

NHL 2

SECTION 1: SUBSTANCE IDENTIFICATION AND MANUFACTURER

1.1 Product identification

Name : Natural Hydraulic Lime (NHL) conforming with EN 459.1

Synonyms: None

Chemical name and formula: Natural Hydraulic Lime

Trade name: Terechaux NHL 2 (as per Standard NF/BS EN 459-1)

CAS: 85117-09-5

EINECS: 285-561-1

REACH registration number: 01-2119475523-36-0006 (CSA)

1.2 IDENTIFIED USES and uses advised against.

The product uses are identified in Table 1 of the Annex available with this document.

Uses advised against: none.

1.3 Details of the supplier of the Safety data sheet.

Name : **CESA (CHAUX ET ENDUITS DE ST ASTIER)**

Adresse : **La Jarthe**

24110 SAINT-ASTIER

France

Téléphone : + 33 5 53 54 11 25

Fax : + 33 5 53 04 67 91

Email : contact@saint-astier.com

1.4 Emergency telephone numbers

European emergency number: 112

Manufacturer urgency number : +33 5 53 54 11 25

UK

National Centre for Prevention and Treatment of Intoxications: 0121.5074123

The Lime Line: 0800.7839014 (office hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Substance classification.

The substance is classified in accordance to Regulation 1272/2008/CE and the directive 67/548/CEE.

2.1.1 Classification conforming to Regulation 1272/2008/CE

H335 : Can irritate respiratory ways

Specific toxicity for certain organs: exposure, category 3, way of exposure: inhalation.

H315 : Can cause skin irritation

Corrosion/Skin Irritation – category 2

H318 : Can cause serious eye damage

Eye damage and eye irritation: category 1

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2.1.2 Classification conforming to directive 67/548/CEE

Danger(s) CE : Xi – Irritant

R37/38 : Irritant for respiratory ways and skin

R41 : Risk of serious eye damage

2.2 Label Elements

2.2.1 Labelling conforming to regulation CLP :

Hazard pictogram:



Hazards 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/clothing/eye and face protection

P305+P351+P338+P310 : in case of contact with the eyes, rinse carefully with clean water for several minutes. In relevant cases, take off contact lenses if possible. Immediately call a Poison Centre or a doctor/physician.

P302+P352 : if in contact with skin: wash abundantly with soap and water.

P332+P313 : For skin irritation: consult a doctor.

P261+P304+P340 : Avoid powder inhalation. In case of inhalation, bring the affected individual outside into fresh air and make the individual relax in a comfortable position for breathing.

P312 : Call a Poison Centre in case of general feeling of sickness.

P501 : Dispose of bags content/empty bags at a point of refuse collection. Before disposal, NHL lime should be made inert by wetting it to induce hardening and bags should be completely emptied.

2.3 Other hazards

The criteria for PBT or vPvB in conformity with annexe XIII of REACH regulations are not applicable to the substance.

No other hazard identifiable.

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SECTION 3: COMPOSITION / INFORMATIONS ON THE COMPONENTS

Natural Hydraulic Lime (NHL) (CAS : 85117-09-5 ; EINECS : 285-561-1) is produced by the calcination of a calcareous stone with more or less content of clays and silica and is reduced to powder by slaking with or without crushing.

NHL has the property of setting and hardening in presence of water. The carbon dioxide present in the air also contributes to the hardening process.

Principal components :

Name : Calcium Dihydroxide

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)

Impurities : no impurities relevant to classification and labelling.

SECTION 4: FIRST AID

4.1 Description:

General advice :

No delayed effects known. Consult a doctor/physician in all case of severe exposure to the substance or in case of doubt.

In case of inhalation:

Move away the source generating dust or bring the victim away from the source of dust and place the victim outside to breathe fresh air. Consult a doctor without delay.

In case of contact with the skin:

Gently and carefully brush off all traces of the substance on the affected areas.

Abundantly wash with clean running water the affected area.

Take off contaminated clothing.

If necessary seek medical advice.

In case of contact with the eyes:

Wash eyes immediately with clean water or, if possible, with an isotonic liquid. Obtain medical advice.

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In case of ingestion:

Rinse mouth with clean water. Drink water abundantly.

Do not induce vomiting.

Call a doctor as soon as possible.

4.2 Principal symptoms and acute or delayed effects.

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 localised effects (effect pH).

4.3 Indication of eventual immediate medical attention and particular treatments necessary.

As at present there is no indication on immediate medical care or particular treatments apart from indications given in Section 4.1.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing methods

5.1.1 Appropriate extinguishing methods

The product is not combustible. Use all methods appropriate to the source of the fire.

5.1.2 Inappropriate extinguishing methods.

None.

5.2 Particular hazard emanating from the product in case of fire. Le produit est non combustible. The product is not combustible. It does not emit any toxic substance in case of fire.

