

Product Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Name of chemical : Quicklime (Calcium Oxide)
Company Name : Takunan Steel Co., Ltd.
Address : 3-26 Kaiho-cho, Okinawa-shi, Okinawa-ken+
Department : quality control department
Phone : 098-934-6811
Fax : 098-934-6833
Emergency contact : same as above
Manufacturer : Nago Lime Factory
Address : 2656-2 Awa, Nago-shi, Okinawa-ken
Phone : 0980-53-8018

2. SUMMARY OF HAZARDOUS SUITABLETIES




GHS Classification

Physicochemical hazards

| | |
|--|-----------------------------------|
| Explosive classification | outside classification parameters |
| Combustible/Flammable gas | outside classification parameters |
| Combustible/Flammable aerosol | outside classification parameters |
| Burnable/Oxidizing gas | outside classification parameters |
| High pressure gas | outside classification parameters |
| Inflammable liquid | outside classification parameters |
| Combustible solid | outside subcategory parameters |
| Self-reactive chemical article | outside classification parameters |
| Pyrophoric liquid | outside classification parameters |
| Pyrophoric solid | outside subcategory parameters |
| Pyrogenic chemical agent | outside subcategory parameters |
| Substances which in contact with water emits flammable gases | outside subcategory parameters |
| Oxidizing liquids | outside classification parameters |
| Oxidizing solid | unclassifiable |
| Organic peroxide | outside classification parameters |
| Metallic corrosive materials | unclassifiable |

Human health hazards

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|---|-----------------------------------|
| Acute toxicity (oral) | outside subcategory parameters |
| Acute toxicity (transdermal) | unclassifiable |
| Acute toxicity (inhalation: gas) classification | outside classification parameters |
| Acute toxicity (inhalation: steam) | outside classification parameters |
| Acute toxicity (inhalation: powder dust) | unclassifiable |
| Acute toxicity (inhalation: mist) class | outside classification parameters |
| Skin corrosivity/irritation | subcategory 2 |
| Serious eye damage /irritation | subcategory 1 |
| Respiratory sensitization | unclassifiable |
| Skin sensitization | unclassifiable |
| Germ-cell mutagenicity | unclassifiable |
| Carcinogenicity | unclassifiable |
| Reproductive toxicity | unclassifiable |
| Specific target organs (single exposure) | subcategory 1(respiratory system) |
| Specific target organs (repeated exposure) | subcategory 1(respiratory system) |

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|---|---|
| Respiratory toxicity from aspiration | unclassifiable |
| Environmental toxicity | |
| Acute toxicity to aquatic environment | unclassifiable |
| Chronic toxicity to aquatic environment | unclassifiable |
| オゾン層への有害性 | unclassifiable |
| Label Elements | |
| Pictorial indications or symbols |    |
| Warning statement | Danger |
| Hazard and toxicity information | Risk of hazardous effects if swallowed (oral) Serious chemical scarring. Serious eye damage Respiratory damage Risk of systemic toxicity, or digestive organ damage Risk of respiratory system damage due to long-term or repeated exposure Risk of danger to life if inhaled into respiratory tract |
| Cautionary Statements | |
| Safety Measures | Wear suitable protective gloves. Wear suitable protective glasses and face guard. Do not inhale dust and fumes. Do not eat, drink, or smoke while handling this product. Wash hands thoroughly after handling. |
| First Aid | If product is swallowed, do not induce vomiting forcibly. If product is inhaled move the affected person to a place with fresh air, and let the person rest in a position where he/she can breathe easily. If ingested. Rinse mouth out with water. Do not induce vomiting forcibly. In case of contact with eyes. Wash eyes thoroughly and carefully for a number of minutes. If wearing contact lenses, remove them if possible and continue washing. If product adheres to skin, wash with plenty of water and soap. If product adheres to clothing, immediately take off or remove contaminated clothing. Launder contaminated clothing before reuse. If one has been exposed to the product or there are concerns thereof, contact a physician for an examination and treatment. If ingested: immediately see a physician for an examination and treatment. Contact with eyes: immediately see a physician for an examination and treatment. If feeling sick, undergo an examination and treatment by a physician. If inhaled immediately see a physician for an examination and treatment. |

Storage
Disposal

Store in a locked area.
Consign contents and containers to prefectural or city government certified industrial waste management specialists.

