SECTION 1 : Identification of the substance and of the company

1.1 Product identifier

Natural hydraulic lime with hydraulic admixtures, HL, stipulated by standard NF EN 459-1 :2012
Trade name: "Nathural", "Crualys"

	EINECS	CAS	Reach Registration #
Natural Hydraulic Lime	285-561-1	85117-09-5	01-2119475523-36-0004

1.2 Relevant identified uses of the substance and uses advised against

Uses: Render, colorwash, mortar, injection grout.
Table 1, in annex, gives the overview on exposure scenarios and coverage of substance life cycle.
Any use not specified above is advised against.

1.3 Details of the supplier of the safety data sheet

Company name: LAFARGEHOLCIM CIMENTS
Address: 2 Avenue du Général de Gaulle - 92140 CLAMART
Telephone: 01 58 00 60 00
Fax: 01 58 00 60 02

Email: crc@lafarge.com

1.4 Emergency telephone

ORFILA (INRS) number: 01 45 42 59 59
European emergency telephone: 112
Ambulance service: 15
Fire service: 18

SECTION 2 : Hazards identification

2.1 Classification of the substance

Classification according to regulation 1272/2008/EC and its amendments

H315 Causes skin irritation
Corrosion/Skin irritation – category 2
H 318 Causes serious eye damage
Serious eye damage/eye irritation – category 1
H 335 May cause irritation of the respiratory system
Specific target organ systemic toxicity – Single exposure, category 3, irritation of the respiratory system

2.2 Label elements

Labelling in accordance with CLP regulations

Hazard pictograms:

Signal word: **Danger**

Hazard statements:

H315: Causes skin irritation

H318: Causes serious eye damage

H335: May cause irritation of the respiratory system

Precautionary statement:

P102: Keep out of reach of children

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: seek medical advice/attention.

P261+P304+P340: Avoid breathing dust. IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician if you feel unwell.

P363: Wash contaminated clothing before reuse

P501: Dispose of the contents/packaging in a waste treatment center. Natural hydraulic lime must first be made inert by hardening with water and packaging must be completely emptied.

2.3 Other hazards

Not applicable: the substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation.
No other hazards identified.

SECTION 3 : Composition/information on ingredients

3.1 Substance

Components	Concentration	EINECS	CAS
Calcium dihydroxyde	15 - 65%	215-137-3	1305-62-0
Calcium silicate	10 - 45%	233-107-8	10034-77-2
Calcium carbonate	10 - 40%	207-439-9	471-34-1

Impurities: no impurities relevant to classification and labeling.

SECTION 4 : First aid measures

4.1 Description of first aid measures

General advice:
No known delayed effects. Contact a doctor/physician in all cases of severe exposure or if in doubt.

In the event of eye contact:
Do not rub eyes in order to avoid possible cornea damage as a result of mechanical stress.

Remove contact lenses if any. Incline head to injured eye, open the eyelid(s) widely and flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 20 minutes to remove all particles. Avoid flushing particles into uninjured eye. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

In the event of skin contact:
Remove all traces of product by gently and carefully brushing the affected areas of the body. Rinse the affected area abundantly with running water. Remove contaminated clothing, footwear, etc. and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

In the event of inhalation:
Move the 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 persist.

In the event of ingestion:
Do not induce vomiting. If the person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact the anti-poison center.

4.2 Most important symptoms and effects, both acute and delayed

NHL lime does not have acute toxicity in respect of oral, skin or respiratory exposure.
The substance is classified as irritant for the skin and respiratory ways and presents a risk of serious eyes damage.
No deadly effects are suspected; the principal danger is restricted to localized effects (pH effect).

4.3 Indication of any immediate medical attention and special treatment needed

No immediate medical attention or special treatment is currently indicated. Follow the advice given in Section 4.1
When contacting a physician, take this SDS with you.

SECTION 5 : Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Natural hydraulic lime is non-flammable.
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.
Unsuitable extinguishing media
Do not use water

5.2 Special hazards arising from the substance

The product is non-combustible and non-explosive. It poses no special hazard in the event of fire

5.3 Advice for firefighters

Avoid dispersion of dust. Use breathing apparatus. Use fire-fighting equipment suitable to the local circumstances and specific environment.
Do not discharge extinguisher water into the local environment.

SECTION 6 : Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Wear protective equipment as described under Section 8 and follow the advice for safe handling and use given under Section 7.

6.1.2. For emergency personnel

Emergency procedures are not required.
However, respiratory protection is needed in situations with high dust levels.

