Health and Safety Information Hydrated Lime

IRRITANT

LAFARGE
bringing materials to life

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/ UNDERTAKING

1.1 Identification of the substance/preparation

An odourless white powder mainly insoluble in water. This datasheet applies to the following products:

- Hydralime

1.2 Use of the substance/preparation

Used mainly to improve the plasticity, cohesiveness and water retention of Portland hydrated lime mortars and renders and gypsum plaster. May be used for soil stabilization, effluent treatment and calcium silicate bricks. Please note that this list is not exhaustive.

1.3 Company identification

Lafarge Hydrated lime United Kingdom
Portland House
Bickenhill Lane
Birmingham B37 7BQ

Technical helpline: 0845 812 6232

Email: info@lafargehydrated lime .co.uk

1.4 Emergency telephone

Emergency telephone number available during office hours: Tel 0845 812 6232

Emergency telephone number available outside office hours: No

2. HAZARD IDENTIFICATION

When hydrated lime reacts with water for instance when making mortar, or when the hydrated lime becomes damp, a strong alkaline solution is produced.

2.1 Hazard characterisation

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R37/38 Irritating to respiratory system and skin

R41 Risk of serious damage to eyes

R43 May cause sensitisation by skin contact

2.2 Primary route(s) of entry

Inhalation: Yes

Skin - eyes: Yes

Ingestion: No, except in accidental cases

2.3 Human health

Inhalation: Frequent inhalation of large quantities of hydrated lime dust over a long period of time increases the risk of developing lung diseases.

Eyes: Eye contact with hydrated lime (dry or wet) may cause serious and potentially irreversible injuries.

Skin: Hydrated lime may have an irritating effect on moist skin (due to transpiration or humidity) after prolonged contact. Prolonged skin contact with wet hydrated lime may cause serious burns because they develop without pain being felt. Repeated skin contact with wet hydrated lime may cause contact dermatitis. For more details see Reference (1).

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical composition

Calcium Hydroxide $Ca(OH)_2$ > 90%. Small quantities of calcium carbonate, calcium oxide, magnesium oxide, silicon oxide, aluminium oxide, iron oxide and trace elements. Product is obtained from natural minerals; purity level may vary according to their origins.

3.2 Components presenting a health hazard

Substance	Calcium Hydroxide
Concentration range (by weight in hydrated lime)	90%
EINECS	215-137-3
CAS	1305-62-0
Symbol (C&L)	 IRRITANT
R	R37 R38 R41 R43

4. FIRST AID MEASURES

When contacting a physician, take this safety datasheet with you.

4.1 After significant accidental inhalation

Move person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops or if discomfort, coughing or other symptoms subside.

4.2 After contact with eyes

Do not rub eyes, as additional cornea damage is possible by mechanical stress. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 45 minutes to remove all particles. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

4.3 After skin contact

For dry hydrated lime, remove and rinse abundantly with water. For wet hydrated

lime, wash skin with water. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

4.4 After significant accidental ingestion

Do not induce vomiting. If person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact anti poison centre.

5. FIRE-FIGHTING MEASURES

5.1 Flashpoint and method

Hydrated limes are non-combustible and non-explosive and will not facilitate nor support combustion of other materials.

5.2 Extinguishing media

All types of extinguishing media are suitable.

5.3 Fire fighting equipment

Hydrated lime poses no fire-related hazards. No need for specialist protective equipment for fire fighters.

5.4 Combustion products

None.

5.5 Flammable limits: Lower explosion limit LEL – Upper explosion limit UEL

Not applicable.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal protective measures

Wear protective equipment as described under Heading 8 and follow the advice for safe handling and use given under Heading 7. Emergency procedures are not required.

6.2 Environment protection measures

Do not wash hydrated lime down sewage and drainage systems or into bodies of water (e.g. streams).

6.3 Methods for cleaning up

Recover the spillage in a dry state if possible.

Dry hydrated lime: Use dry cleanup methods that do not cause airborne dispersion, e.g.:

- Vacuum cleaner (Industrial portable units, equipped with high efficiency particulate filters (HEPA filter) or equivalent technique).
- Wipe-up the dust by mopping, wet brushing or water sprays or hoses (fine mist to avoid that the dust becomes airborne) and remove slurry. If not possible, remove by slurrying with water (see wet hydrated lime).

When wet cleaning or vacuum cleaning is not possible and only dry cleaning with brushes can be done, ensure that the workers wear appropriate personal protective equipment and prevent dust from spreading.