3. COMPOSITION AND COMPONENT INFORMATION

Chemical Material

| | |
|--|-------------------------------|
| Chemical name or standard name | Calcium Oxide (calcium oxide) |
| Synonyms | Quicklime, Lime |
| Chemical formula | CaO |
| CAS number: | 1305-78-8 |
| Reference number in Official Gazette list in Japan (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture/Industrial Safety and Health Act) | (1)-189 |
| Impurities and stabilizing additives contributing to classification 添加物 | No information |
| Concentration or concentration range | 93% or greater |

4. FIRST AID

INHALATION

Move the affected person to a place with fresh air, let the person rest in a position where he/she can breathe easily. If feeling sick, undergo treatment and an examination from a physician.

SKIN ADHERANCE

Immediately take off or remove all contaminated clothing. Wash skin with running water or in a shower. Immediately contact a physician.

EYE CONTACT

Laundry contaminated clothing before reuse. Rinse carefully with water for several minutes. Then, if wearing contact lenses, remove if readily possible. Then continue to rinse.

INGESTION

Contact a physician immediately. Rinse mouth right away. Immediately undergo treatment and examination from a physician.

Anticipated acute symptoms and delayed symptoms

Inhalation

Burning sensation, coughing, sense of breathlessness, sore throat and headache.

Skin contact

Dryness of skin, reddening, burning skin injury, pain.

Eye contact

Reddening, pain, blurred vision, severe chemical scarring.

Ingestion

Burning sensation, abdominal pain, stomach cramps, vomiting, diarrhea.

Protection for first aid personnel

First aid personnel should wear appropriate protective gear suitable to the situation.

Precautionary items of note for the physician

Complete rest and medical observation is absolutely necessary.
The calcium oxide clay particles that have formed by reacting to the liquid and proteins in the eye are very difficult to remove by washing the eyes with water. Hand-removal by a physician is required.

5. FIRE MEASURES

Fire extinguishing agents

適切な消火剤

周辺の状況や火災の状況に応じて水噴霧、粉末消火剤、泡消火剤、二酸化炭素を使用する。

使ってはならない消火剤

火炎が周辺に広がる恐れがあるため、直接の棒状注水を避ける。

Specific toxicity

Irritation, toxicity, or corrosive or toxic gases, and fumes may be produced from a fire.

Specific extinguishing method

Move containers from fire area if not too dangerous. If a small amount, cover with dry sand and extinguish by suffocating the fire.

Do not pour water into containers.

Protection for person extinguishing fire

When extinguishing, use suitable air respirators in addition to suitable clothing that protects from chemicals.

6. LEAKAGE MEASURES

Precautions for the body, protective gear, and emergency measures

Immediately secure suitable distance in all directions from the leakage area and close it off.

Restrict entrance of non-authorized personnel.

When not wearing suitable clothing do not touch damaged containers or leaked product.

Workers should wear suitable protective gear (refer to “8. Exposure Prevention and Protection Measures”) and avoid product contact with eyes and skin and inhalation of dust or mist.

Stay upwind from product.

Ventilate sealed spaces before entering.

Environmental precautions

Take precautions to prevent runoff of the product from entering the natural water system and affecting the environment.

Collection and neutralization

Sweep spilled material into dry containers.

Containment and clean-up methods/equipment

Stop leakage if not dangerous.

Avoid generating dust and dispersion of material.

Secondary disaster prevention measures

Immediately remove all sources of fire and combustible substances. (Do not allow smoking and use of fireworks or flames in proximity).

Prevent the material from flowing into drains, sewers, basements or closed spaces.

7. PRECAUTIONS FOR HANDLING AND STORAGE

Handling

Technical measures

Establish facility measures listed in “8. Exposure Prevention and Protection Measures” and wear protective gear.

Local exhaust ventilation/general ventilation

Establish local exhaust ventilation and overall ventilation listed in “8. Exposure Prevention and Protection Measures”.

