



Safety Data Sheet

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

Product identifier:

Product name: GR nitrate reagent

SDS No. : 3555E-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

Serious eye damage/eye irritation: Category 2

Skin sensitization: Category 1

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 2

Hazardous to the aquatic environment, long-term (chronic): Category 2

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

Label elements



Signal word: Warning

HAZARD STATEMENT

H319 Causes serious eye irritation

H317 May cause an allergic skin reaction

H411 Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P273 Avoid release to the environment.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash contaminated parts thoroughly after handling.

P280 Wear protective gloves.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear eye protection/face protection.

Response

P391 Collect spillage.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.



P362 + P364 Take off 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.

P337 + P313 If eye irritation persists: Get medical advice/attention.

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
Sulfanilic acid	80	121-57-3	3-1971	C ₆ H ₇ NO ₃ S
Zinc	12	7440-66-6	-	Zn
1-Naphthylamine	8.0	134-32-7	4-321	C ₁₀ H ₉ N

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

Impurities

Zinc oxide $\leq 0.60\%$ (CAS No.1314-13-2)

Lead $\leq 0.024\%$ (CAS No.7439-92-1)

Cadmium $< 0.012\%$ (CAS No.7440-43-9)

Section 4. First-aid measures

Descriptions of first-aid measures

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

IF INHALED: 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.

IF SWALLOWED: 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

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

Solid: Sweep up, place in a bag and hold for waste disposal.

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

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



Wash contaminated parts thoroughly after handling.
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**

Keep container tightly closed.
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****Administrative Control Levels and Concentration standard value**

(Lead)

Japan control value 0.05mg-Pb/m³

(Cadmium)

Japan control value 0.05mg-Cd/m³

Occupational Exposure Limit**The Japan Society for Occupational Health**

(Zinc oxide)

0.5mg/m³ (nano particles)

(Lead)

0.03mg-Pb/m³

(Cadmium)

0.05mg-Cd/m³

(Other inorganic and organic dust (third class dust))

JSOH Respirable dust 2mg/m³, Total dust 8mg/m³

ACGIH

(Zinc oxide)

TWA: 2mg/m³(R); STEL: 10mg/m³(R) (Metal fume fever)

(Lead)

TWA: 0.05mg-Pb/m³ (CNS & PNS impair; hematologic eff)

(Cadmium)

TWA: 0.01mg-Cd/m³; TWA: 0.002mg-Cd/m³(R) (Kidney dam)

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: Powder

Color: Light gray

Odor 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) 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: Insoluble

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.

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

(Sulfanilic acid)

Decomposes on heating at 288°C, on burning and on contact with strong acids. This produces toxic fumes including nitrogen oxides and sulfur oxides. Reacts violently with strong bases. (ICSC 0569)

(Zinc)

Ignites in air when finely divided. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

On combustion forms zinc oxide fumes. The substance is a strong reducing agent. It reacts violently with oxidants, acids and bases. Reacts with water. This produces flammable/explosive gas (hydrogen). Reacts violently with sulfur, halogenated hydrocarbons and many other substances. This generates fire and explosion hazard. (ICSC 1205)

(1-Naphthylamine)



Decomposes on burning. This produces nitrogen oxides and carbon monoxide. The substance is a weak base. (ICSC 0518)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Acids, Bases, Oxidizing agents, Sulfur, Halogenated hydrocarbons, Water

Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Sulfur oxides, Zinc oxide, Hydrogen

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[NITE-CHRIP]

(Sulfanilic acid)

rat LD50: 12300 mg/kg (Technical grade) (source: NITE)

(Zinc)

rat LD50: > 2000 mg/kg (source: NITE)

(1-Naphthylamine)

rat LD50: 680 mg/kg (source: NITE)

(Zinc oxide)

rat LD50: > 5000 mg/kg (source: NITE)

(Cadmium)

rat LD50: 1140 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]

(1-Naphthylamine)

rat LD50: 447 mg/kg (source: NITE)

(Zinc oxide)

rabbit LD50: > 5000 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]

(Zinc)

dust/mist: rat LC50: 5410 mg/m³ (OECD TG 403) (source: NITE)

(Zinc oxide)

dust/mist: rat LC50: > 5.7 mg/L (4-hour) (source: NITE)

(Cadmium)

dust/mist: rat LC50: 0.0031 mg/L (source: NITE)

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation

[Product]

