

Product Safety Data Sheet

Created: September 1, 2006

Revised: November 26, 2015

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Name of chemical: Hydrated Lime (Calcium Hydroxide)

Company Name: Takunan Seitetsu Co., Ltd.

Address: 3-26 Kaiho-cho, Okinawa-shi, Okinawa-ken+

Phone: 098-934-6811 Fax: 098-934-6833

Manufacturer: Nago Lime Factory

Address: 2656-2 Awa, Nago-shi, Okinawa-ken

Phone: 0980-53-8018

2. SUMMARY OF HAZARDOUS SUITABLETIES

GHS Classification

Physical/chemical hazards explosive classification:	outside classification parameters
Combustible/Flammable gas classification:	outside classification parameters
Combustible/Flammable aerosol classification:	outside classification parameters
Burnable/Oxidizing gas classification:	outside classification parameters
High pressure gas classification:	outside classification parameters
Inflammable liquid classification:	outside classification parameters
Combustible solid:	outside subcategory parameters
Self-reactive chemical article classification:	outside classification parameters
Pyrophoric liquid classification:	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 classification:	outside classification parameters
Oxidizing solid:	unclassifiable
Organic peroxide classification:	outside classification parameters
Metallic corrosive materials:	unclassifiable
Health hazard acute toxicity (oral):	outside subcategory parameters
Acute toxicity (transdermal):	unclassifiable
Acute toxicity (inhalation: gas) classification:	outside classification parameters
Acute toxicity (inhalation: vapors):	unclassifiable
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/systemic toxicity:	subcategory 1 (respiratory system) (single exposure)
Specific target organs/systemic toxicity:	subcategory 2 (lungs)

Respiratory toxicity from aspiration: (repeated exposure)
unclassifiable
Environmental toxicity/Acute toxicity to aquatic environment:
unclassifiable
Chronic toxicity to aquatic environment:
unclassifiable

Label Elements

Pictorial indications or symbols:



Warning statement: Danger
Hazard and toxicity information: Skin irritation
Serious eye damage
Respiratory damage
Risk of lung damage due to long-term or repeated exposures

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 adheres to skin, wash with plenty of water and soap.
If product adheres to skin, take off contaminated clothing.
Launder contaminated clothing before reuse.
If product gets in the eyes, rinse carefully with water for several minutes. If wearing contact lenses, remove them if possible. Then continue to rinse.
If product gets in the eyes, contact a physician immediately.
If product adheres to skin and irritation occurs, seek to undergo a medical examination and treatment from a physician.
If feeling sick, undergo an examination and treatment by a physician.

[Storage]

Store in a locked space

[Disposal]

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

3. COMPOSITION AND COMPONENT INFORMATION

Chemical Characterization

Chemical name or standard name: Calcium Hydroxide

Other names: Slaked lime, Hydrated lime, Calcium hydrate

Chemical formula: $\text{Ca}(\text{OH})_2$

Chemical property (Chemical formula or structural formula):

CAS number: 1305-62-0

Reference number in Official Gazette list in Japan (1)-181 (Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture/Industrial Safety and Health Act):

Impurities and stabilizing additives contributing to classification: No information
Concentration or concentration range: 72.5% or greater (value converted to CaO)

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: Take off contaminated clothing.

Wash skin immediately.

Wash skin with plenty of water and soap.

If skin is irritated, undergo examination and treatment from a physician.

If feeling sick, undergo treatment and examination from a physician.

Launder contaminated clothing before reuse.

EYE CONTACT: Contact physician immediately.

Rinse carefully with water for several minutes. If wearing contact lenses, remove if possible. Then continue to rinse.

If feeling sick, undergo treatment and examination from a physician.

INGESTION: Rinse mouth.

If feeling sick, undergo treatment and examination from a physician.

Anticipated acute symptoms and late-onset symptoms: Inhalation: sore throat, cough, burning sensation.

Skin contact: Irritation, reddening, roughness, pain, dryness, chemical scarring, and blisters.

Eye contact: Reddening, pain, serious chemical scarring.

Ingestion: Burning sensation, abdominal pain, stomach cramps, vomiting.

5. FIRE MEASURES

Fire extinguishing agents: Minor fires: Powder extinguishing agents, carbon dioxide, or water sprinklers

Major fires: Powder extinguishing agent, carbon dioxide, alcohol-resistant foam extinguishing agent, water sprinkler

Specific toxicity: Irritating, corrosive or toxic gas may be produced from fire.

Containers may explode from heat.

Specific extinguishing methods: Move containers from area of fire if not too dangerous.

Do not pour water into containers.

