

Safety Data Sheet - SDS Natural hydraulic lime NHL

Issue n.2 of 10 October 2023

1. IDENTIFICATION OF THE MIXTURE AND THE COMPANY

1.1 Product Identifier

Hydraulic Lime, Hydraulic Natural Lime

| |
|---------------------|
| Trade Name** |
| CALIX NHL |

- *Chemical name and formula:* not applicable, multiconstituent substance (origin: inorganic)
- *CAS:* 85117-09-5
- *EINECS:* 285-561-1
- *REACH registration number:* 01-2119475523-36-0001

(*) regulated by NF EN 459 - 1 October 2002

(**) the trade name may also include the suffix *Italcementi*

1.2 Relevant identified uses of the substance or mixture and uses not recommended

The identified uses can be found in Table 1.

Not recommended for use: There is no use not recommended.

Table 1

| ES number | Exposure scenario title | Manufacture | Identified uses | | | | Resulting life cycle stage | Linked to Identified Use | Sector of use category (SU) | Chemical Product category (PC) | Process category (PROC) | Article category (AC) | Environmental release category (ERC) |
|-----------|---|-------------|-----------------|---------|----------|-----------------------------|----------------------------|---|---|--|------------------------------------|--|--------------------------------------|
| | | | Formulation | End use | Consumer | Service life (for articles) | | | | | | | |
| 9.1 | Manufacture and industrial uses of aqueous solutions of lime substances | X | X | X | | X | 1 | 3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b | |
| 9.2 | Manufacture and industrial uses of low dusty solids/powders of lime substances | X | X | X | | X | 2 | 3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27a, 27b | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b | |
| 9.3 | Manufacture and industrial uses of medium dusty solids/powders of lime substances | X | X | X | | X | 3 | 3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27a, 27b | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b | |
| 9.4 | Manufacture and industrial uses of high dusty solids/powders of lime substances | X | X | X | | X | 4 | 3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27a, 27b | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 11a | |

| | | | | | | | | | | | | |
|------|---|---|---|---|---|---|----|---|---|---|------------------------------------|--|
| 9.5 | Manufacture and industrial uses of massive objects containing lime substances | X | X | X | | X | 5 | 3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 6, 14, 21, 22, 23, 24, 25 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b |
| 9.6 | Professional uses of aqueous solutions of lime substances | | X | X | | X | 6 | 22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 2, 3, 4, 5, 8a, 8b, 9, 10, 12, 13, 15, 16, 17, 18, 19 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 2, 8a, 8b, 8c, 8d, 8e, 8f |
| 9.7 | Professional uses of low dusty solids/powders of lime substances | | X | X | | X | 7 | 22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 21, 25, 26 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 2, 8a, 8b, 8c, 8d, 8e, 8f |
| 9.8 | Professional uses of medium dusty solids/powders of lime substances | | X | X | | X | 8 | 22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 2, 8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b |
| 9.9 | Professional uses of high dusty solids/powders of lime substances | | X | X | | X | 9 | 22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24 | 1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 | 2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 2, 8a, 8b, 8c, 8d, 8e, 8f |
| 9.10 | Professional use of lime substances in soil treatment | | X | X | | | 10 | 22 | 9b | 5, 8b, 11, 26 | | 2, 8a, 8b, 8c, 8d, 8e, 8f |
| 9.11 | Professional uses of articles/containers containing lime substances | | | X | | X | 11 | 22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24 | | 0, 21, 24, 25 | 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13 | 10a, 11a, 11b, 12a, 12b |
| 9.12 | Consumer use of building and construction material (DIY) | | | | X | | X | | | | | 8 |

1.3 Safety Data Sheet Supplier Information

HEIDELBERG MATERIALS ITALIA CEMENTI SPA

Innovation Campus Milan

Via Lombardia 2/A

20068 Peschiera Borromeo (MI)

www.heidelbergmaterials.it

1.4 Emergency telephone number

| Hospital | City | Address - Zip Code | Telephone |
|---|----------|-----------------------------------|-------------|
| University of Foggia Hospital | Foggia | V.le Luigi Pinto, 1 - 71122 | 800183459 |
| "A. Cardarelli" Hospital | Naples | Via A. Cardarelli, 9 - 80131 | 081-5453333 |
| CAV Policlinico "Umberto I" | Rome | V.le del Policlinico, 155 - 00161 | 06-49978000 |
| CAV Policlinico "A. Gemelli" | Rome | Largo Agostino Gemelli, 8 - 00168 | 06-3054343 |
| Azienda Ospedaliera "Careggi" U.O. Medical Toxicology | Florence | Largo Brambilla, 3 - 50134 | 055-7947819 |