Category 2, Causes serious eye irritation

[Data for components of the product]

[NITE-CHRIP]



(Sulfanilic acid)

Category 2A (source: NITE)

(Zinc)

Category 2B (source: NITE)

(1-Naphthylamine)

Category 2B (source: NITE)

Sensitization

Skin sensitization

[Product]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[NITE-CHRIP]

(Sulfanilic acid)

Category 1 (source: NITE)

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]

[IARC]

(1-Naphthylamine)

Group 3 : Not classifiable as to its carcinogenicity to humans

(Lead)

Group 2B : Possibly carcinogenic to humans

(Cadmium)

Group 1 : Carcinogenic to humans

[ACGIH]

(Lead)

A3(as Pb): Confirmed Animal Carcinogen with Unknown Relevance to Humans

(Cadmium)

A2(as Cd): Suspected Human Carcinogen

[NTP]

(Lead)

RAHC : Reasonably Anticipated to be Human Carcinogens

(Cadmium)

Known : Known to be Human Carcinogens

[EU]

(Cadmium)

Category 1B; Substances presumed to have carcinogenic potential for humans

Reproductive toxicity

[Data for components of the product]

[NITE-CHRIP]

(Zinc oxide)

Category 2 (source: NITE)

Specific target organ toxicity (STOT)

STOT-single exposure

[Data for components of the product]

[NITE-CHRIP]

(1-Naphthylamine)

Category 2 (blood) (source: NITE)

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

**Information on other hazards**

May cause lung disorders by massive inhalation of powdered substance.

–e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

Section 12. Ecological Information**Toxicity****Aquatic toxicity****[Product]**

Category 2, Toxic to aquatic life

Category 2, Toxic to aquatic life with long lasting effects

[Data for components of the product]

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

[NITE-CHRIP]

(Sulfanilic acid)

Fish (*Pimephales promelas*) 96-hour LC50: 100.4 mg/L (source: NITE)

(Zinc)

Algae (*Pseudokirchneriella subcapitata*) 72-hour ErC50: 0.15 mg/L (source: NITE)

(Zinc oxide)

Crustacea (*Daphnia magna*) 48-hour LC50: 0.098 mg Zn/L (source: NITE)

(Cadmium)

Algae (*Pseudokirchneriella subcapitata*) 72-hour ErC50: 0.07 mg/L (source: NITE)

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

[NITE-CHRIP]

(Zinc oxide)

Algae (*Pseudokirchneriella subcapitata*) 72-hour NOEC: 24 µg Zn/L (29.9 µg ZnO/L) (source:

NITE)

(Cadmium)

Fish (*Salvelinus fontinalis*) 10-day NOEC: 0.008 mg/L (source: NITE)

Water solubility

(Sulfanilic acid)

poor (source: ICSC, 2005)

(Zinc)

reaction (source: ICSC, 2019)

(1-Naphthylamine)

none (source: ICSC, 2000)

(Zinc oxide)

none (source: ICSC, 2017)

(Lead)

practically insoluble (source: ICSC, 2019)

(Cadmium)

none (source: ICSC, 2005)

Persistence and degradability**[Data for components of the product]**

(Sulfanilic acid)

Not rapidly degradable (Degradation rate: 3% (by BOD)) (source: NITE)

(Zinc)

Not rapidly degradable (source: NITE)

Bioaccumulative potential



[Data for components of the product]

(Sulfanilic acid)

log Kow: -2.16 (source: NITE)

(1-Naphthylamine)

log Pow: 2.25 (source: ICSC, 2000)

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 : 3077

UN Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division (Transport hazard class) : 9

Packing group : III

ERG GUIDE No.: 171

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 3077

UN Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division (Transport hazard class) : 9

Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 3077

UN Proper Shipping Name :

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class or division (Transport hazard class) : 9

Hazard labels : Miscellaneous & Environmentally hazardous

Packing group : III

Environmental hazards

Marine pollutants (yes/no) : yes

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

Sulfanilic acid; 1-Naphthylamine; Zinc oxide; Lead; Cadmium; Zinc

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 23rd edit., 2023 UN
IMDG Code, 2024 Edition (Incorporating Amendment 42-24)
IATA Dangerous Goods Regulations (66th Edition) 2025
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2025 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2024 Recommendation on TLVs (JSOH)
Supplier's data/information

General Disclaimer

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Unauthorized translation or modification is prohibited.

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