

Safety information

HYDRALIME

Health and Safety Information Prepared in accordance with Annex II of the REACH Regulation EC 1907/2006, Regulation (EC) 1272/2008 and Regulation (EC) 453/2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier	
Substance name	Hydrated Lime
Synonyms	Slaked lime, Air slaked lime, Building lime, Fat lime, Chemical lime, Finishing lime, Mason's lime, Calcium dihydroxide, Calcium hydroxide, Calcium hydrate, Lime, Lime water. Please note that this list may not be exhaustive.
Chemical name and formula	Calcium dihydroxide - Ca(OH) ₂
Trade name	Hydralime
CAS	1305-62-0
EINECS	215-137-3
Molecular weight	74,09 g/mol
REACH Registration number	01-2119475151-45-0053

1.2 Relevant identified uses of the substance or mixture and uses advised against

Please check the identified uses in Table 1 of the Appendix of this SDS. Uses advised against: There are no uses advised against.

1.3 Details of the supplier of the safety data sheet

Tarmac Cement and Lime Ltd,
 T3 Trinity Park, Bickenhill Lane,
 Birmingham B37 7ES

Technical helpdesk: 0345 812 6232

Email: info-cement@tarmac.com

1.4 Emergency telephone

Emergency telephone number available during office hours **(08:30 – 16:00): Tel +44 (0)345 812 6232** (English Language only)

Emergency telephone number available outside office hours: **999**

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance

- STOT Single Exp. 3, Route of exposure: Inhalation
- Skin Irritation 2
- Eye Damage 1

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008

Signal word

DANGER

Hazard pictogram



Hazard statements

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

Precautionary statements

- P102: Keep out of 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. Immediately call a POISON CENTER or doctor/physician.

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P302+P352:

IF ON SKIN: Wash with plenty of soap and water.

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P304+P340:

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P501: Dispose of contents/container to hazardous waste collection point.

2.3 Other hazards

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Composition

Main constituent

Name: Calcium dihydroxide

CAS: 1305-62-0

EINECS: 215-137-3

Impurities

Name: Calcium dihydroxide

CAS: 1305-62-0

EINECS: 215-137-3

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

No known delayed effects. Consult a physician for all exposures except for minor instances.

Following inhalation

Move source of dust or move person to fresh air. Obtain medical attention immediately.

Following skin contact

Carefully and gently brush the contaminated body surfaces in order to remove all traces of product. Wash affected area immediately with plenty of water. Remove contaminated clothing. If necessary seek medical advice.

Following eye contact

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

Following ingestion

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Calcium dihydroxide is not acutely toxic via the oral, dermal, or inhalation route. The substance is classified as irritating to skin and the respiratory tract, and entails a risk of serious damage to the eye. There is no concern for adverse systemic effects because local effects (pH-effect) are the major health hazard.

4.3 Indication of any immediate medical attention and special treatment needed

Follow the advice given in section 4.1.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

Suitable extinguishing media: The product is not combustible. Use a dry powder, foam or CO₂ fire extinguisher to extinguish the surrounding fire. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2 Suitable extinguishing media

Do not use water.

5.2 Special hazards arising from the substance or mixture

None.

5.3 Advice for fire-fighters

Avoid generation of dust. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.



SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Ensure adequate ventilation. Keep dust levels to a minimum. Keep unprotected persons away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).

Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8).

6.1.2 For emergency responders

Keep dust levels to a minimum. Ensure adequate ventilation. Keep unprotected persons away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).

Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8).

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

For more information on exposure controls /personal protection or disposal considerations, please check sections 8 and 13 of this safety data sheet.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 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.

7.1.2 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 (ie, 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.

7.2 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.

7.3 Specific end use(s)

Please check the identified uses in Table 1 of the Appendix of this SDS. For more information please see the relevant exposure scenario in the Appendix, and check section 2.1: Control of worker exposure.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

SCOEL recommendation (SCOEL/SUM/137 February 2008): Occupational Exposure Limit (OEL), 8h TWA: 1 mg/m³ respirable dust of calcium dihydroxide
Short-term exposure limit (STEL), 15 min: 4 mg/m³ respirable dust of calcium dihydroxide
PNEC aqua = 490 µg/IPNEC soil/groundwater = 1080 mg/l.

8.2 Exposure controls

To control potential exposures, generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (eg, goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (ie, 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.

8.2.1 Appropriate engineering controls

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

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Do not wear contact lenses. For powders, tight fitting goggles with side shields, or wide vision full goggles. It is also advisable to have individual pocket eyewash.

8.2.2.2 Skin protection

Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to 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.