| | | | |
|---|---------|--------------------------------------|-------------|
| CAV National Centre for Toxicological Information | Pavia | Via Salvatore Maugeri, 10 - 27100 | 0382-24444 |
| Niguarda Ca' Granda Hospital | Milan | Piazza Ospedale Maggiore,3 - 20162 | 02-66101029 |
| Papa Giovanni XXII Hospital | Bergamo | Piazza OMS, 1 - 24127 | 800883300 |
| CAV "Bambino Gesù Children's Hospital", Dip. Emergency and DEA Acceptance | Rome | Piazza Sant'Onofrio, 4 - 00165 | 06-68593726 |
| Verona Integrated Hospital | Verona | Piazzale Aristide Stefani, 1 - 37126 | 800011858 |

Available outside office hours YES NO

2. HAZARD IDENTIFICATION

2.1 Classification of the substance according to Regulation (EU) 1272/2008 (CLP)

| Hazard class | Hazard category | HAZARD STATEMENTS |
|---|-----------------|--|
| Irritation | 2 | H315: Causes skin irritation |
| Severe eye injury/eye irritation | 1 | H318: Causes serious eye injury |
| Specific Target Organ Toxicity (Single Exposure) Respiratory Tract Irritation | 3 | H335: May irritate the respiratory tract |

2.2 Label Elements

Pursuant to Regulation 1272/2008 (CLP)

Hazard pictograms



Warnings

Danger

Hazard statements

H318: Causes serious eye injury

H315: Causes skin irritation

H335: May irritate the respiratory tract

Precautionary statements

P102: Keep out of reach of children.

P261: Avoid breathing dust.

P280: Wear protective gloves / Protective clothing / Eye / face protection.

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

P304 + P340: ON INHALATION: Carry the victim to fresh air and keep him at rest in a position that promotes breathing.

P305 + P351 + P338: IN CASE OF EYE CONTACT: Rinse thoroughly for several minutes. Remove any contact lenses if the person wears any and if it is easy to do so. Continue rinsing.

P310 Contact a POISON CENTER or physician immediately.

P332 + P313: If skin irritation occurs: seek medical attention.

P501: Dispose of the product/receptacle at a waste collection point. Previously, natural hydraulic lime must be rendered inert by water hardening and the packaging must be emptied completely.

Other information

2.3 Other Hazards

No object: The substance does not meet the criteria for PBT and vPvB substances or mixtures in accordance with Annex XIII of the REACH Regulation. No other hazards have been identified.

3. COMPOSITION/INGREDIENT INFORMATION

3.1 Substances

Natural hydraulic lime (NHL) (CAS: 85117-09-5 ; EINECS: 285-561-1) is produced by calcination of more or less clayey or siliceous limestones with reduction to powder by quenching, with or without crushing. All NHLs have the property of gripping and hardening in the presence of water. Carbon dioxide in the air also contributes to the curing process.

Main Components:

Name: Calcium **Hydroxide**

CAS: 1305-62-0

EINECS: 215-137-3

Concentration: 15-65 % (m/m) – (30 % (m/m))

Name: Calcium **Silicate**

CAS: 10034-77-2

EINECS: 233-107-8

Concentration: 10-45 % (m/m) - (30 % (m/m))

Name: **Calcium Carbonate**

CAS: 471-34-1

EINECS: 207-439-9

Concentration: 10-40 % (m/m) (25 % (m/m))

Impurity:

No impurities emerged from the classification or labelling.

3.2 Mixtures

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes

No deferred effects are known. Consult a physician in all cases of severe exposure and when in doubt.

In case of inhalation

Move the victim away from the source of the dust and place it in the open air or move the source away from the victim.

Seek medical attention as soon as possible.

In case of skin contact

Remove all traces of product by moderate and careful brushing of the affected body surfaces. Wash the affected area thoroughly with fresh water. Remove contaminated clothing.

If necessary, seek medical advice.

In case of contact with eyes

Rinse immediately and thoroughly with water or, if possible, with an isotonic solution. Ask A medical opinion

In case of ingestion

Clean the mouth with water and make the victim drink plenty of water.

Do not induce vomiting.

