

## Safety Data Sheet

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

#### Product identifier:

Product name: Zirconium, standard solution 1000mg/L

Reference number(SDS):37692jis\_J\_E2-1

#### Product type:

Reagent

#### 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

### 2. Hazards identification

#### GHS classification and label elements of the product

#### Classification of the substance or mixture

##### PHYSICAL AND CHEMICAL HAZARDS

Corrosive to metals: Category 1

##### HEALTH HAZARDS

Acute toxicity (Inhalation): Category 3

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

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

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

#### Label elements



Signal word: Danger

#### HAZARD STATEMENT

H290-May be corrosive to metals

H331-Toxic if inhaled

H314-Causes severe skin burns and eye damage

H318-Causes serious eye damage

H371-May cause damage to organs after single exposure

H373-May cause damage to organs through prolonged or repeated exposure

#### PRECAUTIONARY STATEMENT

##### Prevention

Keep only in original container.

Do not breathe vapors.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

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

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

#### Response

Absorb spillage to prevent material damage.  
Get medical advice/attention if you feel unwell.  
Immediately call a POISON CENTER or doctor/physician.  
Call a POISON CENTER or doctor/physician.  
IF exposed or concerned: Call a POISON CENTER or 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/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.

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### 3. Composition/information on ingredients

#### Mixture/Substance selection:

##### Mixture

Ingredient name:Zirconium dinitrate oxide  
Content (%):0.29  
Chemical formula:N2O7Zr  
Chemicals No, Japan:1-721  
CAS No.:13826-66-9  
MW:267.26  
ECNO:237-529-3

Ingredient name:Nitric acid  
Content (%):6.3  
Chemical formula:HNO3  
Chemicals No, Japan:1-394  
CAS No.:7697-37-2  
MW:63.01  
ECNO:231-714-2

Ingredient name:Water  
Content (%):Residual quantity of the ingredient mentioned above.  
Chemical formula:H2O  
CAS No.:7732-18-5  
MW:18.02  
ECNO:231-791-2

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

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### 4. First-aid measures

#### Descriptions of first-aid measures

##### General measures

Get medical attention/advice if you feel unwell.  
Immediately call a POISON CENTER or doctor/physician.  
Keep victim warm and quiet.

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

Call emergency medical service.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

#### IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

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

#### IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

If skin irritation or rash occurs: Get medical advice/attention.

For minor skin contact, avoid spreading material on unaffected skin.

Remove and isolate contaminated clothing and shoes.

#### 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 or doctor/physician if you feel unwell.

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## 5. Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

The product is non-flammable.

#### 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.

Runoff from fire control or dilution water may cause pollution.

### Advice for firefighters

#### Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

#### Special protective equipment and precautions for fire-fighters

Wear fire/ flame resistant/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.

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## 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.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

#### Environmental precautions

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

#### 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.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

#### Preventive measures for secondary accident

Absorb spillage to prevent material damage.

Collect spillage.

Stop leak if you can do it without risk.

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

Keep out of low areas.

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## 7. Handling and storage

### Precautions for safe handling

#### Preventive measures

(Exposure Control for handling personnel)

Do not breathe vapors/fume.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – 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/eye protection/face protection.

When using do not eat, drink or smoke.

#### Any incompatibilities

Bases, Metals 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 container.

Store in 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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## 8. Exposure controls/personal protection

### Control parameters

Control value in MHLW is not available.

### Adopted value

(Nitric acid)

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

ACGIH(1992) TWA: 2ppm;

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

(Zirconium dinitrate oxide)

Adopted value in JSOH is not available.

ACGIH(1992) TWA: 5mg-Zr/m<sup>3</sup>

STEL: 10mg-Zr/m<sup>3</sup> (Resp irr)

### 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.

Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

##### Eye protection

Wear eye/face protection.

##### Skin and body protection

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

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## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless-clear

Odor: Irritant odor

Odor threshold data is not available.

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): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point: Non-flammable

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

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

pH: pH <= 2(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.

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

Vapor pressure data is not available.  
Vapor density data is not available.  
VOC data is not available.  
Evaporation rate data is not available.  
Density and/or relative density data is not available.  
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.  
Critical temperature data is not available.  
No Particle characteristics data is not available.

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## 10. Stability and Reactivity

### Reactivity

Reactivity data is not available.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

Possibility of hazardous reactions data is not available.

### Conditions to avoid

Contact with incompatible materials.

Heat.

### Incompatible materials

Bases, Strong oxidizing agents, Metals

### Hazardous decomposition products

Nitrogen oxides, Metal oxides

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

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

Labor standard law, Japan; Toxic

Nitric acid

#### Irritant properties

Skin corrosion/irritation

[GHS Cat. based on pH]

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

[GHS Cat. Japan, base data]

(Nitric acid) human : severe damage (ACGIH 7th, 2001)

Serious eye damage/irritation

[GHS Cat. based on pH]

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

[GHS Cat. Japan, base data]

(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.

#### Carcinogenicity

(Zirconium dinitrate oxide)

ACGIH-A4(1992) : Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

**STOT**

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Nitric acid) respiratory system (SIDS, 2010)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Nitric acid) respiratory system; teeth (SIDS, 2010)

Aspiration hazard data is not available.

Information on other hazards

Data on the preparation itself is not available.

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**12. Ecological Information**

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

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

Water solubility

(Nitric acid) miscible (ICSC, 2006)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

(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.

Additional data

Data on the preparation itself is not available.

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**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.

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**14. Transport Information**

UN No., UN CLASS

UN No. or ID No.: 2031

UN Proper Shipping Name : NITRIC ACID, other than red fuming, with 20% or less nitric acid

Class or division (Transport hazard class) : 8

Packing group : II

ERG GUIDE No.: 157

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 2031

Proper Shipping Name : NITRIC ACID, other than red fuming, with 20% or less nitric acid

Class or division : 8

Packing group : II

Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

IATA Dangerous Goods Regulations

UN No.: 2031

Proper Shipping Name : NITRIC ACID, other than red fuming, with 20% or less nitric acid

Class or division : 8

Hazard labels : Corrosive

Packing group : II

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(Y-206)

Non Noxious Liquid ; Cat. OS

Water(OS-18)

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## 15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Zirconium dinitrate oxide; Nitric acid; Water

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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## 16. Other information

GHS classification and labelling

H290-Corr. Met. 1: H290 May be corrosive to metals

H331-Acute Tox. 3: H331 Toxic if inhaled

H314-Skin Corr. 1: H314 Causes severe skin burns and eye damage

H318-Eye Dam. 1: H318 Causes serious eye damage

H371-STOT SE 2: H371 May cause damage to organs after single exposure

H373-STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure

Reference Book

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)

2020 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2020 Recommendation on TLVs (JSOH)

Supplier's data/information



Zirconium, standard solution 1000mg/L,  
JUNSEI CHEMICAL CO., LTD.,37692jis\_J\_E2-1,09/04/2021

Chemicals safety data management system "GHS Assistant" Version 4.11 (<https://www.asahi-ghs.com/>)  
NITE Chemical Risk Information Platform "NITE-CHRIP"  
([https://www.nite.go.jp/en/chem/chrip/chrip\\_search/systemTop](https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop))  
GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

#### Definitions and Abbreviations

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)  
JSOH (Japan Society for Occupational Health)  
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 2019).