Safety Data Sheet

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

Product identifier:

Product name: Potassium iodide-sodium azide solution

SDS No. : E0199E-3

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

HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Acute toxicity (Dermal): Category 3

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Reproductive toxicity: Category 1B

Reproductive toxicity - effects on or via lactation: Additional category

Specific target organ toxicity - single exposure: Category 1 (respiratory system)

Specific target organ toxicity - single exposure: Category 2 (thyroid)

Specific target organ toxicity - repeated exposure: Category 1 (respiratory system)

Specific target organ toxicity - repeated exposure: Category 2 (thyroid, skin, systemic toxicity)

Aspiration hazard: Category 1

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 3

Hazardous to the aquatic environment, long-term (chronic): Category 3

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Signal word: Danger

HAZARD STATEMENT

H301 Toxic if swallowed

H311 Toxic in contact with skin

H314 Causes severe skin burns and eye damage

H360 May damage fertility or the unborn child

H362 May cause harm to breast-fed children

H370 Causes damage to organs (respiratory system)
H371 May cause damage to organs (thyroid)
H372 Causes damage to organs through prolonged or repeated exposure (respiratory system)
H373 May cause damage to organs through prolonged or repeated exposure (thyroid, skin, systemic toxicity)
H304 May be fatal if swallowed and enters airways
H412 Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P202 Do not handle until all safety precautions have been read and understood.
P263 Avoid contact during pregnancy and while nursing.
P273 Avoid release to the environment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash contaminated parts thoroughly after handling.
P280 Wear protective gloves or protective clothing.
P280 Wear protective gloves, protective clothing or face protection.
P280 Wear eye protection/face protection.
P280 Use personal protective equipment as required.
P270 Do not eat, drink or smoke when using this product.

Response

P314 Get medical advice/attention if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER/doctor/physician.
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.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P363 Wash contaminated clothing before reuse.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 IF SWALLOWED: Rinse mouth.
P331 IF SWALLOWED: Do NOT induce vomiting.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

P405 Store locked up.

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:

Mixture

Ingredient name	Content (%)	CAS No.	ENCS	Chemical formula
Potassium hydroxide	39	1310-58-3	1-369	KOH
Potassium iodide	9.9	7681-11-0	1-439	IK
Sodium azide	0.66	26628-22-8	1-482	NaN3
Water	50	7732-18-5	-	H2O

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

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.

Wash with plenty of soap and water.

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.

Do NOT induce vomiting.

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.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

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

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

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.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Do not handle until all safety precautions have been read and understood.
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

Avoid contact during pregnancy and while nursing.
Wash contaminated parts thoroughly after handling.
Do not eat, drink or smoke when using this product.
Take off immediately all contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.
Store locked up. (P405)

Store in a cool, dry place. Do not store in direct sunlight.
Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Use closed unbreakable containers.

Section 8. Exposure controls/personal protection

Control parameters

Control value and concentration standard value are not available in ISHA.

Adopted value

(Potassium hydroxide)
JSOH(1978) (ceiling) 2mg/m3
(Potassium hydroxide)
ACGIH(1992) STEL: C 2mg/m3 (URT, eye & skin irr)
(Potassium iodide)
ACGIH(2022) TWA: 0.01mg-I/m3(I) (Thyroid & maternal repro eff; fetal & neonatal dam)
(Sodium azide)
ACGIH(1996) STEL: C (as Sodium azide) 0.29mg/m3; (as Hydrazoic acid vapor) 0.11ppm (Card impair; lung dam)

[ACGIH] Notation

(Potassium iodide)
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: Liquid
Color: Colorless
Odor: None
Melting point/Freezing point data is not available.
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 data is not available.
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water: Soluble
Solubility in solvent data is not available.
n-Octanol/water partition coefficient data is not available.
Vapor pressure data is not available.
Density and/or relative density: 1.52
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
(Potassium hydroxide)
The solution in water is a strong base. It reacts violently with acid and is corrosive to metals such as aluminium, tin, lead and zinc. This produces a combustible/explosive gas (hydrogen). Reacts with ammonium salts. This produces ammonia. This generates fire hazard. Contact with moisture and water may generate heat. (ICSC 0357)
(Potassium iodide)
May react with oxidizing agents.
(Sodium azide)
Decomposes on heating above 275℃. This produces toxic fumes. This generates fire and explosion hazard. Reacts with copper, lead, silver, mercury and carbon disulfide. This produces particularly shock-sensitive compounds. Reacts with acids. This produces toxic and explosive hydrogen azide.(ICSC 0950)
Conditions to avoid
Contact with incompatible materials.
Contact with fire source.
Incompatible materials
Acids, Oxidizing agents, Ammonium salts, Copper, Lead, Silver, Mercury, Carbon disulfide, Metals
Hazardous decomposition products
Hydrogen azide, Hydrogen, Iodine compounds