Call a doctor immediately and show him the label.

4.2 Main symptoms and effects, both acute and delayed

Natural hydraulic lime does not exhibit acute toxicity to the respiratory tract by oral, cutaneous or respiratory route. The substance is classified as an irritant to the skin and respiratory tract and poses a risk of serious eye injury. No adverse systemic effects are suspected; the main hazard is due to local effects (pH effect).

4.3 Indication of whether you need to seek immediate medical attention and special treatment

To date, no immediate medical treatment or special treatment is indicated.

Follow the advice given in Section 4.1.

5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

The product is non-combustible. Use a dry powder, foam, or extinguishing agent that does not contain CO₂ to extinguish the spread fire.

Use extinguishing means appropriate to your local circumstances and the particular environment in which you find yourself.

5.1.2 Inappropriate extinguishing media

Do not use water.

5.2 Special Hazards Arising from the Mixture

product is non-combustible. It does not present any particular risk in the event of a fire

5.3 Recommendations for Fire Extinguishers

Avoid dust dispersion. Use breathing apparatus. Use appropriate extinguishing media

local circumstances and the particular environment. Avoid using water for extinguishing in the environment.

6. MEASURES IN CASE OF ACCIDENTAL RELEASE**6.1 Personal Precautions, Protective Equipment, and Emergency Procedures****6.1.1 For those who do not intervene directly**

Ensure sufficient ventilation. Limit the spread of dust as much as possible.

Remove those who do not have appropriate protection. Avoid any contact with skin, eyes and clothing – bring appropriate protective equipment (see Section 8).

Avoid dust inhalation – ensure sufficient ventilation or bring protective equipment, wear appropriate protective clothing (see Section 8).

6.1.2 For those who intervene directly

Limit the spread of dust as much as possible. Ensure sufficient ventilation.

Remove people who do not have protection. Avoid any contact with skin, eyes and clothing – bring appropriate protective equipment (see Section 8)

Avoid dust inhalation – ensure sufficient ventilation or bring protective equipment, wear appropriate protective clothing (see Section 8).

6.2 Environmental Precautions

Delimit the spilled product. Keep the material as dry as possible. If possible, cover the area to avoid any unnecessary damage from dust. Avoid the discharge of uncontrolled residues into water reserves and drainage systems (increase in pH). Any resulting spillage into water reserves must be reported to the Environment Agency or any other competent authority.

6.3 Methods and materials for containment and remediation

Collect the product in a properly labeled rescue vessel. Prevent the formation and dispersion of dust. Keep the material dry as much as possible.

Pick up the product mechanically dry. Use a vacuum suction system, or pile the product into bags. Solidify the product before discarding it as described in Section 13.

6.4 Reference to other sections

For more detailed information on exposure controls/personal protection or disposal measures, please refer to Sections 8 and 13 together with the annex to this Safety Data Sheet.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Avoid contact with skin, eyes and mucous membranes. Bring appropriate protective equipment (refer to Section 8 of this Safety Data Sheet).

Do not wear contact lenses when handling this product; It is also recommended to keep an individual pocket-sized eye drop with you.

Avoid the formation or dispersion of dust. Close the dust sources and use extraction fans (dust collector at the treatment points). Also include conveyor systems.

Comply with Directive 90/269/EEC when handling hydraulic lime bags

7.1.2 General workplace hygiene information

Avoid inhalation, ingestion, and contact with skin and eyes.

"Barrier" creams can also be used. Wash your hands after any handling.

General occupational hygiene measures are also required to ensure the safe handling of the substance.

These measures include: good personal practices, regular cleaning of workplaces, not drinking, eating or smoking in the workplace.

Take a shower and change clothes once you're done working. Do not bring contaminated clothes home.

Separate work clothes from others. Wash them separately.

7.2 Conditions for safe storage, including possible incompatibilities

Conditions for safe storage

Store out of reach of children. Store away from moisture.

Do not use aluminum for transportation or storage if there are risks of coming into contact with water.

Bulk storage must be carried out in dedicated silos

Incompatible materials

Strong acids and nitrogenous components.

Organic materials.

Avoid all contact with air and moisture.

7.3 Special end-uses

The conditions of use must be complied with (refer to the technical warnings).

For more information, please refer to the exposure scenarios available in the Annex and more specifically to Section '2.1: Control of workers' exposure' of the exposure scenario.

