

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 09-Mar-2023  
 Revision Number 2.05

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	1,1'-Azobis(cyclohexane-1-carbonitrile)
<b>Product Code</b>	014-11072,018-11075

<b>Manufacturer</b>	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
<b>Supplier</b>	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
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses and restrictions on use</b>	For research use only

## Section 2: HAZARDS IDENTIFICATION

**GHS classification****Classification of the substance or mixture**

Self-reactive substances and mixtures

Type D

**Pictograms****Signal word**

Danger

**Hazard statements**

H242 - Heating may cause a fire

**Precautionary statements-(Prevention)**

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Keep/Store away from clothing/ combustible materials
- Keep only in original container
- Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary statements-(Response)**

- In case of fire: Use Water spray, fog or regular foam for extinction

**Precautionary statements-(Storage)**

- Store in a well-ventilated place. Keep cool
- Store away from other materials

**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**      NCC6H10N:NC6H10CN

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
1,1'-Azobis(cyclohexane-1-carbonitrile)	95.0	244.34	(3)-2468	*	2094-98-6

**Note on ISHL No.:**      \* in the table means announced chemical substances.

**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, Foam

**Unsuitable extinguishing media**

Powder, Carbondioxide

**Specific hazards arising from the chemical product**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Special extinguishing method**

No information available

**Special protective actions for 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**

Container containing the recovered material is distinguished from the other garbage and store in a cool, dark place without

sealed until processing. Use a secure tool that does not generate a spark.

## Section 7: HANDLING AND STORAGE

### Handling

#### Technical measures

Do not give shock. Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.

#### Precautions

Avoid being incompatible with strong acids, especially strong oxidizing agent (nitric acid, etc.). When handling, to pay particular attention to static electricity ignition source, such as shock spark. Avoid long-term and repeated exposure. Pay attention not to give shock.

#### Safety handling precautions

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

#### Storage

##### Safe storage conditions

**Storage conditions** Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. Store locked up.

**Safe packaging material** Polyethylene

##### 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 - nearly white

**Appearance**

crystals - crystalline powder

### Odor

characteristic odor

### Melting point/freezing point

114 - 119 °C

### Boiling point, initial boiling point and boiling range

no data available

### Flammability

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

### Flash point

no data available

### Auto-ignition temperature:

320 °C

### Decomposition temperature:

80 °C (SADT)

### pH

no data available

### Viscosity (coefficient of viscosity)

no data available

### Dynamic viscosity

no data available

<b>Solubilities</b>	acetone , chloroform , benzene : freely soluble . MIBK , Ethanol , methanol : soluble . water , petroleum ether : practically insoluble .
<b>n-Octanol/water partition coefficient:(log Pow)</b>	no data available
<b>Vapour pressure</b>	no data available
<b>Specific Gravity / Relative density</b>	1.1
<b>Vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

## Section 10: STABILITY AND REACTIVITY

### Stability

<b>Reactivity</b>	no data available
<b>Chemical stability</b>	Stable under recommended normal conditions.

### Hazardous reactions

Decompose at an accelerating pace and discharge nitrogen gas. May cause runaway reaction by heat or sunlight because of self-reactivity. Decompose gradually if stored it higher than 20°C.

### Conditions to avoid

Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark, Shock

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), nitrogen gas

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
1,1'-Azobis(cyclohexane-1-carbonitrile)	>11800 mg/kg(Rat)	N/A	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
1,1'-Azobis(cyclohexane-1-carbonitrile)	Approximate lethal dose(ALD),(orl, rat): >11800mg/kg	No data available	No data available

**Skin irritation/corrosion** no data available

### Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
1,1'-Azobis(cyclohexane-1-carbonitrile)	Eye: Mild

### Respiratory or skin sensitization

no data available

### Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
1,1'-Azobis(cyclohexane-1-carbonitrile)	Reverse mutation assay in S.typhimurium and E.coli Negative

**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

<b>Persistence and degradability</b>	No information available
<b>Bioaccumulative potential</b>	No information available
<b>Mobility in soil</b>	No information available
<b>Hazard to the ozone layer</b>	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

<b>UN number</b>	UN3226
<b>Proper shipping name:</b>	SELF-REACTIVE SOLID TYPE D (1,1'-Azodi(hexahydrobenzotrile))
<b>UN classification</b>	4.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	
<b>Marine pollutant</b>	Not applicable

#### IMDG

<b>UN number</b>	UN3226
<b>Proper shipping name:</b>	SELF-REACTIVE SOLID TYPE D (1,1'-Azodi(hexahydrobenzotrile))
<b>UN classification</b>	4.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	
<b>Marine pollutant (Sea)</b>	Not applicable
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	No information available

#### IATA

<b>UN number</b>	UN3226
<b>Proper shipping name:</b>	SELF-REACTIVE SOLID TYPE D (1,1'-Azodi(hexahydrobenzotrile))
<b>UN classification</b>	4.1
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	
<b>Environmentally Hazardous Substance</b>	Not applicable

### Section 15: REGULATORY INFORMATION

#### International Inventories

<b>EINECS/ELINCS</b>	Listed
<b>TSCA</b>	Listed

#### Japanese regulations

<b>Fire Service Act</b>	Category V, azo compounds, dangerous grade 2
<b>Poisonous and Deleterious Substances Control Law</b>	Deleterious Substances 3rd. Grade
<b>Industrial Safety and Health Act</b>	Not applicable
<b>Regulations for the carriage and storage of dangerous goods in ship</b>	Flammable Solids - Flammable Solids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
<b>Civil Aeronautics Law</b>	Flammable Solids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
<b>Pollutant Release and Transfer Register Law</b>	Not applicable

(~2023.3.31)

**Pollutant Release and Transfer Register Law**  
(2023/4/1~)

Not applicable

**Water Pollution Control Act**

Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)

**Export Trade Control Order**

Not applicable

**Soil Contamination Control Law**

Designated Hazardous Substances

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2) (~2024.3.31)	Pollutant Release and Transfer Register Law (~2023.3.31)
1,1'-Azobis(cyclohexane-1-carbonitrile) 2094-98-6 (95.0)	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

This SDS is according to JIS Z 7253: 2019. 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(2019). \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**