



## Safety Data Sheet

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### Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Ethyl 3-oxobutanate

SDS No. : 2852E-2

Relevant identified uses of the substance or mixture and uses advised against

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

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### Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 4

HEALTH HAZARDS

Serious eye damage/eye irritation: Category 2B

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

No GHS label element

Signal word: Warning

HAZARD STATEMENT

H227 Combustible liquid

H320 Causes eye irritation

PRECAUTIONARY STATEMENT

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P264 Wash contaminated parts thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P370 + P378 In case of fire: Use appropriate media to extinguish.

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.

Storage

P403 Store in a well-ventilated place.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

**Section 3. Composition/information on ingredients**

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS No.	ENCS	Chemical formula
Ethyl 3-oxobutanate	$\geq 98$	141-97-9	2-1475	$\text{CH}_3\text{COCH}_2\text{COOC}_2\text{H}_5$

Note : The figures shown above are not the specifications of the product.

**Section 4. First-aid measures**

Descriptions of first-aid measures

**IF INHALED**

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

**IF ON SKIN**

Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

**IF IN EYES**

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.

**IF SWALLOWED**

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

**Section 5. Fire-fighting measures**

Extinguishing media

**Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

In case of fire, use spraying loaded liquid, foam (water-soluble liquid: alcohol-resistant foam), inactive gases, dry powder, dry sand to extinguish.

\*Fire Service Act Group 4 Hazardous Materials

**Unsuitable extinguishing media**

Indoor Fire Plug System or Outdoor Fire Plug System

Sprinkler System

Dry Chemical Extinguishing System—Others (except for phosphates etc., Hydrogen Carbonates etc.)

Fire Extinguisher Discharging Jet Water/Spraying Water

Fire Extinguisher Discharging Jet Loaded Liquid

Fire Extinguisher Discharging Dry Extinguishing agents—Others (except for phosphates etc., Hydrogen Carbonates etc.)

Water Bucket or Water Tank

\*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Group 4 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.



See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

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## Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

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## Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Wear protective gloves/protective clothing/eye protection/face protection.

Wash hands et al thoroughly after handling.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Storage

Conditions for safe storage

Keep container tightly closed.



Store in a cool, dry place. Do not store in direct sunlight.  
Storage in accordance with local/national regulation.  
Container and packaging materials for safe handling  
Use closed unbreakable containers.

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## Section 8. Exposure controls/personal protection

### Control parameters

Control value and concentration standard value are not available in ISHA.

### Exposure controls

#### Appropriate engineering controls

Do not use in areas without adequate ventilation.  
Eye wash station should be available.  
Washing facilities should be available.

#### Individual protection measures

Recommend to use protective equipment in conformity with the standards.  
Use appropriate protective equipment in accordance with local/national regulation.

#### Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

#### Hand protection

Wear impervious protective glove.

#### Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

#### Skin and body protection

Wear protective clothing.

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## Section 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Characteristic odor

Melting point/Freezing point: -45°C

Boiling point or initial boiling point: (Ethyl 3-oxobutanate) 180.8°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 1 vol %

Upper explosion limit: 54 vol %

Flash point: (Ethyl 3-oxobutanate)(C.C.) 74°C

Auto-ignition temperature: (Ethyl 3-oxobutanate) 295°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 2.86 g/100 ml (20°C)

Solubility in solvent data is not available.

n-Octanol/water partition coefficient: log Pow 0.27

Vapor pressure: 0.1 kPa (20°C)



Density and/or relative density: 1.02

Relative vapor density (Air=1): 4.48

Particle characteristics data is not available.

Other information

Other information is not available.

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## Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

The vapour is heavier than air.

Reacts with strong oxidants. (ICSC 1024)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

Carbon oxides

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## Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 3980 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]

rabbit LD50: > 10300 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]

mist: rat LC50: > 8.99 mg/L (4-hour) (source: NITE)

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation

[Product]

Category 2B, Causes eye irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2B (source: NITE)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.



Reproductive toxicity data is not available.  
Specific target organ toxicity (STOT)  
STOT-single exposure data is not available.  
STOT-repeated exposure data is not available.  
Aspiration hazard data is not available.

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**Section 12. Ecological Information****Toxicity****Aquatic toxicity**

[Data for components of the product]

Hazardous to the aquatic environment, short-term (acute)

[NITE-CHRIIP]

All LC50 and EC50 values exceeded 100 mg/L in acute toxicity tests for fish, crustacea and algae. (source: NITE)

**Water solubility**

not poorly water-soluble (110 g/L) (source: NITE)

**Persistence and degradability**

Persistence and degradability data is not available.

**Bioaccumulative potential**

[Data for components of the product]

log Pow: 0.27 (source: ICSC, 2000)

**Mobility in soil**

Mobility in soil data is not available.

**Other adverse effects**

Ozone depleting chemical data is not available.

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**Section 13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

**Waste treatment methods**

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

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**Section 14. Transport Information**

UN Number or ID Number : Not regulated

**IMDG Code (International Maritime Dangerous Goods Regulations)**

UN Number or ID Number : Not regulated

**IATA (Dangerous Goods Regulations)**

UN Number or ID Number : Not regulated

**Environmental hazards**

Marine pollutants (yes/no) : no

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**Section 15. Regulatory Information**

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory



Applicable

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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## Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN  
Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN  
IMDG Code, 2022 Edition (Incorporating Amendment 41-22)  
IATA Dangerous Goods Regulations (65th Edition) 2024  
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)  
2024 TLVs and BEIs. (ACGIH)  
JIS Z 7252 : 2019  
JIS Z 7253 : 2019  
2023 Recommendation on TLVs (JSOH)

Supplier's data/information

General Disclaimer

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Unauthorized translation or modification is prohibited.

Please provide SDS to customers for selling or transferring.

All chemicals have unknown hazard. Handle the product with care.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIPI), up to FY2023).