SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1 Product identifier

1.1.1 Commercial Product Name

Nordkalk QL

Synonyms: Lime, Burnt lime, Un-slaked lime, Building lime, Calcia, Fat lime, Chemical lime, Fluxing lime, Hard burnt lime, Soft burnt lime, Pebble lime, Calcium oxide, Calcium monoxide, Quick lime, Calcined limestone.
Chemical name and formula: Calcium Oxide - CaO
CAS: 1305-78-8
EINECS: 215-138-9
Molecular weight: 56,08 g/mol
REACH registration number:
Finland: 01-2119475325-36-0026
Sweden: 01-2119475325-36-0030
Estonia: 01-2119475325-36-0023

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

1.2.1 Recommended use

The substance is intended for the following non-exhaustive list of uses:
Building material industry, Chemical industry, Agriculture, Environmental protection (e.g. flue gas treatment, waste water treatment, sludge treatment), Drinking water treatment, Feed, food and pharmaceutical industry, Civil engineering, Paper and paint industry
Please check the identified uses in table 1 of the Appendix of this SDS.
Uses advises against: There are no uses advised against.

1.3 Details of the supplier of the safety data sheet

1.3.1 Supplier

Nordkalk Oy Ab
P.O.Box Skräbbölevägen 18
Postcode and post office 21600 Pargas
Finland
Telephone +358 20 753 7000, Joona Mannermaa +358 20 753 7374
Email sds@nordkalk.com

1.4 Emergency telephone number

1.4.1 Telephone number, name and address

European emergency number: 112, open 24 hours per day
Poison control centre, Helsinki, 24 h per day
+358 9 471 977; +358 800 147 111

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

1272/2008 (CLP)
Skin Irrit. 2, H315
Eye Dam. 1, H318
STOT SE 3, H335

2.2 Label elements

1272/2008 (CLP)
GHS07 - GHS05
Signal word **Danger**

Hazard Statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
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+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P501	Dispose of contents/container in accordance with national regulation.

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 Substances

Main ingredient

CAS/EC and Reg.number	EINECS	Chemical name of the substance	Concentration	Classification
1305-78-8	215-138-9	Calcium oxide	75 - 98 %	H315, H318, H335

3.3 Other information

No impurities relevant for classification and labelling.
National occupational exposure limits, section 8.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

When symptoms persist or in all cases of doubt seek medical advice.

4.1.2 Inhalation

If inhaled, remove to fresh air. Call a physician.

4.1.3 Skin contact

Before washing use a dry brush to remove dust from skin. Immediately flush skin with large amounts of water. Remove contaminated clothing. If irritation develops, get medical attention.

4.1.4 Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Get medical attention.

4.1.5 Ingestion

Rinse mouth with water. Do not induce vomiting. Drink water. Call physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Eye damage/irritation, Skin irritation. May cause irritation of respiratory tract.

4.3 Indication of immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media
Use alcohol-resistant foam, dry chemical or carbon dioxide. The product itself does not burn.

5.1.2 Extinguishing media which must not be used for safety reasons
Water. Avoid moisture.

5.2 Special hazards arising from the substance or mixture
Exothermic reaction with water.

5.3 Advice for firefighters
Avoid dust formation. Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid contact with skin and eyes. Avoid dust formation. Ensure adequate ventilation. Prevent unauthorized persons entering the zone. Avoid moisture.

6.2 Environmental precautions
Do not flush into surface water or sanitary sewer system. Protect from moisture. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up
Clean up promptly by scoop or vacuum. Avoid dust formation. Do not use compressed air for cleaning purposes. Pick up when dry.

6.4 Reference to other sections
For personal protection see section 8. SECTION 13: Disposal considerations

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid dust formation. Avoid contact with skin and eyes. Do not wear contact lenses. Use personal protective equipment. Provide for appropriate exhaust ventilation and dust collection at machinery. For more information please see the relevant exposure scenario, available via your supplier/given in the Appendix, and check section 2.1: Control of worker exposure. Note also Directive 90/269/EEC.

7.2 Conditions for safe storage, including any incompatibilities
Keep in a dry place. Avoid: Exposure to air or moisture over prolonged periods. Keep away from acids, significant quantities of paper, straw, and nitro compounds. Keep out of the reach of children. Do not use aluminum for 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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Threshold limits

1305-78-8	Calcium oxide	2 mg/m^3 (8 h)

8.1.2 Other information on limit values
SCOEL recommendation (SCOEL/SUM/137 February 2008; see Section 16.6):
Occupational Exposure Limit (OEL), 8 h TWA: 1 mg/m³ respirable dust of calcium oxide
Short-term exposure limit (STEL), 15 min: 4 mg/m³ respirable dust of calcium oxide

