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Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:
Product name: 2,2'-Azobis-isobutyronitrile
SDS No. : 0599E-5
Relevant identified uses of the substance or mixture and uses advised against
Research and Development
Details of the supplier of the safety data sheet
Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN
Division: Chemical Safety Management Department
Telephone number: +81-6-6946-8061
FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product
Classification of the substance or mixture
PHYSICAL AND CHEMICAL HAZARDS
Self-reactive substances and mixtures: Type C
HEALTH HAZARDS
Acute toxicity (Oral): Category 3
Specific target organ toxicity - single exposure: Category 1 (central nervous system)
Specific target organ toxicity - single exposure: Category 3 (Narcotic effects)
Specific target organ toxicity - repeated exposure: Category 2 (liver)
(Note) GHS classification without description: Not classified/Classification not possible
Label elements

Signal word: Danger
HAZARD STATEMENT
H242 Heating may cause a fire
H301 Toxic if swallowed
H370 Causes damage to organs (central nervous system)
H336 May cause drowsiness or dizziness
H373 May cause damage to organs through prolonged or repeated exposure (liver)
PRECAUTIONARY STATEMENT
Prevention
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P235 Keep cool.
P240 Ground and bond container and receiving equipment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P271 Use only outdoors or in a well-ventilated area.

P264 Wash contaminated parts thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P270 Do not eat, drink or smoke when using this product.

Response

P370 + P378 In case of fire: Use appropriate media to extinguish.
P314 Get medical advice/attention if you feel unwell.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330 IF SWALLOWED: Rinse mouth.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

Storage

P403 Store in a well-ventilated place.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P411 Store at temperatures not exceeding specified values.
P420 Store separately.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS No.	ENCS	Chemical formula
2,2' -Azobis-isobutyronitrile	≧99	78-67-1	2-1531	(CH3)2C(CN)N:NC(CN)(CH3)2

Note : The figures shown above are not the specifications of the product.

Impurities

Methanol ≦0.20% (CAS No.67-56-1)

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.
If skin irritation or rash occurs: 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 SWALLOWED

Rinse mouth.

Immediately call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

In case of fire, use water mist or loaded liquid, foam, dry sand to extinguish.

*Fire Service Act Group 5 Hazardous Materials

Unsuitable extinguishing media

Carbon Dioxide/ Halon Extinguishing System

Dry Chemical Extinguishing System-Using Phosphates, etc./Using Hydrogen Carbonates , etc./Others (except for phosphates etc., Hydrogen Carbonates etc.)

Fire Extinguisher Discharging Carbon Dioxide/Halogenide

Fire Extinguisher Discharging Dry Extinguishing agents- Using Phosphates, etc./Using Hydrogen Carbonates, etc./Others (except for phosphates etc., Hydrogen Carbonates etc.)

*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Group 5 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash hands et al thoroughly after handling.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Storage

Conditions for safe storage

Keep container tightly closed.

Store locked up. (P405)

Store at temperatures not exceeding specified values.

Chilled storage.

Storage in accordance with local/national regulation.

(Incompatible storage condition)

Store separately.

Container and packaging materials for safe handling

Keep only in original packaging.

Use closed unbreakable containers.

Section 8. Exposure controls/personal protection

Control parameters

Control value and Concentration standard value

(Methanol)

Japan control value 200ppm

Adopted value

(Methanol)

JSOH(1963) 200ppm; 260mg/m3

(Methanol)

ACGIH(2009) TWA: 200ppm;

STEL: 250ppm (Headache; eye dam; dizziness; nausea)

[ACGIH] Notation
(Methanol)
Skin

Exposure controls
Appropriate engineering controls
Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.
Individual protection measures
Recommend to use protective equipment in conformity with the standards.
Use appropriate protective equipment in accordance with local/national regulation.
Respiratory protection
Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.
Hand protection
Wear impervious protective glove.
Eye protection
Wear eye/face protection. Wear safety goggles in cases gas is generated.
Skin and body protection
Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties
Physical state: Crystals
Color: White
Odor: Odorless
Melting point/Freezing point: (decomposes) 101～103℃
Boiling point or initial boiling point data is not available.
Boiling range data is not available.
Flammability (gases, liquids and solids) data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Flash point data is not available.
Auto-ignition temperature: (2,2'-Azobis-isobutyronitrile)64℃
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water: None
Solubility in solvent data is not available.
n-Octanol/water partition coefficient data is not available.
Vapor pressure: ＜1 Pa (20 ℃)
Density and/or relative density: 1.1 g/cm3
Relative vapor density (Air=1) data is not available.
Particle characteristics data is not available.
Other information
Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.
Decomposes on warming. This produces toxic fumes of tetramethylsuccinonitrile and cyanide.
May decompose explosively on shock, friction or concussion. May explode on heating. Reacts violently with alcohols, oxidants, ketones such as acetone, aldehydes and hydrocarbons such as heptane. This generates fire and explosion hazard. (ICSC 1090)

Conditions to avoid

Contact with incompatible materials.
Contact with fire source.