6.2 Environmental precautions

Collect the spillage. Maintain the material in a dry state if possible. If possible, cover the area to prevent any unnecessary hazard caused by dust. Do not wash uncontrolled residues into groundwater networks or down drainage systems (increases pH). Any significant spillage into groundwater networks must be notified to the Environment Agency or any other competent body.

6.3 Methods and material for containment and cleaning up

Collect the product and place in a suitably labeled emergency container.
Prevent or limit the formation and spreading of dust.
Maintain the material in a dry state if possible.
Collect the product mechanically, in a dry state. Use cleanup methods which do not cause airborne dispersion of the product, such as vacuum clean-up or vacuum extraction (portable industrial systems equipped with high-efficiency air filters - EPA and HEPA - according to standard NF EN 1822-1:2010 - or equivalent technique). Never use compressed air.

6.4 Reference to other sections

See Sections 8 and 13 for more details on exposure controls/personal protection and disposal considerations.

SECTION 7 : Handling and storage

7.1 Precautions for safe handling

7.1.1. Protective measures

Avoid contact with skin, eyes and mucous membranes. Wear appropriate 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.

Avoid the formation and spreading of dust. Close sources of dust and use extraction fans (dust collector at handling points). Also include transportation systems.

Comply with Directive 90/269/CEE when handling bags of natural hydraulic lime.

7.1.2. Advice on general occupational hygiene

Avoid inhalation, ingestion, as well as contact with your skin and eyes.

Barrier creams may be used.

Wash your hands after any handling.

General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices, regular cleaning of the workplace, no eating, drinking or smoking in the workplace.

Shower and change clothes at the end of work. Do not wear contaminated clothes at home.

Separate work clothes from street clothes. Clean them separately.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for safe storage:

Keep out of reach of children.
Store in a dry place.

Do not use aluminum for transportation and storage if there is a risk of contact with water.

Bulk storage must be in dedicated silos.

Incompatible materials:

Strong acids and nitrogen compounds.

Organic materials.

Avoid contact with the air and humidity.

7.3 Specific end use(s)

No additional information for specific end uses (see sub-section 1.2).

SECTION 8 : Exposure controls/personal protection

8.1 Control parameters

8.1.1. DNEL and PNEC

DNEL inhalation (8hr), cement: 3 mg/m3 (respirable dust).
Recommendations of the scientific committee on occupational exposure limits (SCOEL [reference 8]):

- Acute effects: DNEL: 4 mg/m3 (respirable dust),
- Long-term effects: DNEL: 1 mg/m3 (respirable dust).

Calcium dihydroxide (CAS 1305-62-0):

- PNEC Aquatic environment: 490 µg/l
- PNEC Sun/groundwater: 1080 mg/l

8.1.2. Limit values for occupational exposure

France:

	Type of limit value	VME	Unit	Legal base
Natural hydraulic lime	VLEP	5	mg/m^3	Article R.4222-10 of the French Labor Code
Dust deemed to have no specific effect	VLEP Total dust	10	mg/m^3	Article R.4222-10 of the French Labor Code
Dust deemed to have no specific effect	VLEP Respirable dust	5	mg/m^3	Article R.4222-10 of the French Labor Code

8.2 Exposure controls

To control potential risks, generation of dust must be avoided. Appropriate protective equipment must be worn. Eye protection (e.g. goggles or visors) are required, unless all contact with eyes can be ruled out due to the nature and type of application (closed process). Where relevant, face protection, protective clothing and safety boots must be worn.

8.2.1. Appropriate technical controls

If use of the product generates dust, use closed premises, local ventilation or other technical measures to maintain airborne dust levels below recommended exposure limits.

See table in paragraph 8.2.2.3 setting out the operational conditions to adhere to according to process categories.

8.2.2. Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Do not wear contact lenses.
Wear thick goggles fitted with side shields or wide vision goggles. It is also advisable to have individual pocket eyewash.

8.2.2.2 Skin protection

Since natural hydraulic lime is classified as a skin irritant, skin exposure should be kept to a minimum whenever technically possible.
Wear protective gloves made out of nitrile rubber (break-up time (min) > 480). Gloves used must comply with directive 89/686/EEC and corresponding standard NF EN 374.
Use clothing fully covering skin (full length pants, long sleeved overalls, clothing with close fittings at openings) and footwear resistant to caustic products.

