HYDRAULIC LIME PRODUCT

SAFETY DATA SHEET

Revision 2.0

Dated 20/12/2023.

1 Identification

Chemical Name: Calcium hydroxide and inert natural mixed aggregate

Trade Name: Hydraulic lime mortar, plaster and render products.

Synonyms: Hydraulic Lime, Natural Hydraulic Lime.

Brand Name: Conserv

Supplier: Stone Tech (Cleveland) Ltd.

Lee Road
Bolckow Industrial Estate
Middlesbrough
TS6 7AR
United Kingdom

Tel: 01642 430 099

Emergency Tel: Call NCEC at +44 1865 407333 (24Hrs UK)
For Chemical Emergency Support ONLY (spill, leak, fire, exposure, or accident),
when calling please quote "STONE-TECH 29003-NCEC"

2 Health Hazard Identification

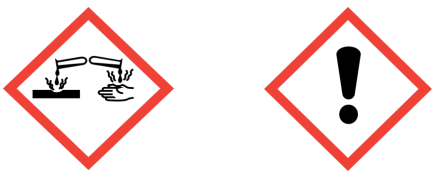
2.1 Classification of the Substance or mixture

Classification under CLP: Skin irritation 2: H315; Eye Damage 1: H318: STOT single exp. 3: Inhalation: H335

2.2 Label elements

Hazard statements: H315: causes skin irritation.
H319: causes serious eye irritation.
H335: May cause respiratory irritation.

Hazard Pictogram:



Signal words: Danger

Precautionary statements
P102: Keep out of the reach of children.

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P310: IF IN EYES: Rinse cautiously with water for several minutes., seek medical assistance.
P302 + P352: IF ON SKIN: Wash with plenty of water.
P261: Avoid breathing dust/spray.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501: Dispose of contents/container in accordance with current waste regulations.

2.3 Other hazards

The substance does not meet the criteria for PBT or VPvB substance.
No other hazards identified.

3 Composition / Information on ingredients

3.1 Substances
Main constituent

CAS number	EC number	Registration No	Identification name	Weight % content (or range)	Classification according to 67/548/EEC
1305-62-0	215-137-3	01-2119475151-45-0019	Calcium hydroxide	>15%	Xi: R37, R38, R41

Other hazards
The substance does not meet the criteria for PBT or vPvB substance.
No other hazards identified.

4 First Aid Measures

General Advice: No Known delayed effects. Consult a doctor for all exposures except for minor instances.

Skin Contact: Irritant - may cause burns in the presence of moisture. Carefully and gently brush the contaminated body surfaces to remove all traces of product. Wash affected area immediately with plenty of water. Remove contaminated clothing. If necessary, seek medical advice.

Eye Contact: Rinse eyes immediately with plenty of water and seek medical advice.

Inhalation: Move source of dust or move person to fresh air, obtain medical attention immediately.

Ingestion: After ingestion, clean mouth with water and afterwards drink plenty of water. Do **not** induce vomiting and obtain medical attention.

Most important symptoms and affects, both acute and delayed:

Natural hydraulic lime is not acutely toxic via the oral, dermal, or inhalation route. The substance is irritating to the skin and the respiratory tract and entails a risk of serious damage to the eyes. There is no concern for adverse systemic affects because local effects (ph. effect) are the major health hazard.

Eye Contact: Eye contact with may cause serious and potentially irreversible injuries.

Skin Contact: May have an irritating effect on moist skin (due to sweat or humidity) after prolonged contact. Prolonged skin contact with lime mortar may cause serious burns because they develop without pain being felt.

Ingestion: May cause respiratory irritation.

Inhalation: May cause respiratory irritation.

5 Fire Fighting Measures

Flammability: Not combustible.

Extinguishing Media: Dry Powder, foam, or CO_2 extinguishers to extinguish the surrounding fire that are appropriate to local circumstances.

Unsuitable Media: Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture: None.

Advice for fire fighters: Avoid generation of dust. Use breathing apparatus. Use extinguishing measures that are appropriate to the local circumstances and the surrounding environment.