Precautions for safe handling

Do not eat, drink, or smoke while handling this product.
Use product only in well-ventilated areas or outdoors.
Handle product with care so as to avoid generating dust.
Do not contact, inhale, or ingest product.
Do not allow product to come in contact with eyes, or skin.
Do not allow product into the eyes.
Use exhaust ventilation to maintain the concentration levels of the air under exposure limits.
Wash hands thoroughly after handling product.
Avoiding contact: Refer to “10. Stability and Reactivity”

Storage

Technical measures

Prepare a storage facility with fire resistant walls, pillars and flooring, and with non-combustible beams.
The floor of the storage area must be water tight and moisture impermeable.
To store and handle hazardous materials, prepare a storage facility that has outside light or inside lighting, and ventilation.

Hazardous contaminants

Storage conditions

Refer to “10. Stability and Reactivity”
Store containers, sealed, in a cool dry storage area.
Store product away from sources of fire such as heat, fireworks, open flames.
No smoking in area of product.
Store in a locked space.

Packaging of containers

Use containers specified by the U.N. transportation laws.

8. EXPOSURE PREVENTION AND PROTECTIVE MEASURES

Managed concentration levels

Not specified

Allowable concentration levels (Exposure limit values, biological exposure index)

Japan Society of Occupational Health

Not specified

ACGIH

TLV-TWA 2mg/m³

Facility measures

Incorporate such measures as sealing off the production process area, local ventilation, and other measures to maintain the concentration levels of the air under allowable limits.

Install eye washing equipment and safety showers in storage and work areas.

Protective Gear

Respiratory protective gear

Wear suitable respiratory protective gear.

Protective gear for the hands

Wear suitable protective gloves.

Nitrile or vinyl protective wear is not considered suitable protective gear.

Neoprene is recommended.

眼及び／又は顔面の保護具

Wear suitable eye protective gear.

(safety goggles, and face shielding, etc.)

Protective gear for the skin and body

Wear face protection, protective clothing, safety shoes, etc.

Health measures

Do not eat, drink, or smoke while handling this product.
Wash hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

基本的な物理的及び化学的性質に関する情報

| | |
|--|-------------------------|
| 物理状態 | 粉末(ICSC(J)(1997)) |
| Color | White(ICSC(J)(1997)) |
| Odor | Odorless |
| pH | No data |
| Melting/congealing point | 2570°C (ICSC(J)(1997)) |
| Boiling point, initial boiling point and boiling range | 2850°C (ICSC(J)(1997)) |
| Flash point | Incombustible |
| Explosion range | No data |
| Vapor pressure | No data |
| Vapor density (Air = 1) | No data |
| Specific gravity (Density) | 3.3-3.4 (ICSC(J)(1997)) |
| Solubility | Reacts with water |
| Octanol/water partition coefficient | No data |
| Spontaneous combustion temperature | Non-combustible |
| Decomposition temperature | No data |
| Odor threshold value | No data |
| Evaporation speed (butyl acetate = 1) | Not applicable |
| Flammability (solid, gas) | Non-combustible |
| Viscosity | No data |

10. STABILITY AND REACTIVITY

| | |
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| Stability | Absorbs moisture and carbon dioxide from the atmosphere and generates calcium hydrate and calcium carbonate. When product is piled in large quantities, its temperature will rise to around 300°C due to humidity. |
| Hazardous reaction possibility | Reacts to water, and will generate sufficient heat to ignite combustible substances. Strongly reacts with acid, halogens and metals. Will ignite if comes in contact with sulfur or hydrogen pentafluoride. Will generate heat if comes in contact with hydrochloric acid. |
| Conditions to be avoided | Contact with water, acids, combustible substances, and metals. |
| Hazardous contaminants | Acids, halogens, metals. |
| Hazardous decomposition substances | None |

11. TOXICOLOGICAL INFORMATION

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|--------------------------|---|
| Acute toxicity | |
| Oral | ラット LD50 値 5000mg/kg、5916mg/kg (食品安全委員会添加物評価書(2013))の報告に基づき、区分外(国連分類基準の区分 5)とした。 |
| Transdermal | unclassifiable |
| Inhalation (powder dust) | unclassifiable |