8.2.2.3 Respiratory protection

When a person is potentially exposed to dust levels above Exposure Limits (see 8.1), use appropriate respiratory protection. The type of respiratory protection should be adapted to the dust level and conform to the relevant European standards. (NF EN 143, NF EN 149, NF EN 140 and NF EN 14387, NF EN 1827)
Depending on process categories, the following operational conditions and measures must be complied with:

Use	PROC(3)	Exposure	Respiratory protection required	Effectiveness of respiratory protection - Assigned protection factor	Localized controls	Effectiveness
Manufacturing and Industrial uses of dry hydraulic building materials	1	no restriction	not required	not required	not required	not required
	2, 3	no restriction	not required	not required	general ventilation	17%
	5, 8b, 9,	no restriction	FFP2 mask	FPA = 10	localized vacuum extraction system	78%
	8a	<=240 min	FFP2 mask	FPA = 10	localized vacuum extraction system	78%
	4	no restriction	FFP1 mask	FPA = 4	localized vacuum extraction system	78%
	19	<=240 min	FFP3 mask	FPA = 20	not required	not required
Manufacturing and industrial uses of dry hydraulic building materials in suspension	2, 3	no restriction	not required	not required	general ventilation	17%
	5, 8b, 9	no restriction	FFP2 mask	FPA = 10	generic localized vacuum extraction system	78%
	1, 4, 8a, 19	no restriction	not required	not required	generic localized vacuum extraction system	78%
Professional uses of dry hydraulic building materials	5, 4, 8a, 8b	<=240 min	FFP2 mask	FPA = 10	generic localized vacuum extraction system	72%
	9	<=240 min	FFP1 mask	FPA = 4	generic localized vacuum extraction system	72%
	19	<=240 min	FFP3 mask	FPA = 20	not required	not required
	1, 2, 3	no restriction	FFP2 mask	FPA = 10	not required	not required
Professional uses of hydraulic building materials in suspension	1, 2, 3, 4, 5, 8a, 8b, 9, 19	no restriction	not required	not required	not required	not required

(3) PROC: Categories of processes (uses) defined in sub-section 1.2.

8.2.2.4 Thermal hazards
The product does not pose any thermal hazard.

8.2.3. Appropriate environmental exposure control
Air from dust extraction or ventilation systems must be filtered before being discharged into the atmosphere.
Collect the discharge. Any significant discharge into bodies of water must be notified to the regulatory authority responsible for environmental protection.

SECTION 9 : Physical and chemical properties

9.1 Information regarding essential physical and chemical properties

Appearance	: Physical state: Powder
Average size of particles	: 20-30%: < 5 µm
Color	: white or gray
Odor	: none
Odor threshold	: None
pH	: 12-13
Melting point/ freezing point	: Melting point > 1000°C
Initial boiling point and boiling range	: Not applicable
Flash point	: Not applicable (non-flammable solid)
Evaporation rate	: Not applicable (non-flammable solid)
Flammability (solid, gas)	: Not applicable (non-flammable solid)
Upper/lower flammability or explosive limits	: Not applicable (non-flammable solid)
Vapor pressure	: Not applicable (non-flammable solid)
Vapor density	: Not applicable (non-flammable solid)
Bulk specific density	: 0.5 – 0.9 g/cm3 at 20°C
True specific density	: 2.4 – 2.8 g/cm3 at 20°C
Relative density	: 2.6
Solubility	: in water : 1.5 g/l at 20°C
Partition coefficient: (n-octanol/water)	: Not applicable
Auto-ignition temperature	: Not applicable (non-flammable solid)
Decomposition temperature	: Not available
Viscosity	: Not applicable (mineral solid)
Explosive properties	: Not applicable (non-flammable solid)
Oxidizing properties	: Not applicable (non-oxidizing substance)

9.2 Other information
No data relating to the miscibility or fat solubility (oil solvency) of the substance is available.

SECTION 10 : Stability and reactivity

10.1 Reactivity
No data is available for the substance.

10.2 Chemical stability
The product is stable at ambient temperature and under normal conditions of use and storage.

10.3 Possibility of hazardous reactions
No data is available for the substance.

10.4 Conditions to avoid
Minimize exposure to air and humidity to avoid deterioration.

10.5 Incompatible materials
Natural hydraulic lime reacts exothermically with acids to form salts.
In the presence of humidity, natural hydraulic lime reacts with aluminum and brass to produce hydrogen, according to the reaction:

$$Ca(OH)2 + 2Al + 6H2O \rightarrow Ca[Al(OH)4]2 + 3H2$$

10.6 Hazardous decomposition products

The is no hazardous decomposition product to our knowledge.
Additional information: Calcium dihydroxide reacts with carbon dioxide to form calcium carbonate, which is a common material in nature.