6 Accidental Release Measures

Workers: Ensure adequate ventilation

Contain spillage and keep dry if possible. Use vacuum suction unit, or shovel into bags (using appropriate protective clothing - see Section 8). Cover or enclose area, if possible, to avoid unnecessary dust hazard.

Emergency responders:

Keep dust levels to a minimum and keep unprotected persons away. Avoid contact with skin, eyes, and clothing- wear suitable protective equipment- see section 8.

Environmental:

Contain spillages. Keep the materials dry if possible. Cover area, if possible, to avoid unnecessary dust hazard. Avoid uncontrolled spills to watercourses and drains (pH increase). Any large spillage into the watercourse must be alerted to the Environment Agency or other appropriate regulatory body.

Methods and material for containment and cleaning up:

In all cases avoid dust formation, keep material dry if possible. Pick up the product mechanically in a dry way. Use vacuum suction unit, or shovel into bags.

Reference to other sections:

For more information on exposure controls / personal protection or disposal considerations, please check section 8 and 13.

7 Handling and Storage

Precautions for safe handling

Protective measures

Avoid contact with skin and eyes. Wear protective equipment (refer to section 8 of this safety data sheet). Do not wear contact lenses when handling this product. It is also advisable to have individual pocket eyewash. Keep dust levels to a minimum. Minimise dust generation. Enclose dust sources, use exhaust ventilation (dust collector at handling points). Handling systems should preferably be enclosed. When handling bags usual precautions should be paid to the risks outlined in the Council Directive 90/269/EEC.

Advice on general occupational hygiene

Avoid inhalation or ingestion and contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating, and smoking at the workplace. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home.

Conditions for safe storage, including any incompatibilities.
The substance should be stored under dry conditions. Any contact with air and moisture should be avoided. Bulk storage should be in purpose – designed silos. Keep away from acids, significant quantities of paper, straw, and nitro compounds. Keep out of reach of children. Do not use aluminium for transport or storage if there is a risk of contact with water.

8 Exposure Controls/Personal Protection

Control parameters
Workplace Exposure Limit (WEL), 8 h TWA: 5 mg/m³
Occupational Exposure Limit (OEL), 8h TWA: 1 mg/m³ respirable dust of calcium oxide
Short-term exposure limit (STEL), 15 min: 4 mg/m³ respirable dust of calcium oxide

Exposure controls
To control potential exposures, generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
Please check the relevant exposure scenario, given in the Appendix/available via your supplier.

Appropriate engineering controls
If user operations generate dust, use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne dust levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection
Do not wear contact lenses. For powders, tight fitting goggles with side shields, or wide vision full goggles. Eyewash facilities should be readily available.

Skin protection
Since calcium dihydroxide is classified as irritating to skin, dermal exposure must be minimised as far as technically feasible. The use of protective gloves (nitrile), protective standard working clothes fully covering skin, full length trousers, long sleeved overalls, with close fittings at openings and shoes resistant to caustics and avoiding dust penetration are required to be worn.

Respiratory protection

Local ventilation to keep levels below established threshold values is recommended. A suitable particle filter mask is recommended, depending on the expected exposure levels.

Thermal hazards

The substance does not represent a thermal hazard, thus special consideration is not required.

Environmental exposure controls

Contain the spillage. Any large spillage into watercourses must be alerted to the regulatory authority responsible for environmental protection or other regulatory body.

9 Physical Properties and Chemical Properties

Appearance:	White fine powder
Odour:	slight earthy odour
Odour threshold:	not applicable
pH:	12.3 (saturated solution at 20 °C)
Melting point:	> 450 °C (study result, EU A.1 method)
Boiling point:	not applicable (solid with a melting point > 450 °C)
Flash point:	not applicable (solid with a melting point > 450 °C)
Evaporation rate:	not applicable (solid with a melting point > 450 °C)
Flammability:	non-flammable (study result, EU A.10 method)
Explosive limits:	nonexplosive (void of any chemical structures commonly associated with explosive properties)
Vapour pressure:	not applicable (solid with a melting point > 450 °C)
Vapour density:	not applicable Relative density: 2.70 (study result, EU A.3 method)
Solubility in water:	Moderately soluble (study result, modified EU A.6 method)
Partition coefficient:	not applicable (inorganic substance)

