposure to isophorone during pregnancy.

STOT-single exposure  
no data available  
STOT-repeated exposure  
no data available  
Aspiration hazard  
no data available

## 12. Ecological information

### 12.1 Toxicity

Toxicity to fish: LC50 Pimephales promelas (fathead minnow) 145-255 mg/l/96 hr, flow through exposure. /From table  
Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (water flea) 117 mg/l/48 hr, static exposure, immobilization.

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

AEROBIC: Isophorone, present at 100 mg/l, reached 3% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test(1). Removal of isophorone from unacclimated fresh and salt water seeded with settled domestic wastewater was 42 and 9%, respectively, after 20 days(3). Removal of isophorone from wastewater treated by various different biological treatment processes: trickling filter, activated sludge, aerated lagoon, and facultative lagoon was 19, 98, 24, and 30%, respectively(4); therefore this compound is not expected to biodegrade rapidly(SRC). A 100% loss was observed when 5 and 10 mg/l isophorone underwent a 7-day static incubation in the dark at 25°C under aerobic conditions using settled domestic wastewater as inoculum(2). Using a multi-level respirometric test protocol employing a sludge microbiota, a half-life of 25 days for 100 mg test compound was determined(5).

### 12.3 Bioaccumulative potential

A BCF of 7 was measured for isophorone in bluegill sunfish(1). The half-life of isophorone in fish tissue was found to be 1 day(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### 12.4 Mobility in soil

The Koc of isophorone is estimated as 200(SRC), using a log Kow of 1.7(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that isophorone is expected to have moderate mobility in soil.

### 12.5 Other adverse effects

no data available

## 13. Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## 14. Transport information

### 14.1 UN Number

ADR/RID: UN1993

IMDG: UN1993

IATA: UN1993

### 14.2 UN Proper Shipping Name

ADR/RID: FLAMMABLE LIQUID, N.O.S.

IMDG: FLAMMABLE LIQUID, N.O.S.

IATA: FLAMMABLE LIQUID, N.O.S.

### 14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

### 14.4 Packing group, if applicable

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

### 14.6 Special precautions for user

no data available

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

no data available

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
isophorone	isophorone	78-59-1	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.

China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.

**Section 16: Other Information**

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

