



Safety Data Sheet

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

Product identifier:

Product name: Niobium,standard solution(1,000mg/L)

SDS No. : H5444E-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

e-mail address: kagakuhinanzenkanri@kishida.co.jp

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Acute toxicity (Inhalation): Category 3

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2

Specific target organ toxicity – single exposure: Category 2(cardiovascular system, respiratory system)

Specific target organ toxicity – repeated exposure: Category 2(teeth, bone)

Label elements



Signal word: Danger

HAZARD STATEMENT

Harmful if swallowed

Toxic if inhaled

Causes skin irritation

Causes serious eye irritation

May cause damage to organs(cardiovascular system, respiratory system)

May cause damage to organs through prolonged or repeated exposure(teeth, bone)

PRECAUTIONARY STATEMENT

Prevention

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

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves.

Wear eye protection/face protection.

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

Response

Get medical advice/attention if you feel unwell.



IF exposed or concerned: Call a POISON CENTER/doctor/physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

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

IF SWALLOWED: Rinse mouth.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Disposal

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

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name:Water

Content (%):98

Chemical formula:H₂O

CAS No.:7732-18-5

MW:18.02

ECNO:231-791-2

Ingredient name:Hydrofluoric acid

Content (%):1.1

Chemical formula:FH

CAS No.:7664-39-3

MW:20.0

ECNO:231-634-8

Ingredient name:Nitric acid

Content (%):0.82

Chemical formula:HNO₃

CAS No.:7697-37-2

MW:63.01

ECNO:231-714-2

Ingredient name:Niobium

Content (%):0.10

Chemical formula:Nb

CAS No.:7440-03-1

ECNO:231-113-5

Note : The figures shown above are not the specifications of the product. The content of products may exceed the figures shown above.



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 (or hair)

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.

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

Containers may explode when heated.

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

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 full face piece operated positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

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

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

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.

Take off contaminated clothing and wash it before reuse.

Storage**Conditions for safe storage**

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Keep under lock and key.

Container and packaging materials for safe handling

Polyethylene

Section 8. Exposure controls/personal protection**Control parameters****Adopted value**

(Hydrofluoric acid)

ACGIH(2004) TWA: 0.5ppm;

STEL: C 2ppm (URT, LRT, skin & eye irr; fluorosis)

(Nitric acid)

ACGIH(1997) TWA: (2ppm);

STEL: (4ppm) (URT & eye irr; dental erosion)

Notation

(Hydrofluoric acid)

Skin

OSHA-PEL

(Hydrofluoric acid)

TWA: 3ppm

(Nitric acid)

TWA: 2ppm, 5mg/m³

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
 - Respiratory protection
 - Wear respiratory protection.
 - Hand protection
 - Wear protective gloves.
 - Eye protection
 - Wear eye/face protection.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

- Physical state: Liquid
- Color: Colorless, Clear
- Odor: Odourless to practically odourless
- 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
 - n-Octanol/water partition coefficient data is not available.
 - Vapor pressure data is not available.
 - Density and/or relative density: 1.0
 - Relative vapor density (Air=1) data is not available.
 - Particle characteristics data is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(As Hydrofluoric acid)

The vapour is heavier than air.

The substance is a weak acid. Reacts violently with many compounds. This generates fire and explosion hazard. It reacts violently with bases and is corrosive to most common metals forming a flammable/explosive gas (hydrogen). Attacks glass, some forms of plastic, rubber and coatings. (ICSC 1777)

(Nitric acid)

Decomposes on warming. This produces toxic and irritating fumes and gases including nitrogen oxides. The substance is a strong oxidant. It reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. The substance is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas (hydrogen). Reacts violently with organic compounds. (ICSC 0183)

Conditions to avoid



Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Bases, Reducing agents, Metals, Combustible materials, Organic compounds

Hazardous decomposition products

Nitrogen oxides, Hydrogen, Fluorine compounds

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

human LD=1.5g or 20mg/kg (Clinical Toxicology, 2009)

Acute toxicity (Dermal)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

It has been reported that chemical burns of 7% body surface area by 50–70% hydrofluoric acid can be fatal. (Clinical Toxicology, 2009)

Acute toxicity (Inhalation)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

It has been reported that the lethal concentration of fume is 50–250ppm (mist converted value: 0.0008–0.004mg/L/4hr) or more. (Clinical Toxicology, 2009)

(Nitric acid)

vapor: rat LC50=49ppm/4hr (JSOH, 1982)

Irritant properties

Skin corrosion/irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

rabbit (OECD TG404, 5% aqueous solution) destruction of skin tissue, not recover within 14days (REACH Registration dossier, Accessed Nov. 2021)

(Nitric acid)

human severe damage (ACGIH 7th, 2001)

Serious eye damage/irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

Anterior eye disorder (Simple chemical substances or compounds (including alloys)

designated by the Minister of Labor based on the Ordinance for Enforcement of the Labor Standards Act, MOL Announcement No. 33, 1996)

(Nitric acid)

human non recoverable corneal opacity to blindness (ACGIH 7th, 2001)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT–single exposure



[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

cardiovascular system, respiratory system (JSOH OEL Documentations, 2020)

STOT-repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

teeth, bone (JSOH OEL Documentations, 2020)

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Data for components of the product]

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

Crustacea (Gammaridea) EC50=73.3mg/L/96hr (Calculated from test data of NaF (EC50=38.28mg-F/L/96hr)) (ECETOC TR91, 2003)

(Nitric acid)

Fish (Gambusia affinis) LC50=72mg/L/96hr (SIDS, 2010)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Hydrofluoric acid)

Fish (Atheriniformes) NOEC >=8.6mg/L/28days (Calculated from test data of NaF (NOEC=9.9mg/L/28days)) (MOE Japan, 2017)

Water solubility

(Hydrofluoric acid)

miscible (ICSC, 2000)

(Nitric acid)

miscible (ICSC, 2006)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

[Data for components of the product]

(Nitric acid)

log Pow=-0.21 (ICSC, 2006)

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 in accordance with local/national regulation.



Section 14. Transport Information

UN No. or ID No.: Not applicable

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Y

Nitric acid

Non Noxious Liquid ; Cat. OS

Water

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

Niobium; Hydrofluoric acid; Nitric acid; Water

Other regulatory information

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

Section 16. Other information

GHS classification and labelling

Acute toxicity, Category 4: H302 Harmful if swallowed

Acute toxicity, Category 3: H331 Toxic if inhaled

Skin corrosion/irritation, Category 2: H315 Causes skin irritation

Serious eye damage/eye irritation, Category 2: H319 Causes serious eye irritation

STOT – single exposure, Category 2: H371 May cause damage to organs

STOT – Repeated exposure, Category 2: H373 May cause damage to organs through prolonged or repeated exposure

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

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 2021).