Auto ignition temperature: no relative self-ignition temperature below 400 °C (study result, EU A.16 method)

Decomposition temperature: not applicable

Viscosity:	not applicable (solid with a melting point > 450 °C)
Oxidising properties:	no oxidising properties (Based on the chemical structure, the substance does not contain a surplus of oxygen, or any structural groups known to be correlated with a tendency to react exothermally with combustible material)

10 Stability and Reactivity

Reactivity

In aqueous media Ca $(OH)_2$ dissociates resulting in the formation of calcium cations and hydroxyl anions (when below the limit of water solubility).

Chemical stability

Under normal conditions of use and storage, this product is stable.

Possibility of hazardous reactions

Natural hydraulic lime reacts exothermically with acids. When heated above 580 °C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H2O): Ca (OH)2→CaO + H2O. Calcium oxide reacts with water and generates heat. This may cause risk to flammable material.

Conditions to avoid.

Minimise exposure to air and moisture to avoid degradation.

Incompatible materials

Calcium dihydroxide reacts exothermically with acids to form salts. Calcium dihydroxide reacts with aluminium and brass in the presence of moisture leading to the production of hydrogen. $Ca(OH)_2 + 2\,Al + 6\,H_2O$ à $Ca[Al(OH)_4]_2 + 3\,H_2$

Hazardous Decomposition:

None

Further information: calcium dihydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature.

11 Toxicological Information

Information on toxicological effects

Acute toxicity

Oral LD50 > 2000 mg/kg bw (OECD 425, test substance $Ca(OH)_2$, rat); the results are also applicable to lime (chemical) hydraulic by read across.

Dermal no data available

Inhalation no data available

Natural hydraulic lime is not acutely toxic. An acute dermal or inhalation toxicity study with natural hydraulic lime is considered to be scientifically unjustified.

Classification for acute toxicity is not warranted.

Skin corrosion/irritation

Calcium hydroxide is irritating to skin. By read across these results are applicable to natural hydraulic lime.

Based on experimental results on a similar substance utilised by read-across, natural hydraulic lime requires classification as irritating to skin [R38, irritating to skin; Skin Irrit 2 (H315 – Causes skin irritation)].

Serious eye damage/irritation
Calcium hydroxide entails a risk of serious damage to the eye (eye irritation studies (in vivo, rabbit).
By read across these results are applicable to natural hydraulic lime.
Based on experimental results on a similar substance utilised by read-across, natural hydraulic lime requires classification as severely irritating to the eye [R41, Risk of serious damage to eye; Eye Damage 1 (H318 - Causes serious eye damage)].

Respiratory or skin sensitisation
No data available.
natural hydraulic lime is considered not to be a skin sensitizer, based on the nature of the effect (pH shift) and the essential requirement of calcium for human nutrition.
Classification for sensitisation is not warranted.

Germ cell mutagenicity
Bacterial reverse mutation assay (Ames test, OECD 471): Negative
Mammalian chromosome aberration test: Negative
These results are applicable to natural hydraulic lime by read across. Natural hydraulic lime does not contain any main constituents or major impurities that are known to be genotoxic. The pH effect of natural hydraulic lime does not give rise to mutagenic risk.
Human epidemiological data support lack of any mutagenic potential of natural hydraulic lime.
In conclusion, natural hydraulic lime is obviously void of any genotoxic potential, including germ cell mutagenicity Classification for genotoxicity is not warranted.

Carcinogenicity
Calcium (administered as Ca-lactate) is not carcinogenic (experimental result, rat). The pH effect does not give rise to a carcinogenic risk. Human epidemiological data support lack of any carcinogenic potential of natural hydraulic lime.
Classification for carcinogenicity is not warranted.

