

Nickel(II) potassium cyanide monohydrate,  
JUNSEI CHEMICAL CO., LTD.,33330jis\_E1-3,23/Jan/2025

Date of issue for the 1st edition : 21/Apr/2014

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## Safety Data Sheet

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

Product identifier:

Product name: Nickel(II) potassium cyanide monohydrate

Reference number(SDS):33330jis\_E1-3

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

#### HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Respiratory sensitization: Category 1

Skin sensitization: Category 1

Carcinogenicity: Category 1A

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (central nervous system)

#### 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

H334-May cause allergy or asthma symptoms or breathing difficulties if inhaled

H317-May cause an allergic skin reaction

H350-May cause cancer

H335-May cause respiratory irritation

H372-Causes damage to organs through prolonged or repeated exposure

H402-Harmful to aquatic life

H412-Harmful to aquatic life with long lasting effects

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## PRECAUTIONARY STATEMENT

### Prevention

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid release to the environment.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- In case of inadequate ventilation wear respiratory protection.
- Use only outdoors or in a well-ventilated area.
- Wash contaminated parts thoroughly after handling.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves/protective clothing/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: Get medical advice/attention.
- Call a POISON CENTER/doctor/physician if you feel unwell.
- If experiencing respiratory symptoms: 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 or rash occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER/doctor/physician.

### 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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## Section 3. Composition/information on ingredients

### Mixture/Substance selection:

#### Substance

Common name, synonyms: Potassium tetracyanonickelate (II) monohydrate

Ingredient name: Nickel(II) potassium cyanide monohydrate

Content (%): 100

Chemical formula:  $C_4K_2N_4Ni \cdot H_2O$

ENCS: 1-1092

CAS No.: 14323-41-2 [14220-17-8(anh)]

MW: 258.98

EC No.: 238-082-7(anh)

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

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## Section 4. First-aid measures

### Descriptions of first-aid measures

#### General measures

- Get medical advice/attention if you feel unwell.
- Keep victim warm and quiet.
- 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.

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**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.  
If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.  
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.  
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.  
Immediately call a POISON CENTER/doctor/physician.  
Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

Specific information on symptom and effect are unknown.

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**

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 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.

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Wear proper protective equipment.

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

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

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

All equipment used when handling the product must be grounded.

Cover with DRY earth, DRY sand, or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.

Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

#### Preventive measures for secondary accident

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.

Keep out of low areas.

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## 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

Obtain special instructions before use.

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

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.

#### Any incompatibilities

Strong acids, Oxidizing agents 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.

Contaminated work clothing should not be allowed out of the workplace.

Take off contaminated clothing and wash it 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.

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Store locked up.

Container and packaging materials for safe handling

Keep only in original packaging.

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

Japan control value 0.1mg-powder Ni/m<sup>3</sup>

Adopted value

JSOH(2011) 0.01mg-Ni/m<sup>3</sup> (soluble in water); 0.1mg-Ni/m<sup>3</sup> (Not soluble in water)

ACGIH(1998) TWA: 0.1mg-Ni/m<sup>3</sup>(I) (Lung dam; nasal cancer) (soluble compounds)

TWA: 0.2mg-Ni/m<sup>3</sup>(I) (Lung cancer) (insoluble compounds)

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).

Hand protection

Wear protective gloves.

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 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: crystal

Color: Orange

Odor data is not available.

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.

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pH data is not available.

Dynamic viscosity 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 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.

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

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.

Heating.

Incompatible materials

Strong acids, Oxidizing agents

Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Cyanide, Metal oxides.

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## 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-CHRIIP]

(Nickel(II) potassium cyanide)

mouse LD50: 275 mg/kg (source: NITE)

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]

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

[Data for components of the product]

No data available.

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#### Irritant properties

##### Skin corrosion/irritation

###### [Product]

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

###### [Data for components of the product]

No data available.

##### Serious eye damage/irritation

###### [Product]

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

###### [Data for components of the product]

No data available.