8.2.2.3 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 - please check the relevant exposure scenario, given in the Appendix.

8.2.2.4 Thermal hazards

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

8.2.3 Environmental exposure controls

All ventilation systems should be filtered before discharge to atmosphere. Avoid releasing to the environment. Contain the spillage. Any large spillage into watercourses must be alerted to the Environment Agency or other regulatory body. For detailed explanations of the risk management measures that adequately control exposure of the environment to the substance please check the relevant exposure scenario, available via your supplier. For further detailed information, please check the Appendix of this SDS.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	20%
Odour	Odourless
Odour threshold	Not applicable
pH	12.4 (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 point	Not applicable (solid with a melting point > 450°C)
Flammability	Non flammable (study result, EU A.10 method)
Explosive limits	Non explosive (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	2.24 (study result, EU A.3 method)
Solubility in water	1844.9 mg/L (study results, EU A.6 method)

Partition coefficient	Not applicable (inorganic substance)
Auto ignition temperature	Not relative self-ignition temperature below 400°C (study result, EU A.16 method).
Decomposition temperature	When heated above 580°C, calcium dihydroxide decomposes to produce calcium oxide (CaO) and water (H ₂ O).
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)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

In aqueous media Ca(OH)₂ dissociates under formation of calcium cations and hydroxyl anions (when below the solubility).

10.2 Chemical stability

Under normal conditions of use and storage, calcium dihydroxide is stable.

10.3 Possibility of hazardous reactions

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.

10.4 Conditions to avoid

Minimise exposure to air and moisture to avoid degradation.

10.5 Incompatible materials

Reacts exothermically with acids to form salts. Reacts with aluminium and brass in the presence of moisture leading to the production of hydrogen. Ca(OH)₂ + 2Al + 6H₂O → Ca[Al(OH)₄]₂ + 3H₂.

10.6 Hazardous decomposition products

None. Further information: Calcium dihydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature: Ca(OH)₂ + CO₂ → CaCO₃ + H₂O.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Calcium dihydroxide is classified as irritating to skin and the respiratory tract and it entails a risk of serious damage to the eye. The occupational exposure limit for the prevention of local sensory irritation and decrease of lung function parameters as critical effects is OEL (8 h) = 1 mg/m³ respirable dust.

Toxicity endpoints	Outcome of the effects assessment
Absorbtion	The primary health effect of calcium dihydroxide is local irritation due to a pH shift. Therefore, absorbtion is not a relevant parameter for the effects assessment
Acute toxicity	Calcium dihydroxide is not acutely toxic
Oral	LD50 > 2000 mg/kg bw (OECD 425, rat)
Dermal	LD50 > 2500 mg/kg bw (OECD 402, rabbit)
Inhalation	No data available. Classification for acute toxicity is not warranted. For irritating effects to the respiratory tract see below
Irritation/corrosion	<p>Eye irritation: Calcium dihydroxide entails a risk of serious damage to the eye (eye irritation studies (in vivo, rabbit). Skin irritation Calcium dihydroxide is irritating to skin (in vivo, rabbit).</p> <p>Respiratory irritation: From human data it is concluded that Ca(OH)₂ is irritating to the respiratory tract. Based on experimental results, calcium dihydroxide requires classification as irritating to skin [R38, irritating to skin; Skin Irrit 2 (H315 - Causes skin irritation)] and as severely irritating to the eye [R41, Risk of serious damage to eye; Eye Damage 1 (H318 - Causes serious eye damage)].</p> <p>As summarised and evaluated in the SCOEL recommendation (Anonymous, 2008), based on human data it is proposed to classify calcium dihydroxide as irritating to the respiratory system [R37, Irritating to respiratory system; STOT SE 3 (H335 - May cause respiratory irritation)].</p>

Sensitisation	No data available. Calcium dihydroxide is considered not to be a skin sensitiser, based on the nature of the effect (pH shift) and the essentiality of calcium for human nutrition. Classification for sensitisation is not warranted.
Repeated dose toxicity	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 Ca(OH) ₂ 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 Ca(OH) ₂ via inhalation (local effect, irritation of mucous membranes) is addressed by an 8-h TWA determined by the Scientific Committee on Occupational Exposure Limits (SCOEL) of 1 mg/m ³ respirable dust. Therefore, classification of Ca(OH) ₂ for toxicity upon prolonged exposure is not required.
Mutagenicity	Bacterial reverse mutation assay (Ames test, OECD 471): Negative. Mammalian chromosome aberration test: Negative. In view of the omnipresence and essentiality of Ca and of the physiological non-relevance of any pH shift induced by lime in aqueous media, lime is obviously void of any genotoxic potential. Classification for genotoxicity is not warranted.
Carcinogenicity	Calcium (administered as Ca-lactate) is not carcinogenic (experimental result, rat). The pH effect of calcium dihydroxide does not give rise to a carcinogenic risk. Human epidemiological data support lack of any carcinogenic potential of calcium dihydroxide. Classification for carcinogenicity is not warranted.
Toxicity for reproduction	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 dihydroxide. Both in animal studies and human clinical studies on various calcium salts no reproductive or developmental effects whatsoever were detected. Also see the Scientific Committee on Food (Anonymous, 2006). Thus, calcium dihydroxide is not toxic for reproduction and/or development. Classification for reproductive toxicity according to regulation (EC) 1272/2008 is not required.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Acute/Prolonged toxicity to fish