Reproductive toxicity
Calcium (administered as Ca-carbonate) is not toxic to reproduction (experimental result, mouse). The pH effect does not give rise to a reproductive risk.
Human epidemiological data support lack of any potential for reproductive toxicity of calcium hydroxide.
Both in animal studies and human clinical studies on various calcium salts no reproductive or developmental effects were detected. Also see the Scientific Committee on Food (Section 16.6).
Thus, natural hydraulic lime is not toxic for reproduction and/or development.
Classification for reproductive toxicity according to regulation (EC) 1272/2008 is not required.

STOT-single exposure.
From human data on calcium oxide and hydroxide it is concluded by read across (worst case approach) that natural hydraulic lime is irritating to the respiratory tract.
As summarised and evaluated in the SCOEL recommendation (Anonymous, 2008), based on human data natural hydraulic lime is classified as irritating to the respiratory system by read across from CaO and Ca $(OH)_2$ [R37, irritating to respiratory system; STOT SE 3 (H335 – May cause respiratory irritation)].

STOT-repeated exposure.
Toxicity of calcium via the oral route is addressed by upper intake levels (UL) for adults determined by the Scientific Committee on Food (SCF), being UL = 2500 mg/d, corresponding to 36 mg/kg bw/d (70 kg person) for calcium. Toxicity of natural hydraulic lime via the dermal route is not considered as relevant in view of the anticipated insignificant absorption through skin and due to local irritation as the primary health effect (pH shift). Toxicity of natural hydraulic lime via inhalation (local effect, irritation of mucous membranes) is addressed by an 8-h TWA determined for CaO and $CA(OH)_2$ by the Scientific Committee on Occupational Exposure Limits (SCOEL) of 1 mg/m³ respirable dust (read across from CaO and $CA(OH)_2$.
Therefore, classification of natural hydraulic lime for toxicity upon prolonged exposure is not required.

Aspiration hazard
Natural hydraulic lime is not known to present an aspiration hazard.

General information
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation: May cause respiratory irritation.
Ingestion: May cause respiratory irritation.
Skin contact: May have an irritating effect on moist skin (due to sweat or humidity) after prolonged contact. Prolonged skin contact with lime mortar may cause serious burns because they develop without pain being felt.
Eye contact: Eye contact with may cause serious and potentially irreversible injuries.
Acute and Chronic health hazards: Because of the product's quantity and composition, the health hazard is regarded as low. No specific long-term effects known.
Route of exposure: inhalation
Target organs: No specific target organs known.
Medical symptoms: Irritation of the skin or respiratory tract may occur, this chemical may have adverse health impact on certain individuals.

12 Ecological Information

Toxicity

Acute/Prolonged toxicity to fish
LC_{50} (96h) for freshwater fish: 50.6 mg/l (calcium hydroxide)
LC_{50} (96h) for marine water fish: 457 mg/l (calcium hydroxide)
Acute/Prolonged toxicity to aquatic invertebrates
EC_{50} (48h) for freshwater invertebrates: 49.1 mg/l (calcium hydroxide)
LC_{50} (96h) for marine water invertebrates: 158 mg/l (calcium hydroxide)
Acute/Prolonged toxicity to aquatic plants
EC_{50} (72h) for freshwater algae: 184.57 mg/l (calcium hydroxide)
NOEC (72h) for freshwater algae: 48 mg/l (calcium hydroxide)

Toxicity to micro-organisms e.g. bacteria

At high concentration, through the rise of temperature and pH, calcium oxide is used for disinfection of sewage sludges.

Chronic toxicity to aquatic organisms

NOEC (14d) for marine water invertebrates: 32 mg/l (calcium hydroxide)

Toxicity to soil dwelling organisms

EC_{10}/LC_{10} or NOEC for soil macro-organisms: 2000 mg/kg soil dw (calcium hydroxide)

EC_{10}/LC_{10} or NOEC for soil micro-organisms: 12000 mg/kg soil dw (calcium hydroxide)

Toxicity to terrestrial plants

NOEC (21d) for terrestrial plants: 1080 mg/kg (calcium hydroxide)

General effect

Acute pH-effect. Although this product is useful to correct water acidity, an excess of more than 1 g/l may be harmful to aquatic life. pH-value of >12 will rapidly decrease as result of dilution and carbonation.