Avoid inhalation of hydrated lime and contact with skin. Place spilled materials into a container before disposal as described under Heading 13.

Wet hydrated lime: Clean up wet hydrated lime and place in a container before disposal as described under Heading 13.

7. HANDLING AND STORAGE

Do not handle or store near food and beverages or smoking materials.

7.1 Handling

Follow the recommendations as given under Heading 8.

- For (bagged) hydrated lime used in open-ended mixers: Keep the height of the fall low. Start the mixing smoothly. Do not compress empty bags, except when contained in another clean bag.
- To clean up dry hydrated lime, see heading 6.3.

Carrying hydrated lime bags may cause sprains and strains to the back, arms, shoulders and legs. Handle with care and use appropriate control measures.

7.2 Storage

Bulk hydrated lime should be stored in silos that are waterproof, dry (internal condensation minimized), clean and protected from contamination.

Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck, or other storage container or vessel that stores or contains hydrated lime without taking the proper security measures. Hydrated lime can build-up or adhere to the walls of a confined space. The hydrated lime can release, collapse or fall unexpectedly.

Packed products should be stored in unopened bags clear of the ground in cool, dry conditions and protected from excessive draught in order to avoid degradation of quality.

Bags should be stacked in a stable manner.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure limit values (Workplace Exposure Limits (WEL))

WEL 8hr Time Weighted Average (TWA):

- Total inhalable dust 10mg/m^3
- Respirable dust 4mg/m^3

8.2 Exposure controls

8.2.1 Occupational exposure controls

General: During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn.

Do not eat, drink or smoke when working with hydrated lime to avoid contact with skin or mouth. Immediately after working with hydrated lime or hydrated lime containing materials, workers should wash or shower or use skin moisturizers. Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them.

Respiratory protection: When a person is exposed to dust above exposure limits, use appropriate respiratory protection. It should be adapted to the dust level and conform to the relevant EN standard. Suitable respiratory protection should be worn to ensure that personal exposure is less than the WEL.

Eye protection: Wear approved glasses or safety goggles according to EN 166 when handling dry or wet hydrated lime to prevent contact with eyes.

Skin protection: Use impervious, abrasion and alkali resistant gloves (made of low soluble Cr (VI) containing material), internally lined with cotton, boots, closed long-sleeved protective clothing and additionally skin care products (including barrier creams) to protect the skin from prolonged contact with wet hydrated lime. Particular care should be taken to ensure that wet hydrated lime does not enter the boots. In some circumstances waterproof trousers or kneepads are necessary.

8.2.2 Environmental exposure controls

According to available technology.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information

Dry hydrated lime is a finely ground inorganic material (odourless, white powder)

9.2 Physical data

Mean particle size: 5-30 µm

Solubility in water (T = 20 °C): 1.65 g/l

Density: 2.25 g/cm^3

Apparent density (ES): 0.3-0.8 g/cm^3

pH (T = 20°C in water): 12.0-13.5

Melting (decomposition) point: 580 °C

Vapour pressure, vapour density, evaporation rate, freezing point, viscosity: Not relevant

10. STABILITY AND REACTIVITY

10.1 Stability

Dry hydrated limes are stable as long as they are stored properly (see Heading 7) and compatible with most other building materials.

10.2 Conditions to avoid

Minimise exposure to air and moisture to avoid degradation. When heated above 580°C, calcium hydroxide decomposes to produce calcium oxide and water.

10.3 Materials to avoid

Calcium hydroxide reacts with carbon dioxide to form Calcium carbonate.

Calcium hydroxide reacts with acids to form Calcium salts.

Calcium hydroxide reacts with aluminium and brass in the presence of moisture, leading to the production of hydrogen gas.

10.4 Hazardous decomposition products

Hydrated limes will not decompose into other hazardous by-products and do not polymerise.

11. TOXICOLOGICAL INFORMATION

11.1 Acute effects

Eye contact: Direct contact with hydrated lime may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact by larger amounts of dry hydrated lime or splashes of wet hydrated lime may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to chemical burns and blindness.

Skin contact: Dry hydrated lime in contact with wet skin or exposure to moist or wet hydrated lime may cause thickening, cracking or fissuring of the skin. Prolonged contact in combination with abrasion can cause severe burns.

Acute dermal toxicity: Limit test, rabbit, 24 hours contact, 2 000 mg/kg body weight – no lethality [Reference (2)].