8.1.3 Limit values in other countries
No information available.

8.1.4 DNELs

	Workers			
Route of exposure	**Acute effect local**	**Acute effects systemic**	**Chronic effects local**	**Chronic effects systemic**
Oral	Not required			
Inhalation	4 mg / m³ (Respirable dust)	No hazard identified	1 mg / m³ (Respirable dust)	No hazard identified
Dermal	Hazard identified but no DNEL available	No hazard identified	Hazard identified but no DNEL available	No hazard identified

	Consumers			
Route of exposure	**Acute effect local**	**Acute effects systemic**	**Chronic effects local**	**Chronic effects systemic**
Oral	No exposure expected	No hazard identified	No exposure expected	No hazard identified
Inhalation	4 mg / m³ (Respirable dust)	No hazard identified	1 mg / m³ (Respirable dust)	No hazard identified
Dermal	Hazard identified but no DNEL available	No hazard identified	Hazard identified but no DNEL available	No hazard identified

8.1.5 PNECs

Environment protection target	**PNEC**	**Remarks**
Fresh water	0,49 mg / L	
Freshwater sediments	No PNEC available	Insufficient data available
Marine water	0,32 mg / L	
Marine sediments	No PNEC available	Insufficient data available
Food (bioaccumulation)	No hazard identified	No potential for bioaccumulation
Microorganisms in sewage treatment	3 mg / L	
Soil (agricultural)	1080 mg / kg soil dw	
Air	No hazard identified	

8.2 Exposure controls

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

8.2.2 Individual protection measures

8.2.2.1 Respiratory protection
Provide sufficient air exchange and/or exhaust in work rooms. Respirator with a particle filter (EN 143) See also the exposure scenario.

8.2.2.2 Hand protection
Protective gloves: Nitrile rubber.

8.2.2.3 Eye/face protection
Tightly fitting safety goggles. Do not wear contact lenses.

8.2.2.4 Skin protection
Long sleeved clothing, close fittings at openings. Footwear protecting against chemicals.

8.2.2.5 Hygiene measures
Wash hands and face before breaks and immediately after handling the product. If needed: Use protective skin cream before handling the product. When using, do not eat, drink or smoke.

8.2.3 Environmental exposure controls
Exhaust ventilation equipped with filters. Do not flush into surface water or sanitary sewer system. See also the exposure scenario.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important Health Safety and Environmental Information

9.1.1 Appearance
White or beige solid, powder/granules

9.1.2	**Odour**	Odourless
9.1.3	**Odour threshold**	No data available
9.1.4	**pH**	12,3 (saturated aqueous solution 20 °C)
9.1.5	**Melting point/freezing point**	Not applicable
9.1.6	**Initial boiling point and boiling range**	Not applicable
9.1.7	**Flash point**	Not applicable
9.1.8	**Evaporation rate**	Not applicable
9.1.9	**Flammability (solid, gas)**	Not flammable (method EU A.10)
9.1.10	**Explosive properties**	
9.1.10.1	**Lower explosion limit**	No data available
9.1.10.2	**Upper explosion limit**	No data available
9.1.11	**Vapour pressure**	Not applicable
9.1.12	**Vapour density**	Not applicable
9.1.13	**Relative density**	3,31 kg/dm³ (method EU A.3)
9.1.14	**Solubility(ies)**	
9.1.14.1	**Water solubility**	1337,6 mg/l (method EU A.6)
9.1.14.2	**Fat solubility (solvent - oil to be specified)**	No data available
9.1.15	**Partition coefficient: n-octanol/water**	No data available
9.1.16	**Auto-ignition temperature**	No data available
9.1.17	**Decomposition temperature**	Not applicable
9.1.18	**Viscosity**	Not applicable
9.1.19	**Explosive properties**	No data available

9.1.20 **Oxidising properties** none

9.2 **Other information**
Solid > 450 °C, typical bulk density 0,75 - 1,30 g/cm^3.

SECTION 10. STABILITY AND REACTIVITY

10.1 **Reactivity**
Exothermic reaction with water, forms calcium hydroxide.

10.2 **Chemical stability**
Stable under recommended storage conditions.

10.3 **Possibility of hazardous reactions**
Exothermic reaction with acids, forms calcium salts.
Calcium oxide reacts with aluminum and brass in the presence of moisture leading to the production of hydrogen gas.

10.4 **Conditions to avoid**
Exposure to air or moisture over prolonged periods.

10.5 **Incompatible materials**
Acids, Water, Aluminum, Brass.

10.6 **Hazardous decomposition products**
None.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 **Information on toxicological effects**

11.1.1 **Acute toxicity**
Calcium oxide is not acutely toxic.
LD_{50}/rat > 2 000 mg/kg (OECD 425)
LD_{50}/rabbit > 2 000 mg/kg (OECH 402)

11.1.2 **Irritation and corrosion**
Risk of serious damage to eyes. Irritating to skin. May cause irritation of respiratory tract.