#### Sensitization

##### Respiratory sensitization

###### [Product]

Category 1, May cause allergy or asthma symptoms or breathing difficulties if inhaled

###### [Data for components of the product]

###### [NITE-CHRIP]

(Nickel(II) potassium cyanide)

Category 1 (source: NITE)

##### Skin sensitization

###### [Product]

Category 1, May cause an allergic skin reaction

###### [Data for components of the product]

###### [NITE-CHRIP]

(Nickel(II) potassium cyanide)

Category 1 (source: NITE)

#### Germ cell mutagenicity

###### [Product]

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

###### [Data for components of the product]

No data available.

#### Carcinogenicity

###### [Product]

Category 1A, May cause cancer

###### [Data for components of the product]

###### [NITE-CHRIP]

(Nickel(II) potassium cyanide monohydrate)

Category 1A (source: NITE)

###### [IARC]

(Nickel(II) potassium cyanide)

Group 1 : Carcinogenic to humans

###### [ACGIH]

(Nickel(II) potassium cyanide)

A1(as Ni)(1998) : Confirmed Human Carcinogen

###### [JSOH]

(Nickel(II) potassium cyanide)

Group 2B: The agents which are probably or possibly carcinogenic to humans

#### Reproductive toxicity

###### [Product]

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

###### [Data for components of the product]

No data available.

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Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 3, May cause respiratory irritation

[Data for components of the product]

[NITE-CHIRP]

(Nickel(II) potassium cyanide)

Category 3 (Respiratory tract irritation) (source: NITE)

STOT-repeated exposure

[Product]

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

[Data for components of the product]

[NITE-CHIRP]

(Nickel(II) potassium cyanide)

Category 1 (central nervous system) (source: NITE)

Aspiration hazard

[Product]

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

[Data for components of the product]

No data available.

Information on other hazards

Reference data : The anhydride of this product(CAS No.14220-17-8)

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## Section 12. Ecological Information

Ecotoxicity

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)

[NITE-CHIRP]

(Nickel(II) potassium cyanide)

Fish (*Poecilia reticulata*) 96-hour LC50: 39000 µg/L (source: NITE)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Additional information

Reference data : The anhydride of this product(CAS No.14220-17-8)

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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 : 1588  
UN Proper Shipping Name :  
CYANIDES, INORGANIC, SOLID, N.O.S.  
Class or division (Transport hazard class) : 6.1  
Packing group : III  
ERG GUIDE No.: 157

**IMDG Code (International Maritime Dangerous Goods Regulations)**

UN Number or ID Number : 1588  
UN Proper Shipping Name :  
CYANIDES, INORGANIC, SOLID, N.O.S.  
Class or division (Transport hazard class) : 6.1  
Packing group : III

**IATA (Dangerous Goods Regulations)**

UN Number or ID Number : 1588  
UN Proper Shipping Name :  
CYANIDES, INORGANIC, SOLID, N.O.S.  
Class or division (Transport hazard class) : 6.1  
Hazard labels : Toxic  
Packing group : III

**Environmental hazards**

Marine pollutants (yes/no) : yes

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

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Carcinogenicity: cat.1, 1A, 1B  
Nickel(II) potassium cyanide monohydrate  
Specific target organ toxicity – repeated exposure: cat.1  
Nickel(II) potassium cyanide monohydrate

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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 Table1-2-4-1)

Nickel(II) potassium cyanide monohydrate

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

Chemicals listed in TSCA Inventory

14323-41-2 [14220-17-8(anh)]

All components are listed or exempted.

**Superfund Amendments and Reauthorizations Act (SARA), Title III****SARA 313 (TRI)**

Nickel(II) potassium cyanide

**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).

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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

H301–Acute toxicity, Category 3: H301 Toxic if swallowed  
H334–Respiratory sensitization, Category 1: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H317–Skin sensitization, Category 1: H317 May cause an allergic skin reaction  
H350–Carcinogenicity, Category 1A: H350 May cause cancer  
H335–STOT – single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation.  
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  
H412–Hazardous to the aquatic environment, long-term (chronic), Category 3: H412 Harmful to aquatic life with long lasting effects

### 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)  
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 4.31 (<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)

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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 Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2023).