8. EXPOSURE/PERSONAL PROTECTION CONTROLS

8.1 Control Parameters

Occupational exposure limit values:

- Italy: PConsidered without a specific effect:
inhalable fraction (calcium hydroxide): TWA: 5 mg/m³
- Recommendations of the Scientific Committee on Occupational Exposure (SCOEL [1]):

Natural Hydraulic Lime (NHL):

Acute effects: DNEL: 4 mg/m³ (respirable dust)

Long-term effects: DNEL: 1 mg/m³ (respirable dusts).

8.2 Exposure Controls

To control potential hazards, dust should be avoided. Appropriate protective equipment must also be worn. Eye protection equipment (goggles or visors, for example) is also required, except in cases where possible contact with the eyes can be ruled out depending on the nature and type of application (closed-circuit procedure). In this case, you should wear face protection, protective clothing and safety footwear.

Please refer to the relevant exposure scenarios that are annexed to this Safety Data Sheet.

8.2.1 Suitable technical controls

If the use of the product creates dust, use enclosed places, local ventilation, or other technical means to keep dust levels in the air below recommended exposure limits.

8.2.2 Personal protective measures such as personal protective equipment

Eye/face protection



Do not wear contact lenses.

Use watertight goggles with side shielding or goggles with a wide field of vision. It is also recommended to have individual pocket eye drops with you.

Skin protection



Since natural hydraulic lime is classified as a skin irritant, dermal exposure should be minimized as much as technically possible. It is mandatory to wear protective gloves made of nitrile rubber (breaking time (min) > 480). The gloves used must comply with the specifications of Directive 89/686/EEC and the corresponding standard NF EN 374.

It is mandatory to wear protective clothing that covers the entire skin (long trousers, long sleeves, clothes with narrow openings) and waterproof footwear resistant to caustic products.

Respiratory protection



To keep dust levels below the set threshold values, local ventilation is recommended. It is mandatory to bring an adapted dust mask (P1). Please refer to the relevant exposure scenarios annexed to this Safety Data Sheet).

Thermal Hazards

The substance does not present any thermal hazards.

8.2.3 Environmental Exposure Controls

Air coming out of ventilation or dust extraction systems will need to be filtered before being released into the atmosphere.

Stem the spill. Any major spill into a watercourse must be reported to the appropriate authorities.

For detailed information on risk management measures to control environmental exposure to the substance, please refer to the relevant exposure scenarios annexed to this Safety Data Sheet.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Fundamental Physical and Chemical Properties

Appearance: Physical State: Powder

Average particle size: 20 - 30%: < 5 µm

Color: White or Grey

Odor: None

Olfactory Threshold: None

PH: 12-13

Melting point / freezing point: Melting point > 450°C

Initial boiling point and boiling range: Not applicable

Flash Point: Not Applicable (Non-Flammable Solid)

Evaporation Percentage: Not Applicable (Mineral Solid)

Flammability (solid, gas): Not applicable (non-flammable substance)

Upper/Lower Flammability Limits: Not Applicable (Non-Flammable Substance) or Explosiveness:

Vapor Pressure: Not Applicable (Solid Mineral)

Vapor Density: Not Applicable (Mineral Solid)

Bulk density: 0.5 - 0.76 g/cm³ at 20°C

Actual density: 2.5 - 2.66 g/cm³ at 20°C

Relative Density: 2.66

Solubility: In water: 1.5 g/l at 20°C

Sharing coefficient (n-octanol/water): Not applicable

Self-flammability temperature: Not applicable (non-flammable solid)

Decomposition Temperature: Not available

Viscosity: Not applicable (solid)

Explosive properties: Not applicable (non-explosive substance)

Oxidizing properties: Not applicable (non-combustible substance)

9.2 Other information

No data are available on the miscibility or fat solubility (solvent-oil) of the mixture.

9.2.1 Information Regarding Physical Hazard Classification

Not applicable

9.2.2 Other Safety Features

Not applicable

10. STABILITY AND RESPONSIVENESS

10.1 Reactivity

In an aqueous environment, Ca(OH)_2 dissociates, leading to the formation of calcium cations and hydroxyl anions (if below the limit of solubility in water).

10.2 Chemical stability

The product is stable at room temperature and under normal conditions of use and storage.

10.3 Possibility of dangerous reactions

Natural hydraulic lime reacts exothermically with acids. When heated to more than 580°C , calcium hydroxide decomposes to produce calcium oxide (CaO) and water (H_2O): $\text{Ca(OH)}_2 \rightarrow \text{CaO} + \text{H}_2\text{O}$.