SECTION 11 : Toxicological information

11.1 Information on toxicological effects

Hazard category	Cat	Effect
Acute toxicity - oral	-	LD50 (rabbit) > 2500 mg/kg (test substance Ca(OH)2 rabbit). Based on available data, the classification criteria are not met.
Acute toxicity - inhalation	-	No inhalation toxicity observed. Based on available data, criteria justifying classification are not met.
Acute toxicity - Skin	-	Data not available.
Skin corrosion/ irritation	2	Calcium Dihydroxide is irritant for the skin. By cross reference this result is applicable to NHLs. On the basis of experimental tests on similar substances the NHLs are classified as irritant for the skin [skin Corrosion/Irritation, category 2 (H315- Cause skin irritation)].
Serious eye damage/eye irritation	1	Calcium Dihydroxide has a risk of causing serious eyes damage (live studies in vivo, rabbit). By cross reference these results are applicable to NHLs. On the basis of experimental tests on similar substances the NHLs are classified as severe irritants for the eyes [serious eyes damage/irritation category 1 (H318 – Causes serious eye damage)].
Skin or respiratory sensitivity		No data available. Natural hydraulic lime is considered not to be a skin sensitiser, based on the nature of the effect (pH shift) and the essential requirement of calcium for human nutrition. Furthermore, none of the compounds making up the other main constituents or impurities, i.e. calcium carbonate, calcium silicate, and calcined clay minerals, are known to entail any sensitisation potential. Classification for sensitisation is not warranted.
Germ cell mutagenicity	-	Bacterial assay for gene mutation (Ca(OH)2 and CaO, Ames tests, OCDE 471): negative. Mammal chromosome aberration test (Ca(OH)2): negative. By cross-referencing, these results are applicable to natural hydraulic lime. No constituents of natural hydraulic lime or cement are known to be genotoxic. The pH effect of natural hydraulic lime does not present a mutagenic risk. There is a complete lack of epidemiological data to show the mutagenic potential of natural hydraulic lime. The classification "genotoxic" is not justifiable.
Carcinogenicity	-	Calcium (administered as Ca-lactate) is not carcinogenic (experimental result rat). The pH effect does not present a carcinogenic risk. The classification "carcinogenic" is not justifiable.
Reproductive toxicity	-	Calcium (administered as Ca-carbonate) is not toxic to reproduction (experimental studies on mice). The pH effect does not present a risk to reproduction. Clinical studies on humans and animals with different calcium slats have not shown ant effect on reproduction or developmental. NHLs are not toxic for reproduction or development. The classification " toxic to reproduction" conforming to Regulation (CE)1272/2008 is not justifiable.
STOT- single exposure	3	The substance is classified as toxic on some specific target organs following single exposure – category 3. It may cause irritation to the respiratory system Based on data for humans (according to SCOEL recommendations) and by cross-referencing based on similar substances CaO and Ca(OH)2, natural hydraulic lime is classed as an irritant to the respiratory system.
STOT- repeated exposure	-	The toxicity of Calcium ingested is specified by the maximum tolerable limit (UL) for adults: UL = 2500 mg of Ca per day for adults over their lifetime corresponding to 36 mg of Ca per kg of bodyweight for an adult weighing 70kg (Data from CSAH: Comité scientifique de l'Alimentation Humaine). The toxicity of natural hydraulic lime by skin absorption is not considered pertinent due to its insignificant absorption and the primary effect of local irritation (effect p H). The toxicity due to inhalation (localized effects, mucous irritation) due to the CaO and the Ca(OH)2 is determined by SCOEL as follows: DNEL = 1 mg/m³ breathable dust (see section 8.1). The classification "toxic after repeated exposure" is not justifiable.
Aspiration hazard	-	Not applicable (the substance is not used in an aerosol).
Ingestion hazard		If large amounts are swallowed: burns to the mouth, the esophagus, the digestive tract, nausea and vomiting

SECTION 12 : Ecological information

12.1 Toxicity

In water environment and in the soil, exposure to NHLs means exposure to Calcium and hydroxide ions.

Acute/chronic toxicity to fish
LC50 (96h) for fresh water fish: 50.6 mg/l
LC50 (96h) for salt water fish: 457 mg/l

Acute/chronic toxicity to aquatic invertebrates
EC50 (48h) for fresh water invertebrates: 49.1 mg/l
LC50 (96h) for salt water invertebrates: 158 mg/l

Acute/chronic toxicity to aquatic plants
EC50 (72h) for fresh water seaweed: 184.57 mg/l
NOEC (72h) for fresh water seaweed: 48 mg/l

Toxicity to micro-organisms such as bacteria
In high concentration because of increases in temperature and pH, calcium oxide is used for the disinfection of sewage sludges.