11.1.3 **Sensitization**
No information available.

11.1.4 **Subacute, subchronic and prolonged toxicity**
Not mutagenic in Ames Test.
Contains no ingredient listed as a carcinogen
Fertility and developmental toxicity tests did not reveal any effect on reproduction.

11.1.5 **STOT-single exposure**
May cause irritation of respiratory tract.

11.1.6 **STOT-repeated exposure**
Not Rated.

11.1.7 **Aspiration hazard**
No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

12.1 **Toxicity**

12.1.1 **Aquatic toxicity**

Calcium hydroxide:
LC_{50} (96 h) for freshwater fish: 50,6 mg/l
LC_{50} (96 h) for marine water fish: 457 mg/l
EC_{50} (48 h) for freshwater invertebrates: 49,1 mg/l
LC_{50} (96 h) for marine water invertebrates: 158 mg/l
NOEC (14 d) for marine water invertebrates: 32 mg/l
EC_{50} (72 h) for freshwater algae: 184,57 mg/l
NOEC (72 h) for freshwater algae: 48 mg/l

12.1.2 Toxicity to other organisms
Calcium hydroxide:
EC_{10}/LC_{10}, NOEC for soil macroorganisms: 2 000 mg/kg soil dw
EC_{10}/LC_{10}, NOEC for soil microorganisms: 12 000 mg/kg soil dw
NOEC (21 d) for terrestrial plants: 1 080 mg/kg

12.2 Persistence and degradability

12.2.1 Biodegradation
The methods for determining biodegradability are not applicable to inorganic substances.

12.2.2 Chemical degradation
No information available.

12.3 Bioaccumulative potential
The methods for determining biodegradability are not applicable to inorganic substances.

12.4 Mobility in soil
Calcium oxide reacts with water and/or carbon dioxide to form respectively calcium dihydroxide and/or calcium carbonate, which are sparingly soluble, and present a low mobility in most soils.

12.5 Results of PBT and vPvB assessment
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects
Adverse effects in the aquatic environment are based on the rapid rise on pH. For most freswater fish pH over 9 is harmful. Freshwater algae disappear on pH > 8,5. Water contaminating class (Germany): 1.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Empty containers: Can be landfilled or incinerated, when in compliance with local regulations. After usage, empty the packing completely.

13.2 Waste from residues / unused products
Dispose of in compliance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

Calcium oxide is not classified as hazardous for transport [ADR (road), RID (rail), ADN (inland waterways) and IMDG (sea)]. Calcium oxide is, however, classified as hazardous for air transport (ICAO/IATA).

14.1	**UN number**	UN 1910
14.2	**UN proper shipping name**	Calcium oxide
14.3	**Transport hazard class(es)**	Class 8 (ICAO/IATA)
14.4	**Packing group**	Group III (ICAO/IATA)
14.5	**Environmental hazards**	None

14.6 Special precautions for users
Avoid any release of dust during transportation, by using air-tight tanks for powders and covered trucks for pebbles.

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

SECTION 15. REGULATORY INFORMATION

Hazardous components which must be listed on the label: Calcium oxide

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
National occupational exposure limits, section 8.

15.2 Chemical safety assessment
A Chemical Safety Assessment has been carried out for this substance.

SECTION 16. OTHER INFORMATION

16.1 Additions, Deletions, Revisions
Version 1.
Version 2. Section 2, section 13.
Version 3. Contact information updated.
Version 4. UN-Number added in section 14.1.
Version 5. Fixed Sections 1.4, 2.1, 2.3, 3.1, 9.2

16.2 Key or legend to abbreviations and acronyms
- **DNEL** - No observed adverse effect level
- **PNEC** - Predicted No Effect Concentration
- **EC_{50}** - median effective concentration
- **LC_{50}** - median lethal concentration
- **LD_{50}** - median lethal dose
- **NOEC** - no observable effect concentration
- **OEL** - occupational exposure limit
- **STEL** - short-term exposure limit
- **TWA** -time weighted average
- **PBT** - persistent, bioaccumulating and toxic substance
- **vPvB** - very persistent and very bioaccumulating substance

16.3 Key literature references and sources for data
REGULATION (EC) No 1272/2008
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]
Anonymous, 2007: HERAG fact sheet - assessment of occupational dermal exposure and dermal absorption for metals and inorganic metal compounds; EBRC Consulting GmbH, Hannover, Germany; August 2007
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

16.5 List of relevant hazard statements and/or precautionary statements

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

16.6 Training advice
Provide adequate information, instruction and training for operators. Refer to attached safety data sheets and/or instructions for use.

16.8 Additional information available from:
Disclaimer
This safety data sheet (SDS) 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 SDS 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 SDS 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 SDS supersedes all previous versions.