Calcium oxide reacts with water and generates heat; This can cause a risk to flammable materials.

10.4 Conditions to avoid

Minimize exposure to air and moisture to avoid degradation.

10.5 Incompatible materials

Natural hydraulic lime reacts exothermically with acids to form salts. In the presence of moisture, hydraulic lime reacts with aluminum and brass, producing hydrogen. $\text{Ca(OH)}_2 + 2\text{Al} + 6\text{H}_2\text{O} \rightarrow \text{Ca}[\text{Al(OH)}_4]_2 + 3\text{H}_2$.

10.6 Hazardous decomposition products

No hazardous decomposition products to our knowledge. Additional information: Calcium hydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature.

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes defined in Regulation (EC) No 1272/2008

Acute toxicity

No cases of acute toxicity to natural hydraulic lime have been observed; Therefore, an inhalation toxicity study with natural hydraulic lime is considered to be scientifically unjustified.

Oral: LD_{50} (rat) > 2000 mg/kg (OECD 425, test substance Ca(OH)_2 , rat). For cross-reference, these results are also applicable to natural hydraulic lime.

Skin: date not available

Inhalation: date not available

Classification for acute toxicity is not warranted.

For respiratory irritants see below.

Skin corrosion / skin irritation:

Calcium hydroxide is irritating to the skin. For cross-reference, these results are also applicable to natural hydraulic lime.

Based on experimental results of a similar substance, natural hydraulic lime is classified as a skin irritant [Skin corrosion/irritation, category 2 (H315 – Causes skin irritation)].

Serious eye injury/eye irritation:

Calcium hydroxide carries a risk of serious eye damage (in vivo study of eye irritation in rabbits). For cross-reference, these results are also applicable to natural hydraulic lime.

Based on experimental results of a similar substance, natural hydraulic lime is classified as a severe eye irritant [Serious eye injury / eye irritation, category 1 (H318 – Causes serious eye injury)].

Respiratory or skin sensitization:

No data are available.

Based on the nature of the effect (pH modification) and the essential need for calcium for human nutrition, hydraulic lime is considered to be non-sensitizing to the skin.

Some of the components that make up natural hydraulic lime, namely calcium carbonate, calcium silicate, and calcined clay minerals, are not known for just any sensitization.

Classification as 'sensitizer' is not justified.

Germ cell mutagenicity:

Bacterial reverse mutation test (Ca(OH)₂ et CaO, Tests d'Ames, OECD 471): negative.

Mammalian test for chromosomal aberration (Ca(OH)₂): negative.

For cross-reference, these results are applicable to natural hydraulic lime.

None of the components that make up natural hydraulic lime are known to be genotoxic.

The pH effect of natural hydraulic lime does not pose a mutagenic risk. There is also a lack of epidemiological data on the mutagenic potential of natural hydraulic lime.

Classification as genotoxicity is not justified.

Carcinogenicity:

Calcium (administered lactate Ca) is not carcinogenic (experimental result on rats). The effect of pH does not give rise to a carcinogenic risk. There is also a lack of epidemiological data regarding the carcinogenic potential of natural hydraulic lime.

The carcinogenic classification is not justified.

Reproductive toxicity:

Calcium (Ca administered in the form of carbonate) is not toxic to reproduction (experimental result in mice). The effect of pH does not pose a risk to reproduction.

There is also a lack of epidemiological data in terms of toxicity to the reproduction of natural hydraulic lime.

Clinical studies conducted in animals and humans [2], on different calcium salts, have found no effect on reproduction or development.

Natural hydraulic lime is non-toxic to reproduction and/or development.

Classification as 'toxic' to reproduction in accordance with Regulation (EC) No 1272/2008 is not justified.

Specific toxicity to some target organs – unique exposure:

Based on human data on calcium oxide and calcium hydroxide, it was cross-referenced that natural hydraulic lime is an irritant to the respiratory tract.

On the basis of data from humans (as recommended by SCOEL) and cross-referenced from similar substances (calcium oxide: CaO and calcium hydroxide: Ca(OH)₂), hydraulic lime has been classified as a respiratory irritant [Specific toxicity to certain target organs – Exposure only, category (H335 – May cause respiratory irritation)].