Incompatible materials

Oxidizing agents, Alcohols, Ketones, Aldehydes, Hydrocarbons

Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Tetramethylsuccinonitrile, Cyanide

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 3, Toxic if swallowed

[Data for components of the product]

[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
rat LD50: 100 mg/kg (source: NITE)
(Methanol)
human LD50: ca. 1400 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
rabbit LD50: > 5010 mg/kg (source: NITE)
(Methanol)
rabbit LD50: 15800 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
dust: rat LC50: > 12 mg/L (4-hour) (source: NITE)
(Methanol)
vapor: rat LC50: > 22500 ppm (converted 4-hour equivalent value: > 31500 ppm) (source: NITE)

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation

[Data for components of the product]
[NITE-CHRIP]
(Methanol)
Category 2 (source: NITE)

Allergenic and sensitizing effects data is not available.
Mutagenic effects data is not available.
Carcinogenic effects data is not available.
Reproductive toxicity
[Data for components of the product]
[NITE-CHRIP]
(Methanol)
Category 1B (source: NITE)

Specific target organ toxicity (STOT)
STOT-single exposure
[Product]
Category 1, Causes damage to organs
Category 3, May cause drowsiness or dizziness
[Data for components of the product]
[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
Category 1 (central nervous system), Category 3 (Narcotic effects) (source: NITE)
(Methanol)
Category 3 (Narcotic effects) (source: NITE)

STOT-repeated exposure
[Product]
Category 2, May cause damage to organs through prolonged or repeated exposure
[Data for components of the product]
[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
Category 2 (liver) (source: NITE)

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity
Aquatic toxicity
[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
Algae (Pseudokirchneriella subcapitata) 72-hour ErC50: > 7.8 mg/L (source: NITE)
Crustacea (Daphnia magna) 48-hour EC50: > 10 mg/L (source: NITE)
Fish (Oryzias latipes) 96-hour LC50: > 10 mg/L (source: NITE)
(Methanol)
Fish (Bluegill) 96-hour LC50: 15400 mg/L (source: NITE)
Crustacea (Brown shrimp) 96-hour LC50: 1340 mg/L (source: NITE)

Hazardous to the aquatic environment, long-term (chronic)
[NITE-CHRIP]
(2,2'-Azobis-isobutyronitrile)
Algae (Pseudokirchneriella subcapitata) 72-hour NOErC: 2.2 mg/L (source: NITE)

Crustacea (Daphnia magna) 21-day NOEC (reproduction): 2.2 mg/L (source: NITE)

Water solubility

(2,2'-Azobis-isobutyronitrile)

none (20℃) (source: ICSC, 2004)

(Methanol)

not poorly water-soluble (1000000 mg/L) (source: NITE)

Persistence and degradability

[Data for components of the product]

(2,2'-Azobis-isobutyronitrile)

Not rapidly degradable (Degradation rate: 0% (by BOD)) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

(2,2'-Azobis-isobutyronitrile)

log Pow: 1.1 (source: NITE)

(Methanol)

log Pow: -0.74 (source: ICSC, 2018)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 3234

UN Proper Shipping Name :

SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED

Class or division (Transport hazard class) : 4.1

ERG GUIDE No.: 150

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 3234

UN Proper Shipping Name :

SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED

Class or division (Transport hazard class) : 4.1

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 3234

UN Proper Shipping Name :

SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED

Class or division (Transport hazard class) : 4.1

FORBIDDEN

Environmental hazards

Marine pollutants (yes/no) : no

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Methanol; 2,2'-Azobis-isobutyronitrile

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN
IMDG Code, 2022 Edition (Incorporating Amendment 41-22)
IATA Dangerous Goods Regulations (65th Edition) 2024
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2024 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2023 Recommendation on TLVs (JSOH)
Supplier's data/information

General Disclaimer

Please provide SDS to customers for selling or transferring.
All chemicals have unknown hazard. Handle the product with care.
This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2023).