5.3 Advice for fire fighters

Avoid powders and dust dispersion. Use respiratory equipment. Use extinguishing methods taking in account local circumstances and the surrounding environment.

Avoid if possible to discharge into the environment water used for extinguishing fire.

SECTION 6: ACCIDENTAL RELEASE METHODS

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non emergency personnel

- Ensure adequate ventilation
- Avoid release of dust as much as possible.
- Keep away persons not wearing appropriate protective equipment.
- Avoid all contact with skin, eyes and clothing – wear appropriate protective equipment (see Section 8).
- Avoid inhaling dust – ensure adequate ventilation or wear respiration masks – wear appropriate protective clothing (see Section 8).

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6.1.2 For emergency personnel

- Avoid release of dust as much as possible
- Ensure adequate ventilation.
- Keep away persons not wearing appropriate protective equipment
- Avoid all contact with skin, eyes and clothing – wear appropriate protective equipment (see Section 8).
- Avoid inhaling dust – ensure adequate ventilation or wear respiration masks – wear appropriate protective clothing (see Section 8).

6.2 Precautions for the protection of the environment.

Contain spillages. Keep product dry if possible. Use covers to avoid creation of dust if possible. Avoid large, uncontrolled spillages into watercourses and drains (pH increase). All spillages in watercourses must be notified to the Environment Agency or other competent Authority.

6.3 Method and material for containment and cleaning.

- Label all recipients where dust has been collected
- Impede or limit dust formation and dispersion
- Keep product dry if possible
- Collect product mechanically and dry.
- Use a vacuum suction unit or shovel into bags.
- Harden the product before disposal as described in Section 13.

6.4 Reference to other Sections

For more detailed information on exposure, individual protection and disposal measures consult Section 8 and Section 13 and the annex to this document.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions to be taken for safe handling.

7.1.1 Protective measures

Avoid contact with skin, eyes and respiratory ways. Wear appropriate protective equipment (see Section 8 of this document).

Do not wear contact lenses when handling this product. It is also recommended to keep eye drops at hand.

Keep formation or dispersion of dust to a minimum. Enclose dust sources and use extraction equipment (dust collection at handling point).

Respect Directive 90/269/EEC when handling NHL bags.

7.1.2 General advice on occupational hygiene

- Avoid inhalation, ingestion and contact with skin and eyes.
- Appropriate barrier creams can be used.
- Wash hands after each manipulation.

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- General measures of hygiene at work are essential to ensure safe handling of the product. These include:
 - good personal practices, regular cleaning of the place of work, no alcohol drinking, eating or smoking at the place of work.
 - Shower and change clothing at the end of work. Do not bring home any contaminated clothing. Separate work clothing from other clothing. Clean them separately.

7.2 Conditions necessary to ensure safe storing and eventual incompatibilities.

Safe storing conditions :

- Keep away from children reach.
- Store in a dry place.
- Bulk storage has to be in dedicated silos.

Incompatible materials:

- Strong acids and azotate composites.
- Organic matter.
- Avoid contact with air and moisture.
- Do not use aluminium for transport or storage if there is a risk of contact with water.

7.3 Specific final use(s).

Use conditions have to be respected (see technical note).

For more information refer to the Exposure Scenario available and precisely to section 2.1- "Control of workers exposure".

SECTION 8: EXPOSURE CONTROLS/ INDIVIDUALS

8.1 Control parameters

Exposures limits (France) : dust limits for innocuous effect:

- Total dust: VME : 10 mg/m³
- Alveolar dust: VME : 5 mg/m³
- Calcium Dihydroxide: VME : 5 mg/m³

- Recommendations of the Scientific Committee for Occupational Exposure (SCOEL [1])
Natural Hydraulic lime (NHL) :

- Acute effect: DNEL : 4 mg/m³ (breathable dust)
- Long term effect: DNEL : 1 mg/m³ (breathable dust)

This value is cross referenced to Natural Hydraulic Lime in view of the anticipated equivalent local effect (pH is comparable to that of CaO and Ca(OH)₂).

8.2 Exposure Controls

To control potential risks, avoid generating dust.

Wear protective equipment. Eyes protection equipment (goggles or visors for example) are necessary unless contact with the eyes is avoided by the nature and type of application (closed process for example). In any case protection of the face, protective clothing and safety shoes must be worn.

Refer to the Exposure Scenario annex available.

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8.2.1 Appropriate technical controls

If the product application generates dust, use enclosures, local ventilation or other technical methods to maintain dust limits below the maximum recommended.

8.2.2 Individual protection measures and personal protective equipment

8.2.2.1 Eyes and face protection

Do not wear contact lenses.

Wear tight fitting goggles with side shields or large vision full goggles. It is also recommended to carry an eyewash.