Specific toxicity to some target organs – repeated exposure:

The toxicity of orally administered calcium is determined by the Tolerable Upper Intake (UL) for adults:

UL = 2500 mg Ca/day for adults throughout their lifetimes, which corresponds to 36 mg calcium/kg body weight for a 70 kg adult (CSAH data: Scientific Committee on Food).

The dermal toxicity of natural hydraulic lime is not considered relevant due to the insignificant absorption by the skin and the primary effect of local irritation (change in pH).

The toxicity of natural inhaled hydraulic lime (local effect, irritation of mucous membranes) is determined according to CaO and Ca(OH)₂ by the Scientific Committee with regard to occupational exposure limits.

(SCOEL): DNEL = 1 mg/m³ respirable dust (see section 8.1) and VLEP (8 hours) = 1 mg/m³

Classification as 'toxic' following prolonged exposure is not justified.

Danger from inhalation:

Natural hydraulic lime does not present any danger to inspiration.

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

In the aquatic environment and soil, exposure to natural hydraulic lime is reduced to exposure to calcium and hydroxide ions.

Acute/chronic toxicity to fish stocks

LC50 (96 hours) for freshwater fish: 50.6 mg/l (calcium hydroxide)

LC50 (96 hours) for saltwater fish: 457 mg/l (calcium hydroxide)

Acute/Chronic Toxicity on Aquatic Invertebrates

EC50 (48 hours) for freshwater invertebrates: 49.1 mg/l (calcium hydroxide)

LC50 (96 hours) for marine invertebrates: 158 mg/l (calcium hydroxide)

Acute/Chronic Toxicity on Aquatic Plants

EC50 (72 hours) for freshwater: 184.57 mg/l (calcium hydroxide)

NOEC (72 hours) for fresh water: 48 mg/l (calcium hydroxide)

Toxicity to microorganisms such as bacteria

At high concentration, with the elevation of temperature and pH, calcium oxide is used for sewage sludge disinfection.

Chronic toxicity to aquatic organisms

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

Toxicity to land-dwelling organisms

EC10/LC10 or NOEC for soil macroorganisms: 2000 mg/kg dry soil (calcium hydroxide)

EC10/LC10 or NOEC for soil microorganisms: 12000 mg/kg dry soil (calcium hydroxide)

Toxicity to terrestrial flora

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

Generality

The product in its current state can be harmful to the aquatic environment due to changes in pH.

Although this product is useful for correcting the acidity of water, an excess of more than 1 g/l can be harmful to the water route. A pH > 12 decreases rapidly after dilution or carbonation

12.2 Persistence and degradability

Objectless (inorganic substance).

12.3 Bioaccumulation potential

Objectless (inorganic substance).

12.4 Mobility in the soil

Calcium hydroxide reacts with moisture and/or carbon dioxide in the air to form calcium carbonate, which is poorly soluble and therefore has poor mobility in most soils.

12.5 PBT and vPvB Assessment Results

Objectless (inorganic substance).

12.6 Endocrine disrupting properties

Data not available for the substance

12.7 Other Adverse Effects

Data not available for the substance

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Eliminate the container and the contents used in accordance with the requirements of the applicable Member States and locals, in Italy Legislative Decree 152/2006 is in force. The packaging used is intended for the packaging of this product only, it must not be reused for any other purpose. Dispose of the contents/receptacle at a waste collection point. Previously, the natural hydraulic lime must be rendered inert by hardening with water and the packages must be completely emptied.

14. TRANSPORTATION INFORMATION

The product is not subject to the requirements of the ADR/RID, OMI/IMDG and ICAO/IATA international transport regulations.

Note: The regulatory requirements set out above are those in force on the day the data sheet is updated. However, in view of the fact that regulations relating to the transport of hazardous materials are always possible, and if the safety data sheet in your possession is more than 12 months old, it is advisable to check with your sales agency that they are valid.

14.1 UN number or ID number

Not regulated.

14.2 Official UN Transport Designation

Not regulated.

14.3 Transport-related hazard classes

Not regulated.

14.4 Packaging group

Not regulated.

14.5 Hazards to the environment

Nobody.

14.6 Special precautions for users

Avoid any dust leakage during transport.

14.7 Maritime bulk transport in accordance with IMO acts

Not regulated.