Extinguish from the farthest effective distance, using an unmanned hose retainer or nozzle with a monitor.

Cool down the containers using plenty of water even after fire is extinguished.

Protection for persons extinguishing fire: When extinguishing, use suitable air respirators and clothing that protects the body from chemicals.

6. LEAKAGE MEASURES

Precautions for the body, protective gear, and emergency measures: Immediately secure a suitable distance in all directions from the leakage area and close it off.

Restrict entrance of non-authorized personnel.

Workers should wear suitable protective gear (refer to "8. Exposure Prevention and Protection Measures") and avoid contact with eyes and skin and inhalation of gases.

When not wearing suitable protective clothing, do not touch damaged containers or leaked material.

If fire has not occurred after the leakage, wear airtight and impermeable protective clothing.

Stay upwind from leakage.

Stay away from low lying areas.

Ventilate sealed spaces.

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

Do not release product into environment.

Collection and neutralization: Use dry dirt, sand or an incombustible substance to absorb or cover material and transfer to containers.

Sweep to gather leaked material and collect it in empty containers.

Containment and clean-up methods/equipment: Stop leakage if not too dangerous.

Secondary disaster prevention measures: Immediately remove all sources of fire. (Restrict smoking and use of fireworks or flames in proximity)

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

Do not pour water into containers.

Dispose of material frequently to prevent the risk of slipping on the floor.

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 come in contact, inhale or ingest product.

Use exhaust ventilation to maintain the concentration levels of the air under exposure limit.

Use product only in well-ventilated areas or outdoors.

Wash hands thoroughly after handling product.

Avoiding contact: Refer to “10. Stability and Reactivity”

Storage

Technical measures: To store and handle hazardous materials prepare a storage facility that has outside light or inside lighting, and ventilation.

Hazardous contaminants: Refer to “10. Stability and Reactivity”

Storage conditions: 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 value, biological exposure index):

Japan Society of Occupational Health (2006) Not specified

ACGIH (2006) TLV-TWA5mg/m³

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

Install ventilation equipment to maintain air pollutants under managed concentration levels/allowable concentration levels when dust and fumes are generated due to high temperature processing.

Protective Gear

Respiratory protective gear: Wear suitable respiratory protective gear.

Protective gear for the hands: Wear suitable protective gloves.

Protective gear for the eyes: Wear suitable eye protection.

Wear protective goggles and suitable face gear against airborne chemical droplets.

Wear safety glasses. Wear complete coverage chemical splash goggles and a face shield if there is a risk of the eyes and face coming in contact with hazardous materials from splash or spray.

Protective gear for the skin and body: Wear suitable protective gear for the face.

Health measures: Wash hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physicality: Form, color etc.: Colorless crystals or white powder

Odor: No data

pH: 12.4 (25°C saturated aqueous solution)

Melting/setting point: 580°C (Decomposition) ¹⁾

Boiling point, initial boiling point and boiling range: Decomposition ¹⁾

Flash point: Incombustible ¹⁾

Explosion range: Incombustible ¹⁾

Vapor pressure: No data

Vapor density (Air = 1): No data

Specific gravity (Density): 2.21

Solubility: Slightly soluble to water ²⁾

Octanol/water partition coefficient: No data

Spontaneous combustion temperature: 607°C ¹⁴⁾

Decomposition temperature: 580°C ¹⁾

Odor threshold value: No value data

Evaporation speed (butyl acetate = 1): No data

Flammability (solid, gas): No data

Viscosity: No data

10. STABILITY AND REACTIVITY

Stability: Absorbs carbon dioxide in the atmosphere, then gradually turns into calcium carbonate.

Decomposes if heated then turns into calcium oxide.

Hazardous reaction possibilities: Reacts to acid, then emits heat.

Reacts to strong oxidants.

Erodes many metals in presence of water, and produces flammable/explosive gas (hydrogen).

Conditions to be avoided: Contact with air. Heating.

Hazardous contaminants: Strong oxidants, acids.

Erodes many metals in presence of water.

Hazardous decomposition substances: Calcium oxide

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Oral: Classified as outside subcategory parameters based on rats LD50 7340mg/kg^{10) 6)}.

Transdermal: No data

Inhalation (dust): No data

Skin corrosivity/irritation: Classified as subcategory 2 based on indications of moderate irritation to the entire surface of body including eyes and respiratory tracts¹⁰⁾, and moderate/severe/corrosive irritation to human skin ^{9) 6) 14) 13) 12)}.

