Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name | 2-Butyn-1-ol
Product code | 320-49871,328-49872
CAS No | 764-01-2
Formula | C4H6O
Manufacturer | FUJIFILM Wako Pure Chemical Corporation
 | 1-2 Doshomachi 3-Chome
 | Chuo-ku, Osaka 540-8605, Japan
 | Phone: +81-6-6203-3741
 | Fax: +81-6-6203-5964
Supplier | FUJIFILM Wako Pure Chemical Corporation
 | 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan
 | Phone: +81-6-6203-3741
 | Fax: +81-6-6203-2029
Emergency telephone number | +81-6-6203-3741 / +81-3-3270-8571
Recommended uses and restrictions on use | For research purposes
Announcement of company name change | Company name has changed since April 1, 2018. Former name was "Wako Pure Chemical Industries, Ltd."

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture

- Flammable liquids | Category 3
- Skin corrosion/irritation | Category 2
- Serious eye damage/eye irritation | Category 2A
- Specific target organ toxicity (single exposure) | Category 3
  | Respiratory tract irritation

Pictograms

Signal word | Warning

Hazard statements
- H226 - Flammable liquid and vapor
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
Precautionary statements-(Prevention)
• Wash face, hands and any exposed skin thoroughly after handling
• Wear protective gloves/protective clothing/eye protection/face protection
• Avoid breathing dust/fume/gas/mist/vapors/spray
• Use only outdoors or in a well-ventilated area
• Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• Keep container tightly closed
• Ground/bond container and receiving equipment
• Use explosion-proof electrical/ventilating/lighting/equipment
• Use only non-sparking tools
• Take precautionary measures against static discharge
• Keep cool

Precautionary statements-(Response)
• 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 skin irritation occurs: Get medical advice/attention
• IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
• Wash contaminated clothing before reuse.
• IF INHALED: 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.
• In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary statements-(Storage)
• Store in a well-ventilated place. Keep container tightly closed
• Store locked up.

Precautionary statements-(Disposal)
• Dispose of contents/container to an approved waste disposal plant

Others
Other hazards
Not available

Section 3: COMPOSITION/ INFORMATION ON INGREDIENTS

Single Substance or Mixture
Substance

Formula
C4H6O

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>Molecular weight</th>
<th>ENCS</th>
<th>ISHL No.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butyn-1-ol</td>
<td>93</td>
<td>70.09</td>
<td>N/A</td>
<td>N/A</td>
<td>764-01-2</td>
</tr>
</tbody>
</table>

Impurities and/or Additives
Not applicable

Section 4: FIRST AID MEASURES

Inhalation
Remove to fresh air. If symptoms persist, call a physician.

Skin contact
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion
Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders
Use personal protective equipment as required.
Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media
- Water spray (fog), Carbon dioxide (CO2), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media
- No information available

Special extinguishing method
- No information available

Specific hazards arising from the chemical product
- Thermal decomposition can lead to release of irritating and toxic gases and vapors. Vapors may form explosive mixtures with air.

Protection of fire-fighters
- Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
- For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions
- To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up
- Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization
- No information available

Secondary disaster prevention measures
- Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling
Technical measures
- Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.

Precautions
- Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Storage
Safe storage conditions
- Store away from sunlight in well-ventilated place at room temperature (preferably cool).
- Keep container tightly closed.

Safe packaging material
- Glass

Incompatible substances
- Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
Engineering controls
In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment
Respiratory protection gas mask for organic gas
Hand protection Impermeable protective gloves
Eye protection protective eyeglasses or chemical safety goggles
Skin and body protection Long-sleeved work clothes

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form
Color Pale yellow - yellowish brown
Appearance liquid
Odor characteristic odor
pH No data available
Melting point/freezing point -2.2 °C
Boiling point, initial boiling point and boiling range 142-143 °C
Flash point 51 °C
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper/lower flammability or explosive limits No data available
Vapour pressure No data available
Vapour density No data available
Specific Gravity / Relative density 0.937
Solubilities Ethanol , acetone : miscible. water : slightly soluble.
n-Octanol/water partition coefficient:(log Pow) No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity (coefficient of viscosity) No data available
Dynamic viscosity No data available

Section 10: STABILITY AND REACTIVITY

Stability
Stability Stable under recommended storage conditions.
Reactivity No data available
Hazardous reactions None under normal processing
Conditions to avoid Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark
Incompatible materials Strong oxidizing agents
Hazardous decomposition products Carbon monooxide (CO), Carbon dioxide (CO2)

Section 11: TOXICOLOGICAL INFORMATION
Acute toxicity

No data available

Skin irritation/corrosion

No data available

Serious eye damage/ irritation

No data available

Respiratory or skin sensitization

No data available

Reproductive cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

No information available

Other data

No data available

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility in soil

No information available

Hazard to the ozone layer

No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID

UN number

UN1987

Proper shipping name:

Alcohols, n.o.s. (2-Butyn-1-ol)

UN classification

3

Subsidiary hazard class

Packing group

II

Marine pollutant

Not applicable

IMDG

UN number

UN1987

Proper shipping name:

Alcohols, n.o.s. (2-Butyn-1-ol)

UN classification

3

Subsidiary hazard class

Packing group

II

Marine pollutant (Sea)

Not applicable

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

No information available
IATA

UN number: UN1987
Proper shipping name: Alcohols, n.o.s. (2-Butyn-1-ol)
UN classification: 3
Subsidiary hazard class: 11
Packing group: II
Environmentally Hazardous Substance: Not applicable

Section 15: REGULATORY INFORMATION

International Inventories
EINECS/ELINCS Listed
TSCA

Japanese regulations
Fire Service Act Category IV, Class II petroleum, dangerous grade 3
Poisonous and Deleterious Substances Control Law Not applicable
Industrial Safety and Health Act Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)
Regulations for the carriage and storage of dangerous goods in ship Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Pollutant Release and Transfer Register Law Not applicable
Export Trade Control Order Not applicable

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.
IATA dangerous Goods Regulations
RTECS: Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Chemical Dictionary, Kyoritsu Publishing Co., Ltd.
etc

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. GHS Classification is according to JIS Z7252(2014). *JIS: Japanese Industrial Standards

Product information
You might get a product which indicates a former company name, during the period of transition.

End of Safety Data Sheet