

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 29-Dec-2023  
 Revision Number 3.08

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	2,2'-Azobis(isobutyronitrile)
<b>Product Code</b>	019-04932,013-04935

<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</b>	For research use only
<b>Restrictions on use</b>	Seek expert judgment when using for purposes other than those recommended.

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

Classification of the substance or mixtureSelf-reactive substances and mixtures

## Acute toxicity - Oral

## Specific target organ toxicity (single exposure)

Category 1 central nervous system

Category 3 Narcotic effects

## Specific target organ toxicity (repeated exposure)

Category 2 liver

Type C

Category 3

Category 1, Category 3

Category 2

## Pictograms



Signal word

Danger

## Hazard statements

H242 - Heating may cause a fire

H301 - Toxic if swallowed

H336 - May cause drowsiness or dizziness

H370 - Causes damage to the following organs: central nervous system

H373 - May cause damage to the following organs through prolonged or repeated exposure: liver

## Precautionary statements-(Prevention)

- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- 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
- Keep cool

**Precautionary statements-(Response)**

- IF exposed: Call a POISON CENTER or doctor/physician
- 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
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Rinse mouth
- In case of fire: Use suitable extinguishing media for extinction

**Precautionary statements-(Storage)**

- Store in a well-ventilated place. Keep container tightly closed
- Store locked up
- 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** (CH<sub>3</sub>)<sub>2</sub>C(CN)N:NC(CN)(CH<sub>3</sub>)<sub>2</sub>

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
2,2'-Azobis(isobutyronitrile)	98.0	164.21	(2)-1531	*	78-67-1

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

### 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, Carbon dioxide, Do not use straight streams

**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.

### Recoverly, 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. Highly flammable. Avoid contact with high temperature objects, spark, and 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

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

### 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, Water

## 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 ( JIS T 8151 )

**Hand protection** chemical protective gloves ( JIS T 8116 )

**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

<b>Form</b>	
<b>Color</b>	white
<b>Appearance</b>	crystals - crystalline powder
<b>Odor</b>	Odorless
<b>Melting point/freezing point</b>	100 - 103 °C (dec.)
<b>Boiling point, initial boiling point and boiling range</b>	no data available
<b>Flammability</b>	no data available
<b>Evaporation rate:</b>	no data available
<b>Flammability (solid, gas):</b>	no data available
<b>Upper/lower flammability or explosive limits</b>	
<b>Upper:</b>	no data available
<b>Lower:</b>	30 mg/L ( dust explosion )
<b>Flash point</b>	no data available
<b>Auto-ignition temperature:</b>	213 °C
<b>Decomposition temperature:</b>	50 °C (SADT)
<b>pH</b>	no data available
<b>Viscosity (coefficient of viscosity)</b>	no data available
<b>Dynamic viscosity</b>	no data available
<b>Solubilities</b>	water : very slightly soluble. acetone : freely soluble . methanol , toluene : soluble . Ethanol : sparingly soluble .
<b>n-Octanol/water partition coefficient:(log Pow)</b>	1.10
<b>Vapour pressure</b>	0.006075 mmHg
<b>Specific Gravity / Relative density</b>	Approx. 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. Be hydrolyzed by moisture in the air. May be altered by light.

### 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, Water

### Hazardous decomposition products

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

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
2,2'-Azobis(isobutyronitrile)	100 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
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	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

2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
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**Skin irritation/corrosion**

Chemical Name	Skin corrosion/irritation source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Serious eye damage/ irritation**

Chemical Name	Serious eye damage/irritation source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Respiratory or skin sensitization**

Chemical Name	Respiratory or Skin sensitization source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Reproductive cell mutagenicity**

Chemical Name	germ cell mutagenicity source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity** No information available

**Other data**

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
2,2'-Azobis(isobutyronitrile)	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

**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** UN3234  
**Proper shipping name:** Self-reactive solid type C, temperature controlled (2,2'-Azodi(isobutyronitrile))  
**UN classification** 4.1  
**Subsidiary hazard class**  
**Packing group**  
**Marine pollutant** Not applicable

**IMDG**

**UN number** UN3234  
**Proper shipping name:** Self-reactive solid type C, temperature controlled (2,2'-Azodi(isobutyronitrile))  
**UN classification** 4.1  
**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**

**UN number** UN3234  
**Proper shipping name:** Self-reactive solid type C, temperature controlled (2,2'-Azodi(isobutyronitrile))  
**UN classification** 4.1  
**Subsidiary hazard class**  
**Packing group**  
**Environmentally Hazardous Substance** Not applicable

## Section 15: REGULATORY INFORMATION

**Japanese regulations**

**Fire Service Act** Category V, azo compounds, dangerous grade 2  
**Poisonous and Deleterious Substances Control Law** Deleterious Substances 3rd. Grade  
**Industrial Safety and Health Act** Not applicable  
**Regulations for the carriage and storage of dangerous goods in ship** Flammable Solids - Flammable Solids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)  
**Civil Aeronautics Law** Forbidden (Ordinance Art.194)  
**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)	Pollutant Release and Transfer Register Law (2023.4.1-)
2,2'-Azobis(isobutyronitrile) 78-67-1 ( 98.0 )	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

**Record of SDS revisions**

The following contents were revised. Product and company Identification. Transport information.

**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 Z 7252:2019. \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**