Skin irritation

Sever eye damage/irritation: Classified as subcategory 1 based on indications of moderate/severe/corrosive irritations to human eyes ^{10) 9) 6) 14) 13) 12)}, and corrosive irritation to rabbit eyes ⁹⁾.

Severe eye damage

Respiratory sensitization or skin sensitization: Respiratory sensitization: No data

Skin sensitization: No data

Germ-cell mutagenicity: No data

Carcinogenicity: No data

Genotoxicity: No data

Specific target organs/systemic toxicity: Classified as subcategory 1 (Respiratory system) based on indications of irritation to human respiratory system and respiratory tracts that causes pulmonary edema ^{10) 6) 14) 13) 12)}.

(Single exposure):

Damage to respiratory system

Specific target organs/systemic toxicity: Classified as subcategory 2 based on indications in Priority 2 that human lungs might be damaged ^{14) 13)}.

(Repeated exposure):

Risk of damage due to long-term or repeated exposure

Respiratory system toxicity from aspiration: No data

12. ENVIRONMENTAL IMPACT INFORMATION

Aquatic environment acute hazardousness: Unclassifiable due to lack of data

Aquatic environment chronic hazardousness: Unclassifiable due to lack of data

13. DISPOSAL PRECAUTIONS:

Disposal of residual product: Dispose in accordance with pertinent regulations and local municipal standards.

Dispose of using a prefectural or city government certified industrial waste disposal company. If disposal services are offered by local public organizations, consign with such organizations undertaking such services.

When consigning disposal of residual product, thoroughly notify disposal organization of hazards and dangers.

Contaminated containers and packaging: 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 N/A

Air transport regulations N/A

Domestic regulations

Land transport regulations N/A

Marine transport regulations N/A

Air transport regulations N/A

Regarding special safety measures for 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 product on top of other hazardous or flammable materials.

Do not load product near other hazardous materials.

A 'yellow card' is required when transporting.

15. APPLICABLE LAWS AND REGULATIONS

Industrial Safety and Health Law: A Hazardous material requiring notification (Article 57-2, Enforcement order 18-2 Table No.9) (Government ordinance number 317)

16. OTHER INFORMATION

References

¹⁾ ICSC (1997)

²⁾ Merck (13th, 2001)

⁷⁾ HSDB (2002)

⁸⁾ Patty (4th, 1994)

- 3) IMDG (2004)
- 4) Hommel (1991) CardNo.293
- 5) SRC (2006)
- 6) HSDB (2005)

- 9) IUCLID (2000)
- 10) ACGIH (7th, 2001)
- 11) RTECS (2005)
- 12) HSFS (2005)

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- 13) SITTI (4th, 2002)
 - 14) ICSC (J) (1997)
 - 15) Chapman (2005)
 - 16) Lange (16th, 2005)
 - 17) EPASRS (2006)
 - 18) Howard (1997) p.187
 - 19) Weiss (2nd, 1986) p.964
 - 20) DFGOT20 (2003)
 - 21) NFPA (12th, 1997) p.325-57
 - 22) CERI Hazard Data Collection (2002)
 - 23) IARC15 (1977)
 - 24) SIDS (2004)
 - 25) ECETOCT91 (2003)
 - 26) ATSDR (1986)
 - 27) CaPSAR (1993)
 - 28) SIAR (1997)
 - 29) Sax (11th, 2004)
 - 30) Japan Society for Occupational Health Counsel (1995)
 - 31) Organic Compound Dictionary
 - 32) IRIS (2006)
 - 51) Existing Chemical Substance Safety Inspection Data
 - 52) CERI Hazard Data Collection (2002)
 - 53) NFPA (2001)
 - 54) BIOWIN
 - 55) PHYSPROPDatabase (2005)
 - 33) Ministry of the Environmental Risk Assessment Volume 2 (2003)
 - 34) ALGY Society (Sensitization) List of Materials (Proposed)
 - 35) EHC78 (1988)
 - 36) JETOC Special document No.188 (2004)
 - 37) Gangolli (2nd, 1999)
 - 38) NICNAS (2000)
 - 39) EPA (1991)
 - 40) IARC71 (1999)
 - 41) JOccupHealth45 :137-139 (2003)
 - 42) EurResprJ.25(1) :201-204 (2005)
 - 43) CICAD29 (2001)
 - 44) NTPTR403 (1992)
 - 45) Hazardous Materials DB (2nd, 1993)
 - 46) NTPDB (2006)
 - 47) Solvent Pocket Book (1996)
 - 48) Ullmanns (E) (5th, 1995) A2:p.307-310
 - 49) IRIS (Accession Aug 2005)
 - 50) CERI/NITE Hazard Assessment Report No.64 (2003)
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