Created: September 1, 2006
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Product Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Name of chemical : Hydrated Lime (Calcium Hydroxide)
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

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 (single exposure)	subcategory 1(respiratory system)
Specific target organs (repeated exposure)	subcategory 2 (lungs)

Respiratory toxicity from aspiration	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	$Ca(OH)_2$
Chemical property (Chemical formula or structural formula)	
CAS number:	1305-62-0
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)-181
Impurities and stabilizing additives contributing to classification	No information
Additive	
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 scaring, and blisters.
Eye contact	Reddening, pain, serious chemical scaring.
Ingestion	Burning sensation, abdominal pain, stomach cramps, vomiting.

5. FIRE MEASURES

Fire extinguishing agents

Suitable extinguishing media	Use fire extinguishing media suitable for the surrounding equipment.
Unsuitable extinguishing media	No data
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	Not specified
ACGIH	TLV-TWA5mg/m3
Facility measures	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.
Protective gear for eyes and/or face	Wear suitable eye protection. Wear protective goggles and suitable face gear against airborne chemical droplets. 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

Information on basic physical and chemical properties

Physical state	Powder
Color	White
Odor	Odorless
pH	12.4 (25°C saturated aqueous solution)
Melting/setting point	580°C (Decomposition) (ICSC(J)(1997)
Boiling point, initial boiling point and boiling range	Decomposition (ICSC(J)(1997)
Flash point	Incombustible (ICSC(J)(1997)
Explosion range	Incombustible (ICSC(J)(1997)
Vapor pressure	No data
Vapor density (Air = 1)	No data
Specific gravity (Density)	2.2(ICSC(J)(1997)
Solubility	Slightly soluble to water Merck(13th,2001)
Octanol/water partition coefficient	No data
Spontaneous combustion temperature	607°C (ICSC(J)(1997)
Decomposition temperature	580°C (ICSC(J)(1997)
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	Acids.
Hazardous decomposition substances	Calcium oxide, hydrogen gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity	
Oral	Classified as outside subcategory parameters based on rats LD50 7340mg/kg (ACGIH(2001); HSDB(2005)
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 tracts ACGIH(7th,2001), and moderate/severe/corrosive irritation to human skin. (IUCLID,2000; HSDB,2005; ICSC(J),1997; SITTIG,4th,2002: HSFS,2005) Skin irritation.
Sever eye damage/irritation	Classified as subcategory 1 based on indications of moderate/severe/corrosive irritations to human eyes. (ACGIH,7th,2001; IUCLID,2000; HSDB,2002; ICSC(J),1997; SITTIG,4th,2002: HSFS,2005) and corrosive irritation to rabbit eyes. IUCLID(2000) 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 (Single exposure)	Classified as subcategory 1 (Respiratory system) based on indications of irritation to human respiratory system and respiratory tracts that causes pulmonary edema. ACGIH,7th,2001; HSDB,2002; ICSC(J),1997; SITTIG,4th,2002; HSFS,2005)
Specific target organs/systemic toxicity (Repeated exposure)	Classified as subcategory 2 based on indications in Priority 2 that human lungs might be damaged. (ICSC(J),1997; SITTIG,4th,2002) 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
Aquatic environment chronic hazardousness	Unclassifiable

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 TRANSPORTAION

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	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	Hazardous material requiring notification (Article 57-2, Enforcement order 18-2 Table No.9) (Government ordinance number 317)

16. OTHER INFORMATION

References

1) ICSC(J) 1997

2) NITE - GHS Classification Result of Chemical Substance Management Field https://www.nite.go.jp/chem/ghs/06-imcg- 0802.html

3) Sangyo Eiseigaku Zasshi, 2022;64(5):253-285 Recommendation of Occupational Limits (FY2022)

4)ACGIH (American Conference of Governmental Industrial

Hygienists)website
https://www.acgih.org/calcium-hydroxide/
5)JIS Z 7253 : 2019【Hazard communication of chemicals based on GHS-Labelling and Safety Data Sheet(SDS)】