Persistence and Degradation:

Non-bio-degradable – reacts with atmospheric and dissolved carbon dioxide to form calcium carbonate (chalk).

Bio accumulative Potential:

The product has no potential to accumulate in the food chain.

Mobility in soil

Natural hydraulic lime reacts with water and/or carbon dioxide to form respectively calcium hydroxide and/or calcium carbonate, which is sparingly soluble, and present a low mobility in most soils.

Results of PBT and vPvB assessment

Not relevant

Other adverse effects

No other adverse effects are identified.

13 Disposal Considerations

Waste treatment methods

Disposal of natural hydraulic lime should be in accordance with local and national legislation. Processing, use or contamination of this product may change the waste management options. Dispose of container and unused contents in accordance with applicable member state and local requirements. The used packing is only meant for packing this product; it should not be reused for other purposes. After usage, empty the packing completely.

14 Transport Information

Natural hydraulic lime is not classified as hazardous for transport [ADR (Road), RID (Rail), ICAO/IATA (air), ADN (inland waterways) and IMDG (Sea)].

UN-Number	Not regulated.

UN proper shipping name	Not regulated.
Transport hazard class	Not regulated.
Packing group	Not regulated.
Environmental hazards	None
Special precautions for user	Avoid any release of dust during transportation.

15 Regulatory Information

Safety, Health, and environmental regulations/Legislation for the substance

Authorisations:	Not required
Restrictions on use:	None
Other EU regulations:	Natural hydraulic lime is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.
National Regulations:	None

16 Other Information:

Hazard Statements

H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.

Precautionary Phrases:

P102: Keep out of the reach of children.
P280: Wear protective gloves, protective clothing, eye protection and face protection.
P305+P351+P310: If in the eyes rinse cautiously with water for several minutes and immediately call a POISON CENTRE or doctor-physician.
P302+P352: If on the skin wash immediately with plenty of water.
P261+P304+P340: Avoid breathing dust or spray. If inhaled remove victim to fresh air and keep at rest in a position comfortable for breathing.
P501: Dispose of contents-container in accordance with local, regional, national, and international regulation- Use a registered hazardous waste carrier-licence holder and/or contact the manufacturer.

Risk Phrases

R37: Irritating to the respiratory system.
R38: Irritating to the skin.
R41: Risk of serious damage to the eyes

Safety Phrases

S2: Keep out of the reach of children.
S25: Avoid contact with the eyes.

S26: In case of contact with the eyes, rinse immediately with plenty of water and seek medical advice.
S37: Wear suitable gloves.
S39: Wear eye /face protection

Abbreviations

EC_{50}: median effective concentration
LC_{50}: median lethal concentration
LD_{50}: median lethal dose
NOEC: no observable effect concentration
WEL: workplace exposure limit
OEL: occupational exposure limit
PBT: persistent, bioaccumulative, toxic chemical
PNEC: predicted no-effect concentration.
STEL: short-term exposure limit
TWA: time weighted average
vPvB: very persistent, very bioaccumulative chemical
EULA: European Lime Association

Disclaimer

It is the user's responsibility to ascertain the suitability and safety of this product thus assuming all liability and risk thereof. We recommend that site samples panels are prepared and approved before full application. The information contained in this data sheet is, to the best of our knowledge, true and accurate. Recommendations or suggestions are made without guarantee, since the conditions of use are beyond our control therefore guarantee is limited only to the product and not application.

HYDRAULIC LIME PRODUCT

CAS No. 85117-09-5 EINECS No. 285-561-1

DANGER
Eye Damage 1 H318: Causes serious eye damage

WARNING
Skin Irritation 2 H315: Causes skin irritation
STOT S 3 H335: May cause respiratory irritation

Precautionary statements

P102: Keep out of the reach of children.
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P501: Dispose of contents/container in accordance with local/regional/national/international regulation.

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