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|---|--|
| Skin corrosivity/irritation | <p>湿った皮膚に対して強い刺激性を示すとの記載(ACGIH(7th, 2001))から区分 2 とした。</p> <p>なお、国連危険物輸送勧告においてクラス 8 とされている。ガイダンスの改訂により区分を変更した。</p> |
| Severe eye damage/irritation | <p>粒子状酸化カルシウムが眼に重度のやけどを引き起こす可能性があるとの記載(ACGIH(7th, 2001))から、区分 1 とした。</p> |
| Respiratory sensitization | unclassifiable |
| Skin sensitization | unclassifiable |
| Germ-cell mutagenicity | <p>データ不足のため分類できない。すなわち、in vivo のデータはなく、in vitro では最近の復帰突然変異試験で陰性である(食品安全委員会添加物評価書(2013))</p> |
| Carcinogenicity | unclassifiable |
| Genotoxicity | unclassifiable |
| Specific target organs (Single exposure) | <p>本物質は水と反応して水酸化カルシウムを生じる。ヒトでは大量の水酸化カルシウムの短時間ばく露により肺水腫とショックを起こすとの記載がある(PATTY(4th, 1993))。</p> <p>以上より区分 1(呼吸器)とした。</p> |
| Specific target organs (Repeated exposure) | <p>ヒトにおいて、生石灰の吸入による呼吸経路の炎症、鼻中隔の潰瘍及び穿孔の報告がある(ACGIH(7th, 2001))。したがって、区分 1(呼吸器)とした。</p> |
| Respiratory toxicity from aspiration | unclassifiable |

12. ENVIRONMENTAL IMPACT INFORMATION

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|---|----------------|
| Acute hazard level to aquatic environment | unclassifiable |
| Chronic hazard level to aquatic environment | unclassifiable |
| オゾン層への有害性 | unclassifiable |

13. DISPOSAL PRECAUTIONS

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|------------------------------|--|
| Disposal of residual product | <p>Dispose in accordance with pertinent regulations and local municipal standards.</p> <p>Dispose of using a prefectural or city government certified industrial waste disposal company.</p> <p>If disposal services are offered by local public organizations, consign with such organizations undertaking such services.</p> <p>Cast small amounts at a time into large amounts of water</p> |
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Contaminated containers and packaging

because of the risk of generating heat from the neutralization process; neutralize this with diluted sulfuric acid to dispose in the form of hydrated lime. Containers can be cleaned and recycled or disposed in accordance with pertinent regulations or local municipality standards. When disposing of empty containers, eliminate all contents completely.

14. PRECAUTIONS FOR TRANSPORTATION

International regulations

Marine transport regulations

非危険物

Air transport regulations

Comply with ICAO/IATA

U.N. No.

1910

Proper Shipping Name

Calcium oxide

Class

8

Secondary Risk

Packing Group

III

Domestic regulations

Land transport regulations

特段の規制はない

Marine transport regulations

非危険物

Air transport regulations

航空法の遵守

U.N. No.

1910

Proper Shipping Name

Calcium oxide

Class

8

Packing Group

III

Regarding special safety measures

Transportation, avoid direct sunlight, carefully load product to avoid breaking, corrosion or leakage of containers, and ensure that the load will not collapse. Do not transport product with food or fodder. Do not load any heavy load on top of this product.

15. APPLICABLE LAWS AND REGULATIONS

Industrial Safety and Health Law

Hazardous material requiring notification.
(Article 57-2, Enforcement order 18-2 Table No. 9)
(Government ordinance number 190)

Fire Service Act

Substance that requires registration of storage.
(Article 9-3 / Hazardous material regulation 1-10)

Civil Aeronautics Act

Corrosive material.
(Hazardous Materials Disclosure Table 1 of
Article 194 in the Enforcement Regulations)

16. OTHER INFORMATION

References

1) ICSC(J) (1997)

2) NITE-化学物質管理分野 GHS 分類結果 <https://www.nite.go.jp/chem/ghs/16-mhlw-0090.html>

3) 産業誌 2022;64(5):253-285 許容濃度等の勧告(2022 年度)

4) JIS Z 7253 : 2019 【Hazard communication of chemicals based on GHS-Labeling and Safety Data Sheet(SDS)】