

SAFETY DATA SHEET

According to JIS Z 7253:2012
Revision Date 28-Sep-2018
 Version 11.02

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	1,4-Diazabicyclo[2.2.2]octane
Product code	041-25711,049-25712,043-25715
CAS No	280-57-9
Formula	C6H12N2
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

Acute toxicity - Oral

Category 4

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 2A

Reproductive Toxicity

Category 2

Specific target organ toxicity (single exposure)

Category 2

Category 2 central nervous system

Specific target organ toxicity (repeated exposure)

Category 1

Category 1 upper respiratory tract

Pictograms



Signal word

Warning

Hazard statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H302 - Harmful if swallowed

H361 - Suspected of damaging fertility or the unborn child
 H371 - May cause damage to the following organs: central nervous system
 H372 - Causes damage to the following organs through prolonged or repeated exposure: upper respiratory tract

Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required.
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product

Precautionary statements-(Response)

- IF exposed or concerned: 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 ON SKIN: Wash with plenty of soap and water
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth.

Precautionary statements-(Storage)

- 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 C₆H₁₂N₂

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS No.
1,4-Diazabicyclo[2.2.2]octane	95.0	112.17	(5)-1141	(5)-1141	280-57-9

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.

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

Sweep up and gather scattered particles, and collect it in an empty airtight container.

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

Avoid contact with 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

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage

Safe storage conditions

Storage conditions

Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed.

Safe packaging material

Polypropylene

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**

Dust mask

Hand protection

Protection 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**

white - slightly yellow

Appearance

crystals - crystalline powder

Odor

Ammonia odor

pH

basic (aq.)

Melting point/freezing point

158 °C

Boiling point, initial boiling point and boiling range

174 °C

Flash point

No data available

Evaporation rate:

No data available

Flammability (solid, gas):

No data available

Upper/lower flammability or explosive limits**Upper :**

No data available

Lower :

No data available

Vapour pressure

No data available

Vapour density

No data available

Specific Gravity / Relative density1.14g/cm³ (28°C)**Solubilities**

water , ethanol, acetone : freely 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**

Hygroscopic. Has sublimation. May be altered by light.

Reactivity

No data available

Hazardous reactions

None under normal processing

Conditions to avoid

Extremes of temperature and direct sunlight, Moisture

Incompatible materials

Strong oxidizing agents

Hazardous decomposition productsCarbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
1,4-Diazabicyclo[2.2.2]octane	1870 mg/kg (rat)	3200 mg/kg (rabbit)	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
1,4-Diazabicyclo[2.2.2]octane	LD50 (orl.rat) : (700, 1070, 1870, 2260 mg/kg bw)(SIDS (2005)).	LD50(skn.rabbit):> 3200 mg/kg bw(SIDS (2005)).	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion irritation source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory, Skin sensitization source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE Classification results.

Reproductive cell mutagenicity

Chemical Name	Mutagenic source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE Classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
1,4-Diazabicyclo[2.2.2]octane	N/A	LC50:Fathead mino 1730 mg/L 96h	N/A

Other data

Chemical Name	Aquatic toxicity -Acute- source information	Aquatic toxicity -Chronic- source information
1,4-Diazabicyclo[2.2.2]octane	Based on the NITE Classification results.	Based on the NITE Classification results.

Persistence and degradability
Bioaccumulative potential

Degree of decomposition : 0 % by BOD
 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	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant	Not applicable
IMDG	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Environmentally Hazardous Substance	Not applicable

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS	Listed
TSCA	Listed

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Not applicable
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc	Not applicable
Regulations for the carriage and storage of dangerous goods in	Not applicable

ship	
Civil Aeronautics Law	Not applicable
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.

NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>
IATA dangerous Goods Regulations
RTECS:Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.
Chemical Dictionary, Kyouritsu 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