LC50 (96h) for freshwater fish: 50.6 mg/l
LC50 (96h) for marine water fish: 457 mg/l

12.1.2 Acute/Prolonged toxicity to aquatic invertebrates

EC50 (48h) for freshwater invertebrates: 49.1 mg/l
LC50 (96h) for marine water invertebrates: 158 mg/l

12.1.3 Acute/Prolonged toxicity to aquatic plants

EC50 (72h) for freshwater algae: 184.57 mg/l
NOEC (72h) for freshwater algae: 48 mg/l

12.1.4 Toxicity to micro-organisms e.g. bacteria

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

12.1.5 Chronic toxicity to aquatic organisms

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

12.1.6 Toxicity to soil dwelling organisms

EC10/LC10 or NOEC for soil macroorganisms: 2000 mg/kg soil dw
EC10/LC10 or NOEC for soil microorganisms: 12000 mg/kg soil dw

12.1.7 Toxicity to terrestrial plants

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

12.1.8 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.

12.2 Persistence and degradability

Not relevant for inorganic substances.

12.3 Bioaccumulative potential

Not relevant for inorganic substances.



12.4 Mobility in soil

Calcium dihydroxide, is sparingly soluble, and so present a low mobility in most ground conditions.

12.5 Results of PBT and vPvB assessment

Not relevant for inorganic substances.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal of calcium dihydroxide 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.

SECTION 14: TRANSPORT INFORMATION

Calcium dihydroxide is not classified as hazardous for transport (ADR (Road), RID (Rail), IMDG / GGVSea (Sea)).

14.1 UN number

Not regulated.

14.2 UN proper shipping name

Not regulated.

14.3 Transport hazard class(es)

Not regulated.

14.4 Packing group

Not regulated.

14.5 Environmental hazards

None.

14.6 Special precautions for user

Avoid any release of dust during transportation, by using tight tanks.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not regulated.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture

Authorisations

Not required.

Restrictions of use

None.

Other EU regulations

Calcium dihydroxide is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.

National regulations

Water endangering class 1 (Germany).

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance. An exposure scenario (ES) is available as Annex A to this MSDS. This Annex relates to the uses applicable to the Hydralime product.

SECTION 16: OTHER INFORMATION

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.1 Hazard Statements

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

16.2 Precautionary Statements

P102: Keep out of reach of children
P280: Wear protective gloves/protective clothing/eye protection/face protection
P305+P351: IF IN EYES: Rinse cautiously with water for several minutes.
P310: Immediately call a POISON CENTER or doctor/physician.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

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P304+P340:

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P501: Dispose of contents/container to hazardous waste collection point

16.3 Abbreviations and acronyms

EC50	Median effective concentration
LC50	Median lethal concentration
LD50	Median lethal dose
NOEC	No observable effect concentration
OEL	Occupational exposure limit
PBT	Persistent, bio-accumulative and toxic
PNEC	Predicted no-effect concentration
STEL	Short term exposure limit
TWA	Time-Weighted Average
vPvB	Very persistent, very bio-accumulative material

16.4 Key literature references and sources of data

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] Anonymous, 2008: Recommendation from the Scientific Committee on Occupational Exposure Limits for calcium oxide (CaO) and calcium dihydroxide (Ca(OH)₂), European Commission, DG Employment, Social Affairs and Equal Opportunities, SCOEL/SUM/137 February 2008.

The information given in this technical data sheet is based on our current knowledge and is intended to provide general notes on our products and their uses. Tarmac endeavour to ensure that the information given is accurate, but accept no liability for its use or its suitability for particular application because of the product being used by the third party without our supervision. Any existing intellectual property right must be observed.

DISCLAIMER

This material safety data sheet (MSDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this MSDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this MSDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the MSDS supersedes all previous versions.

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