

## Safety Data Sheet

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

**Product identifier:**

Product name: Nitric acid (1.42)

Reference number(SDS):37325jis\_E2-4

**Product type:**

Reagent

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses of the product: Research and Development

Uses advised against: Do not use for other purposes.

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

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### Section 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Oxidizing liquids: Category 3

Corrosive to metals: Category 1

**HEALTH HAZARDS**

Acute toxicity (Inhalation): Category 1

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity – single exposure: Category 1 (respiratory organs)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory organs, teeth)

**ENVIRONMENT HAZARDS**

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

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

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

H272–May intensify fire; oxidizer

H290–May be corrosive to metals

H330–Fatal if inhaled

H314–Causes severe skin burns and eye damage

H318–Causes serious eye damage

Nitric acid (1.42), JUNSEI CHEMICAL CO., LTD., 37325jis\_E2-4, 11/Nov/2024

H370–Causes damage to organs

H372–Causes damage to organs through prolonged or repeated exposure

H402–Harmful to aquatic life

**PRECAUTIONARY STATEMENT****Prevention**

Avoid release to the environment.

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

Keep away from clothing and other combustible materials.

Keep only in original packaging.

Do not breathe vapors.

In case of inadequate ventilation wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

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

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

**Response**In case of fire: Use CO<sub>2</sub>, water in large amounts to extinguish.

Absorb spillage to prevent material-damage.

Get medical advice/attention if you feel unwell.

Immediately call a POISON CENTER/doctor/physician.

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 (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash contaminated clothing before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**Storage**

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

Store locked up.

**Disposal**

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

**Specific Physical and Chemical hazards**

Oxidizing material. Organic or combustible material may catch fire in contact with it.

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**Section 3. Composition/information on ingredients****Mixture/Substance selection:****Mixture**

Ingredient name:Nitric acid

Content (%):69~70

Chemical formula:HNO<sub>3</sub>

ENCS:1-394

CAS No.:7697-37-2

MW:63.01

EC No.:231-714-2

Ingredient name:Water

Content (%):Residual quantity of the ingredient mentioned above

Chemical formula:H<sub>2</sub>O

CAS No.:7732-18-5

MW:18.02

EC No.:231-791-2

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.
- Immediately call a POISON CENTER/doctor/physician.

**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.
- 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.
- Call a POISON CENTER/doctor/physician if you feel unwell.
- Give nothing to drink.

## Most important symptoms and effects, both acute and delayed

## (Symptoms when inhalation or ingestion)

- Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing.
- Burns in mouth and throat. Abdominal pain. Vomiting. Shock or collapse.

## (Symptoms when skin and/or eye contact)

- Pain. Redness of the eyes. Yellow staining of the skin. Severe burns.

## Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
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**Section 5. Fire-fighting measures**

## Extinguishing media

## Suitable extinguishing media

- In case of fire, use CO<sub>2</sub>, water in large amounts to extinguish.
- Not combustible but enhances combustion of other substances.

## Unsuitable extinguishing media

- Foam.

## Specific hazards arising from the substance or mixture

- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may cause pollution.

## Advice for firefighters

## Specific fire-fighting measures

- Evacuate non-essential personnel to safe area.
- Cool container with water spray.
- NO direct contact of the substance with water.

## 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.

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## Section 6. Accidental release measures

### Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

**PUBLIC SAFETY:** Ventilate closed spaces before entering.

### Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

### Methods and materials for containment and cleaning up

Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Do NOT absorb in saw-dust or other combustible absorbents.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Cautiously neutralize remainder with sodium carbonate. Then wash away with plenty of water.

### Preventive measures for secondary accident

Absorb spillage to prevent material-damage.

Collect spillage.

Stop leak if you can do it without risk.

**ELIMINATE** all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

Do not get water inside containers.

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## Section 7. Handling and storage

### Precautions for safe handling

#### Preventive measures

(Exposure Control for handling personnel)

Do not breathe vapors.

(Protective measures against fire and explosion)

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

Keep away from clothing and other combustible materials.

