SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 09-Mar-2023
Revision Number 4.02

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	2,2'-Azobis(2-methylbutyronitrile)
Product Code	014-19252,018-19255

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 use only

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Self-reactive substances and mixtures	Type D
Acute toxicity - Oral	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Category 2 liver, kidneys	

Pictograms

Signal word Danger

Hazard statements
H242 - Heating may cause a fire
H301 - Toxic if swallowed
H373 - May cause damage to the following organs through prolonged or repeated exposure: liver, kidneys

Precautionary statements-(Prevention)
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- 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)
- Get medical advice/attention if you feel unwell
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

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

Precautionary statements-(Storage)

- Store locked up
- 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 C10H16N4

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
2,2'-Azobis(2-methylbutyronitrile)	98.0	192.26	(2)-3539	2-(6)-1250	13472-08-7

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 contaminent 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. 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

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. 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 or granules
Odor	Odorless
Melting point/freezing point	48 - 52 °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	83 °C
Auto-ignition temperature:	450 °C
Decomposition temperature:	45 °C (SADT)
pH	no data available
Viscosity (coefficient of viscosity)	no data available
Dynamic viscosity	no data available
Solubilities	methanol : Very soluble. water : very slightly soluble.
n-Octanol/water partition coefficient:(log Pow)	2.1
Vapour pressure	4.0X10-1Pa
Specific Gravity / Relative density	1.1 g/mL
Vapour density	no data available
Particle characteristics	no data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity no data available
Chemical stability 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 10°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 monooxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx), nitrogen gas

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
2,2'-Azobis(2-methylbutyronitrile)	271 mg/kg (Rat male) 251mg/kg (Rat female)	N/A	> 8.9 mg/L (Rat) 4 h

Skin irritation/corrosion	no data available
Serious eye damage/ irritation	no data available
Respiratory or skin sensitization	no data available

Reproductive cell mutagenicity

Chemical Name	germ cell mutagencity source information
2,2'-Azobis(2-methylbutyronitrile)	Reverse mutation assay in S.typhimurium and E.coli Negative Chromosomal aberration test in cultured mammalian cells Negative

Carcinogenicity no data available

Reproductive toxicity	no data available
STOT-single exposure	no data available

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
2,2'-Azobis(2-methylbutyronitrile)	NOEL=2mg/kg/day (28 days, rat, oral) Light effects on liver and kidney was admitted by the dosage of 20mg/kg.

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 UN3236
Proper shipping name: Self-reactive solid type D, temperature controlled (2,2'-Azodi(2-methylbutyronitrile))
UN classfication 4.1
Subsidiary hazard class
Packing group
Marine pollutant Not applicable

IMDG
UN number UN3236
Proper shipping name: Self-reactive solid type D, temperature controlled (2,2'-Azodi(2-methylbutyronitrile))
UN classfication 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 Forbidden
UN number UN3236
Proper shipping name: Self-reactive solid type D, temperature controlled (2,2'-Azodi(2-methylbutyronitrile))
UN classfication 4.1
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 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 (~2023.3.31)	Not applicable
Pollutant Release and Transfer Register Law (2023/4/1~)	Not applicable
Export Trade Control Order	Not applicable

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)
2,2'-Azobis(2-methylbutyronitrile) 13472-08-7 (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 Oraganic 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