Chronic toxicity to aquatic organisms
NOEC (14d) for salt water invertebrates: 32 mg/l

Toxicity to organisms in the soil
EC10/LC10 or NOEC for macro organisms in the soil: 2000 mg/kg of dry soil
EC10/LC10 or NOEC for micro organisms in the soil: 12000 mg/kg of dry soil

Toxicity to terrestrial flora
NOEC (21d) terrestrial plants: 1080 mg/kg

12.2 Persistence and degradability
Not relevant (inorganic substance).

12.3 Potential bio-accumulation
Not relevant (inorganic substance).

12.4 Mobility in soil
Not relevant (inorganic substance).

12.5 Results of PBT and vPvB evaluations
Not relevant (inorganic substance).

12.6 Other adverse effects
Not applicable.

SECTION 13 : Disposal considerations

13.1 Waste treatment methods
Dispose of unused bags and contents in accordance with applicable local and national legislation.
Bags are exclusively for containing the product and must not be utilized for any other use.
Dispose of the contents/packaging in a waste treatment center. Natural hydraulic lime must first be made inert by hardening with water and packaging must be completely emptied.

SECTION 14 : Transport information

The product is not classified as hazardous by the international transport regulations ADR/RID (road), OMI/IMDG (sea) and OACI/IATA (air).

14.1 United Nations Number
Not regulated.

14.2 United Nations Shipping name
Not regulated.

14.3 Transport hazards class(es)
Not regulated.

14.4 Packing group
Not regulated.

14.5 Environmental hazards
Not regulated.

14.6 Special precautions for user
Avoid any external discharge of dust during transport.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not regulated.

SECTION 15 : Regulatory information

15.1 Specific safety, health and environmental regulations/legislation for the substance or substance

Natural hydraulic lime is a substance in accordance with the REACH. As such it is not subject to registration.
Authorizations : Not required
Use restrictions : None
Other EU regulations : Natural hydraulic lime is not:
- a SEVESO substance,
- an ozone layer depleting substance,
- a persistent organic pollutant

National regulations (France): Labor Code: Articles L4411-1 et seq.

15.2 Chemical safety assessment
No chemical safety assessment has been carried out.

SECTION 16 : Other information

All data is based on our current knowledge but does not constitute a guarantee for the properties of the product and does not form a contractual relationship.
Hazard and precautionary statements and risk phrases are set out in section 2.

16.1 Reason for revision

Change of company name Lafarge Ciments in LafargeHolcim Ciments.
Replaces the version dated July 2015.

16.2 Abbreviations and acronyms

OIM : International Maritime Organization
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
SCOEL : Scientific Committee on Occupational Exposure Limits : Comité scientifique en matière d'exposition professionnelle

CSAH : Comité Scientifique en matière d'Alimentation Humaine
EC50 : Median Effective Concentration (ou CE50) : concentration efficace qui cause un effet toxique donné chez 50% des individus exposés
LC50 : Median Lethal Concentration (ou CL50) : concentration létale pour laquelle 50% des individus exposés meurent
LD50 : Median Lethal Dose (ou DL50) : dose létale pour laquelle 50% des individus exposés meurent
NOEC : Non Observable Effect Concentration : concentration sans effet observable
OEL : Occupational Exposure Limit (ou VLEP) : Valeur Limite d'Exposition Professionnelle
PBT : Persistant, Bioaccumulable, Toxique
PNEC : Predicted No Effect Concentration : concentration sans effet prévisible sur l'environnement
STEL : Short Term Exposure Limit : Limite d'exposition à court terme
TWA : Time weighted average : moyenne pondérée du temps
vPvB : very Persistent, very Bioaccumulative : très persistant, très bioaccumulable

16.3 Principal bibliography and Sources:

INRS French National research and Safety Institute (*Institut National de Recherche et de Sécurité*)
ECB European Chemicals Bureau
ECHA European CHemicals Agency
IUCLID (International Uniform Chemical Information data Base)
RTECS (Registry of Toxic effects of Chemical Substances)
OCDE 425, substance tested Ca(OH)2, rat.
SCOEL : 2, 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
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 Training advice

In addition to health, safety and environmental training programs for their workers, companies must ensure that workers read, understand and apply the requirements of this SDS.

16.5 Further information

See Annex for the Exposure Scenario.

16.6 Disclaimer

The information on this data sheet 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/her own activities.