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]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
rat LD50=273mg/kg (SIDS, 2004)
(Sodium azide)
rat LD50=45mg/kg (DFGOT vol.20, 2003)
Acute toxicity (Dermal)
[Product]
Category 3, Toxic in contact with skin
[Data for components of the product]
[GHS Cat. Japan, base data]
(Sodium azide)
rabbit LD50=20mg/kg (ACGIH, 2001)
Irritant properties
Skin corrosion/irritation
[Product]
Category 1, Causes severe skin burns and eye damage
[Data for components of the product]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
rabbit/human corrosive (SIDS, 2004; ECETOC TR66, 1995; JSOH, 1978; PATTY 6th, 2012)
(Sodium azide)
rabbit corrosive (DFGOT vol.20, 2003)
Serious eye damage/irritation
[Product]
Category 1, Causes serious eye damage
[Data for components of the product]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
rabbit corrosive (SIDS, 2004; JSOH, 1978; PATTY 6th, 2012)
(Potassium iodide)
rabbit only slight reaction (HSDB, 2015)
(Sodium azide)
Skin Corr. cat. 1
Allergenic and sensitizing effects data is not available.
Mutagenic effects data is not available.
Carcinogenicity
[Data for components of the product]
[ACGIH]
(Potassium iodide)
A4(2022) : Not Classifiable as a Human Carcinogen
(Sodium azide)
A4(1996) : Not Classifiable as a Human Carcinogen
Reproductive toxicity
[Product]
Category 1B, May damage fertility or the unborn child
Additional category, May cause harm to breast-fed children
[Data for components of the product]

[GHS Cat. Japan, base data]
(Potassium iodide)
cat. 1B; CICAD 72, 2009; ATSDR, 2004
cat. add; CICAD 72, 2009; ATSDR, 2004

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]
Category 1, Causes damage to organs
Category 2, May cause damage to organs

[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
respiratory system (ACGIH 7th, 2001; SIDS, 2004; PATTY 6th, 2012)
(Potassium iodide)
thyroid (ATSDR, 2004)

STOT-repeated exposure

[Product]
Category 1, Causes damage to organs through prolonged or repeated exposure
Category 2, May cause damage to organs through prolonged or repeated exposure

[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
respiratory system (ACGIH 7th, 2001)
(Potassium iodide)
thyroid, skin, systemic toxicity (CICAD 72, 2009; Medicine data, 2016(2015))

Aspiration hazard

[Product]
Category 1, May be fatal if swallowed and enters airways

[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Potassium hydroxide)
cat. 1; ACGIH 7th, 2001; SIDS, 2004

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]
Category 3, Harmful to aquatic life
Category 3, Harmful to aquatic life with long lasting effects

[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[GHS Cat. Japan, base data]
(Sodium azide)
Algae (Pseudokirchneriellasubcapitata) ErC50=0.348mg/L/96hr (Aquire, 2010)

Water solubility

(Potassium hydroxide)

110 g/100 ml (25℃) (ICSC, 2010)
(Potassium iodide)
148 g/100 g (HSDB, 2010)
(Sodium azide)
good (41.7 g/100 ml, 17℃) (ICSC, 2014)

Persistence and degradability

[Data for components of the product]

(Sodium azide)

Degradation measured by HPLC : 1% (METI existing chemical safety inspections)

Bioaccumulative potential

[Data for components of the product]

(Sodium azide)

log Pow <= 0.3 (Check & Review, Japan)

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

Avoid release to the environment.
Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 2922
UN Proper Shipping Name :
CORROSIVE LIQUID, TOXIC, N.O.S.
Class or division (Transport hazard class) : 8
Subsidiary hazard(s) : 6.1
Packing group : II
ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 2922
UN Proper Shipping Name :
CORROSIVE LIQUID, TOXIC, N.O.S.
Class or division (Transport hazard class) : 8
Subsidiary hazard(s) : 6.1
Packing group : II

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 2922
UN Proper Shipping Name :
CORROSIVE LIQUID, TOXIC, N.O.S.
Class or division (Transport hazard class) : 8
Subsidiary hazard(s) : 6.1
Hazard labels : Corrosive & Toxic

Packing group : II

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

Potassium hydroxide; Potassium iodide; Water; Sodium azide

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 Japan official data (NITE published in 2022).