(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.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Fire or Explosion : Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars etc.).

Reaction with water may generate much heat which will increase the concentration of fumes in the air.

Reaction with water or moist air will release toxic, corrosive or flammable gases.

#### Any incompatibilities

Bases, Reducing agents, Metals, Combustible substances containing organic compounds should not be mixed with the chemicals.

#### Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

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

Wash contaminated clothing before reuse.

**Storage**

## Conditions for safe storage

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

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

## (Incompatible storage condition)

The product may corrode metal. Do not keep in a metal container.

## Container and packaging materials for safe handling

Keep only in original packaging.

Store in a corrosion resistant/specified container with a resistant inner liner.

## Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See

Section 8 for exposure controls and personal protection recommendations.

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**Section 8. Exposure controls/personal protection**

## Control parameters

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

## Adopted value

(Nitric acid)

JSOH(1982) 2ppm; 5.2mg/m<sup>3</sup>

ACGIH(1997) TWA: (2ppm);

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

## 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

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).

Recommended respiratory protection: Self-Contained Breathing Apparatus (SCBA)

## Hand protection

Wear protective gloves. Recommended material(s): viton

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

## Eye protection

Wear chemical safety goggle.

Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

## Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

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**Section 9. Physical and Chemical Properties**

## Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Irritant odor

Odor threshold: 0.75~2.50mg/m<sup>3</sup> (as HNO<sub>3</sub>)

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.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: Strong acidic

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Miscible

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: ca. 1.42 g/mL

Relative vapor density (Air=1) data is not available.

Relative density of the Vapor/air - mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

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## Section 10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

When exposed to light, it gradually turns yellowish red.

Possibility of hazardous reactions

Decomposes on warming. This produces toxic and irritating fumes and gases.

This product reacts violently with combustible and reducing materials, such as turpentine, charcoal and alcohol. This product is a strong acid. It reacts violently with bases and is corrosive to metals. This produces flammable/explosive gas.

Reacts violently with organic compounds.

Conditions to avoid

Contact with incompatible materials.

Heating. Light.

Incompatible materials

Bases. Reducing agents. Metals. Combustible substances containing organic compounds.

Hazardous decomposition products

Nitrogen oxides. Hydrogen gas.

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## Section 11. Toxicological Information

The product has not been subjected to toxicological testing. Refer to the available data on the constituents.

## Information on toxicological effects

## Acute toxicity

## Acute toxicity (Oral)

## [Product]

Classification not possible (Insufficient data available or no data available).

## [Data for components of the product]

No data available.

## Acute toxicity (Dermal)

## [Product]

Classification not possible (Insufficient data available or no data available).

## [Data for components of the product]

No data available.

## Acute toxicity (Inhalation)

## [Product]

Category 1, Fatal if inhaled

## [Data for components of the product]

[GHS Cat. Japan, base data]

(Nitric acid)

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

## Irritant properties

## Skin corrosion/irritation

## [Product]

Category 1, Causes severe skin burns and eye damage

## [Product data]

[GHS Cat. based on pH]

pH <= 2, accordingly Skin corrosion/irritation: Category 1

## [Data for components of the product]

[GHS Cat. Japan, base data]

(Nitric acid)

human severe damage (ACGIH 7th, 2001)

## Serious eye damage/irritation

## [Product]

Category 1, Causes serious eye damage

## [Product data]

[GHS Cat. based on pH]

pH <= 2, accordingly Serious eye damage/eye irritation: Category 1

## [Data for components of the product]

[GHS Cat. Japan, base data]

(Nitric acid)

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

## Sensitization

## Respiratory sensitization

## [Product]

Classification not possible (Insufficient data available or no data available).

## [Data for components of the product]

No data available.

## Skin sensitization

## [Product]

Classification not possible (Insufficient data available or no data available).

## [Data for components of the product]

No data available.

## Germ cell mutagenicity

## [Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

[GHS Cat. Japan, base data]

(Nitric acid)

Reverse-mutation assay in bacteria (Ames test) :Negative(SIDS, 2010 et al.)

#### Carcinogenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

#### Reproductive toxicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

#### Teratogenic effects

[GHS Cat. Japan, base data]

(Nitric acid)

The teratogenicity and fetal toxicity do not occur and there is only a slight ossification inhibition of cranial bone in embryo in the drinking water administration test to pregnancy rat. (IUCRID, 2000)

#### Specific target organ toxicity (STOT)

##### STOT-single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Nitric acid)

respiratory organs (SIDS, 2010)

##### STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

(Nitric acid)

teeth, respiratory organs (SIDS, 2010)

#### Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

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## Section 12. Ecological Information

The product has not been subjected to ecotoxicological testing. Refer to the available data on the constituents.

#### Ecotoxicity

##### Aquatic toxicity

[Product]

Category 3, Harmful to aquatic life

[Data for components of the product]

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



[GHS Cat. Japan, base data]

(Nitric acid)

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

Water solubility

[Data for components of the product]

(Nitric acid)

miscible (ICSC, 2016)

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, 2016)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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### 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 in accordance with local/national regulation.

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### Section 14. Transport Information

UN No., UN CLASS

UN Number or ID Number : 2031

UN Proper Shipping Name :

NITRIC ACID, other than red fuming, with at least 65%, but not more than 70% nitric acid

Class or division (Transport hazard class) : 8

Subsidiary hazard(s) : 5.1

Packing group : II

ERG GUIDE No.: 157

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 2031

UN Proper Shipping Name :

NITRIC ACID, other than red fuming, with at least 65%, but not more than 70% nitric acid

Class or division (Transport hazard class) : 8

Subsidiary hazard(s) : 5.1

Packing group : II

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 2031

UN Proper Shipping Name :

NITRIC ACID, other than red fuming, with at least 65%, but not more than 70% nitric acid

Class or division (Transport hazard class) : 8

Subsidiary hazard(s) : 5.1

Hazard labels : Corrosive & Oxidizer

Packing group : II

Environmental hazards

Marine pollutants (yes/no) : no

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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Noxious Liquid Substances ; Cat. Y

Nitric acid

Non Noxious Liquid Substances ; Cat. OS

Water

MARPOL Annex V – HME (Harmful to the Marine Environment)

Specific target organ toxicity – repeated exposure: cat.1

Nitric acid

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## Section 15. Regulatory Information

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

Labor Standards Act, Japan

Chemical substances or compounds (including alloys) causing disease (Regulation, Appended Table 1-2-4-1)

Nitric acid

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

Chemicals listed in TSCA Inventory

7697-37-2; 7732-18-5

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Nitric acid

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

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

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

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## Section 16. Other information

GHS classification and labelling

H272–Oxidising Liquids, Category 3: H272 May intensify fire; oxidiser

H290–Corrosive to metals, Category 1: H290 May be corrosive to metals

H330–Acute toxicity, Category 1: H330 Fatal if inhaled

H314–Skin corrosion/irritation, Category 1: H314 Causes severe skin burns and eye damage

H318–Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

H370–STOT – single exposure, Category 1: H370 Causes damage to organs

H372–STOT – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

H402–Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life

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

Nitric acid (1.42), JUNSEI CHEMICAL CO., LTD., 37325jis\_E2-4, 11/Nov/2024

2023 Recommendation on TLVs (JSOH)

Notification No. 0111-1 (January 11, 2022), Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, MHLW in Japan

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.30 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

([https://www.chem-info.nite.go.jp/chem/chrip/chrip\\_search/systemTop](https://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop))

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May. 2024, METI)

#### Abbreviations and acronyms

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

METI (Ministry of Economy, Trade and Industry in Japan)

MHLW (Ministry of Health, Labour and Welfare in Japan)

MOE (Ministry of the Environment in Japan)

JSOH (Japan Society for Occupational Health)

ISHA (Industrial Safety and Health Act in Japan)

CSCL (Chemical Substances Control Law in Japan)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

#### 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 2022).