15. REGULATORY INFORMATION

15.1 Health, safety and environmental laws and regulations specific to the substance or mixture

- Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Use

of Chemicals (REACH) as amended

- Regulation (EC) 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and Regulation 1907/2006/EC (CLP) and subsequent amendments and additions.
- Legislative Decree no. 81 of 9/04/2008 and subsequent amendments and additions "Implementation of Article 1 of Law No. 123 of 3 August 2007 on the protection of health and safety in the workplace".
- Legislative Decree 152/2006 "Environmental Regulations" and subsequent amendments
- Legislative Decree no. 44 of 1 June 2020 "Implementation of Directive (EU) 2017/2398 of the European Parliament and of the Council of 12 December 2017 amending Council Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.
- Decree no. 47 of 9 August 2021 approving the "Guidelines on the classification of waste" referred to in the resolution of the Council of the National System for the Protection of the Environment of 18 May 2021, no. 105, as provided for by art. 184, paragraph 5 of Legislative Decree no. No. 152 of 2006, as amended by Legislative Decree no. No. 116 of 2020.

15.2 Chemical Safety Assessment

No chemical safety assessment is required.

16. OTHER INFORMATION

16.1 Indication of changes

This Safety Data Sheet has been revised pursuant to Regulation (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and to take into account the update of the reference standards for Personal Protective Equipment.

The October 2023 revision relates to the corporate change.

16.2 Abbreviations and acronyms

ACGIH: American Conference of Industrial Hygienists

ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail

APF: Assigned Protection Factor

CAS: Chemical Abstract Service

CLP: Classification, Labelling and Packaging (Regulation 1272/2008)

COPD: Chronic Obstructive Pulmonary Disease

DDT: Transport Document

DNEL: Derived no-effect level

PPE: Personal Protective Equipment

EC50: half maximale effective concentration

ECHA: European Chemical Health Agency

EPA: High Efficiency Air Filters (Particulate Matter)

FF P: Filtering Facepiece against Particles (disposable)

FM P: Filtering Mask against Particles with filter cartridge

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods

IMO: International Maritime Organization

IMSBC: International Maritime Solid Bulk Cargoes

LC50: Median lethal dose

MEASE: Metal Estimation and Assessment of Substance Exposure, EBRC Consulting GmbH for Eurometaux, <http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php>

OEL: occupational exposure limit
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
PROC: Process Categories
RPE: Respiratory Protective Equipment
REACH: Registration, Evaluation and Authorization of Chemicals
SDS: Safety Data Sheet
STOT RE: Specific Target Organ Toxicity (Repeated Exposure)
STOT SE: Specific Target Organ Toxicity (Single Exposure)
TLV-TWA: Threshold Limit Value-Time Weighted Averages
vPvB: Very persistent, very bioaccumulative

16.3 Bibliographical references and key data sources

- 1 U.S. EPA, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1994a) and 4th ed. EPA-821-R-02-013, U.S. EPA, Office of Water, Washington D.C. (2002).
- 2 U.S. EPA, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1993) and 5th ed. EPA-821-R-02-012, U.S. EPA, Office of Water, Washington D.C. (2002).
- 3 Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology, Laboratory Results, and Model Development. NCHRP report 448, National Academy Press, Washington, D.C., 2001.
- 4 ECB: European Chemicals Bureau (Bureau Européen des substances Chimiques)
- 5 CIRC: International Centre for Research on Cancer (Centre International de Recherche sur le Cancer)
- 6 HSDB: (Hazardous Substances Data Bank) (National Library of Medicine)
- 7 INRS: (Institut National de Recherche et de Sécurité)
- 8 IUCLID: (International Uniform Chemical Information data Base)
- 9 RTECS: (Registry of Toxic effects of Chemical Substances)
- 10 [1] SCOEL: Anonymous, 2008: Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL) for calcium oxide (CaO) and calcium dihydroxide (Ca(OH)₂), European Commission, DG Employment, Social Affairs and Equal Opportunities, SCOEL/SUM/137 February 2008
- 11 [2] Anonymous, 2006: Tolerable upper intake levels for vitamins and minerals Scientific Committee on Food, European Food Safety Authority, ISBN: 92-9199-014-0 [SCF document]

16.4 Disclaimer

The information contained in this SDS reflects the current knowledge available and it is reliable to expect that the product will be used under the prescribed conditions and in accordance with the indications provided on the packaging and/or in the technical literature. For any other use of the product, including the use of the product in combination with other products or in other processes, the responsibility lies with the user.

It is implicit that the user is responsible for the specifically identified security measures and for the application of the appropriate operating procedures concerning the prevention of risks in its activities.

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