Ingestion: Swallowing large quantities may cause irritation to the gastrointestinal tract.

Inhalation: Hydrated lime may irritate the throat and respiratory tract. Coughing, sneezing, and shortness of breath may occur following exposures in excess of occupational exposure limits.

11.2 Chronic effects

Inhalation: Chronic exposure to respirable dust in excess of occupational exposure limits may cause coughing, shortness of breath and may cause chronic obstructive lung disease (COPD).

Carcinogenicity: A causal association between hydrated lime exposure and cancer has not been established [Reference (1)].

Contact dermatitis/Sensitising effects: Some individuals may exhibit eczema upon exposure to wet hydrated lime, caused by the high pH which induces irritant contact dermatitis. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis and is a combination of those two mechanisms. An exact diagnosis is often difficult to assess.

11.3 Medical conditions aggravated by exposure

Inhaling hydrated lime dust may aggravate existing respiratory system disease(s) and/or medical conditions such as emphysema or asthma and/or existing skin and/or eye conditions.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

The product is not expected to be hazardous to the environment (LC50 aquatic toxicity not determined). The addition of large amounts of hydrated lime to water may, however, cause a rise in pH and may therefore be toxic to aquatic life under certain circumstances.

12.2 Mobility

Dry hydrated lime is not volatile but might become airborne during handling operations.

12.3 Persistence and degradability/Bio accumulative potential/Results of PBT assessment/Other adverse effects

Not relevant as hydrated lime is an inorganic material. After hardening, hydrated lime presents no toxicity risks.

13. DISPOSAL CONSIDERATIONS

13.1 Product - hydrated lime that has exceeded its shelf life

Disposal should be in accordance with current local and national legislation. Hydrated lime can normally be disposed only to licensed waste facilities.

13.2 Product - unused residue or dry spillage

Pick up dry. Mark the containers. Possibly reuse depending upon shelf life considerations and the requirement to avoid dust exposure. In case of disposal, expose to water and dispose according to 13.4.

13.3 Product – slurries

Avoid entry in sewage and drainage systems or into bodies of water (e.g. streams) and dispose of as indicated in 13.4.

13.4 Product - after addition of water

Dispose of according to the local legislation. Avoid entry into the sewage water system. Not classified as hazardous for transport.

13.5 Packaging

Completely empty the packaging and process it according to local legislation.

EWC entry: 15 01 01 (waste paper and cardboard packaging).

14. TRANSPORT INFORMATION

Hydrated lime is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID) and therefore no classification is required.

No special precautions are needed apart from those mentioned under Heading 8.

15. REGULATORY INFORMATION

15.1 Classification and labelling of hydrated lime according to 1999/45/EC

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Risk phrases

R37/38 Irritating to respiratory system and skin

R41 Risk of serious damage to eyes

R43 May cause sensitisation by skin contact

Safety phrases

S2 Keep out of reach of children

S22 Do not breathe dust

S24/25 Avoid contact with skin and eyes

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

S46 If swallowed, seek medical advice immediately and show this container or label

15.2 National legislation/requirements

CONIAC Health Hazard Information Sheet No. 26 (CEMENT)

Health and Safety at Work etc Act 1974

Control of Substances Hazardous to Health (Regulations)

HSE Guidance Notes EH26 (Occupational Skin Diseases – Health and Safety Precautions)

HSE Guidance Note EH40 (Workplace Exposure Limits)

Any authorised manual on First Aid by St. John's/St. Andrew's/Red Cross

Manual Handling Operations Regulations

Environmental Protection Act

16. OTHER INFORMATION

Abbreviations

- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transport Association
- ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail
- LC50 Lethal Concentration where 50% of the test animals dies.
- OEL : Occupational Exposure Limit
- TWA: Time Weighted Averages

References

(1) Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. Available from:

http://www.hse.gov.uk/pubns/web/portlandCement.pdf

(2) Observations on the effects of skin irritation caused by cement, Kietzman et al, Dermatosen, **47**, 5, 184-189 (1999).

(3) European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement (European Commission, 2002).

(4) Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr (VI) in Cement, NIOH, Page 11, 2003.

HEALTH AND SAFETY – LAFARGE HYDRATED LIME

The information on this datasheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user. It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his own activities.

The information in this datasheet is accurate at the time of printing, but Lafarge Cement UK reserve the right to amend details as part of their product development programme.

For further information

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