SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 26-Oct-2023
Revision Number 5.04

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	2,2'-Azobis(2-methylpropionamidine) Dihydrochloride
Product Code	017-21332,011-21335

Supplier
FUJIFILM Wako Pure Chemical Corporation
4-1 Nihonbashi-Honcho, 2-chome Chuo-ku , Tokyo 103-0023, Japan
Phone:+81-3-3270-8571
Fax:+81-3-5255-6157

Emergency telephone number +81-6-6203-3741 / +81-3-3270-8571
Recommended uses No information available
Restrictions on use Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture

Self-heating substances and mixtures	Category 1
Acute toxicity - Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Chronic aquatic toxicity	Category 1

Pictograms

Signal word Danger

Hazard statements
H251 - Self-heating: may catch fire
H319 - Causes serious eye irritation
H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements-(Prevention)
• Do not eat, drink or smoke when using this product
• Wash face, hands and any exposed skin thoroughly after handling
• Avoid breathing dust/fume/gas/mist/vapors/spray
• Contaminated work clothing should not be allowed out of the workplace
• Avoid release to the environment
• Keep cool. Protect from sunlight
• Wear protective gloves/protective clothing/eye protection/face protection

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 ON SKIN: Wash with plenty of soap and water

- If skin irritation or rash occurs: Get medical advice/attention
- Wash contaminated clothing before reuse
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- Collect spillage

Precautionary statements-(Storage)

- Maintain air gap between stacks/pallets
- 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 H2NC(:NH)C(CH3)2N:NC(CH3)2C(:NH)NH2·2HCl

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	97.0	271.19	(2)-2885, (2)-1242	N/A	2997-92-4

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 spray (fog), Carbon dioxide (CO2), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

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

Flammable. 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 and tightly closed in well ventilated cool place under 25°C
Safe packaging material	Polyethylene, 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 (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

Form

Color	White - nearly white
Appearance	granules or powder

Odor	Odorless
Melting point/freezing point	163 - 168 °C (dec.)
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:	125mg/L(dust explosion)
Flash point	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	110(SADT) °C
pH	no data available
Viscosity (coefficient of viscosity)	no data available
Dynamic viscosity	no data available
Solubilities	water : freely soluble . ethanol, acetone : practically insoluble,or insoluble .
n-Octanol/water partition coefficient:(log Pow)	no data available
Vapour pressure	7.20X10E-6Pa,9.77X10E-6Pa
Specific Gravity / Relative density	1.2133 - 1.2137 g/cm3
Vapour density	no data available
Particle characteristics	no data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	no data available
Chemical stability	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 40°C.

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), Nitrogen oxides (NOx), Hydrogen chloride (HCl) gas, Halides

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	410 mg/kg (Rat)	> 5900 mg/kg (Rat)	N/A

Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	Skin; rabbit; 500mg; Mild(EPASRS: 8EHQ-0282-0427S)

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	Classified as mildly irritating to the eye. Two of the three rabbits had a conjunctivitis score of 2 or higher after 24, 48, and 72 hours.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	Skin sensitization: Strong sensitization (guinea pig)

Reproductive cell mutagenicity

Chemical Name	germ cell mutagencity source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	Reverse mutation assay in S.typhimurium and E.coli (Salmonella) Negative

Carcinogenicity no data available

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	NOAEL 60mg/kg

STOT-single exposure no data available

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	28-D NOAEL 25mg/kg

Aspiration hazard no data available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
2,2'-Azobis(2-methylpropionamidine)dihydrochloride	*N/A*	*EC10(Bacteria)：>10000mg/L/96hr EC50(Bacteria)：>10000mg/L/96hr LC50(golden orfe)：570mg/L/96hr 95% Confidence limits(golden orfe)：470～680mg/L NOEC(golden orfe)：320mg/L*	*NOEC(Daphnia pulex):4.8mg/L/24h NOEC(Daphnia pulex):1.2mg/L/48h EC50i(Daphnia pulex):13mg/L/24h EC50i(Daphnia pulex):3.5mg/L/48h*

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 UN3088
Proper shipping name: Self-heating solid, organic, n.o.s. (2,2'-Azobis(2-methylpropionamidine)dihydrochloride)
UN classfication 4.2
Subsidiary hazard class
Packing group II
Marine pollutant Yes

IMDG
UN number UN3088
Proper shipping name: Self-heating solid, organic, n.o.s. (2,2'-Azobis(2-methylpropionamidine)dihydrochloride)
UN classfication 4.2

Subsidiary hazard class	
Packing group	II
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA

UN number	UN3088
Proper shipping name:	Self-heating solid, organic, n.o.s. (2,2'-Azobis(2-methylpropionamidine)dihydrochloride)
UN classfication	4.2
Subsidiary hazard class	
Packing group	II
Environmentally Hazardous Substance	Yes

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Not applicable
Regulations for the carriage and storage of dangerous goods in ship	Flammable Solids - Spontaneously Combustible Solids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law	Flammable Solids - Spontaneously Combustible Solids (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc , Attached Table 1)
Marine Pollution Prevention Law	Marine pollutants (P and PP substances)
Pollutant Release and Transfer Register Law (2023.4.1-)	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 etc
Record of SDS revisions	The following contents were revised. Prodauct and company Identification. Composition/information on ingredients. Handling and storage. Exposure controls/personal protection. Physical and chemical properties. Stability and reactivity. Toxicological information. Ecological information. Regulatory 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