8.2.2.2 Skin protection

As NHLs are classified as irritant for the skin, dermal exposure has to be reduced to the minimum as much as possible.

Wear protective rubber gloves (nitrile rubber with minimum failure > 480) conforming with Directive 89/686 and to the corresponding Standard EN 374.

Wear protective clothes offering total protection for the skin (long trousers, long sleeves, close fitting at openings) and shoes resistant to caustic products.

8.2.2.3 Respiratory protection

Local ventilation is recommended to keep dust levels below indicated maximum values.

A filter mask is recommended (P1). Refer to the Exposure Scenario annex available

8.2.2.4 Thermal hazards

The product does not present any thermal hazards.

8.2.3 Environmental exposure controls

Before discharging into the atmosphere, filter all discharges from ventilation and other extraction systems.

Contain spillages. All spillages in watercourses must be notified to the Environment Agency or other competent Authority..

For detailed information on risk management measures adequately controlling exposure of the environment refer to the Exposure Scenario annex available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on the essential Physical and Chemical properties

Appearance : powder

Average granulometry: 20-30 % : < 5 µm

Colour : white or light grey

Odour : none

Odour threshold : not applicable

pH : 12-13

Melting point: > 450 °C

Initial boiling point: not applicable

Flash Point: not applicable (solid, not combustible)

Evaporation rate :not applicable (solid mineral)

Published 15.01.2020

Cancel and replaces the 01.12.2010 edition

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Flammability: not applicable (substance not flammable)
Higher and lower limits for flammability or explosion risk: not applicable (substance not flammable)
Vapour pressure: not applicable (solid mineral)
Vapour density: not applicable (solid mineral)
Apparent bulk density: 0.5 – 0.76 g/cm³ à 20°C
Specific gravity : 2.5 – 2.66 g/cm³ à 20°C
Relative density: 2.66
Solubility in water: 1,5 g/l à 20°C
Partition coefficient: not applicable (inorganic)
Auto ignition temperature: not applicable (solid, non flammable)
Decomposition temperature: not available
Viscosity : not applicable (solid)
Explosive properties: not applicable (substance not explosive)
Oxidizing properties: not applicable (substance not combustible)

9.2 Other information:

No information available on miscibility or liposolubility.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

In aqueous media Ca(OH)₂ disassociates, forming Calcium cations and hydroxyl anions (when below the water solubility limit).

10.2 Chemical stability

The product is stable at ambient temperature and within the normal application and storing conditions.

10.3 Possibility of dangerous reactions

The substance produces an exothermic reaction in contact with acids.

Heated above 580°C, the Calcium dihydroxide decomposes producing Calcium Oxide (CaO) quick lime and water (H₂O): $\text{Ca(OH)}_2 \rightarrow \text{CaO} + \text{H}_2\text{O}$. The Calcium Oxide reacts with the water and generate heat. This could be a risk in the presence of flammable materials.

10.4 Conditions to be avoided

Minimise exposure to air and humidity to avoid degradation.

10.5 Incompatible materials

NHLs produce an exothermic reaction in contact with acids to form salts.

In presence of humidity the NHLs react with aluminium and brass producing hydrogen
 $\text{Ca(OH)}_2 + 2\text{Al} + 6\text{H}_2\text{O} \rightarrow \text{Ca[Al(OH)}_4\text{]}_2 + 3\text{H}_2$

10.6 Hazardous decomposition products

None to our knowledge.

Complementary information: Calcium dihydroxide reacts with Carbon dioxide forming Calcium Carbonate which is a natural occurring material.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

NHL are classified as irritant for the skin, respiratory ways and present a risk of serious eyes damage.

The limit of exposure to prevent sensorial local irritation and the parameters of critical effects for the lungs is OEL ou VLEP (8h) = 1 mg / m³ of breathable dust.

Acute toxicity :

None observed. A study on acute skin toxicity and inhalation effects has been considered scientifically not necessary.

Oral : DL50 > 2000 mg/kg (OCDE 425, substance tested Ca(OH)₂,rat). By cross reference these results are applicable to NHLs.

Dermal: not available

Inhalation : not available

For respiratory irritation see below.

Skin corrosion/irritation

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 / R38, irritant for the skin)].

Serious eyes damage/irritation

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/R41 Risk of serious eye damage)].

Respiratory Irritation

On the bases of studies on Calcium Oxide and Dihydroxide, by cross reference NHLs are classified as Irritant for the respiratory ways.[Toxicity specific to target organs-single exposure category (H335 –can cause irritation of respiratory ways / R37 – Irritant for the respiratory system)].

Respiratory or skin sensitisation

No data available.

Bases upon the known effects (pH modification) and on the basic human need for calcium in food, NHLs are considered as not producing a sensitisation effect to the skin. None of its components are known to have a sensitisation effect (ie: calcium carbonate calcium silicate and calcined clay mineral). The definition "sensitising" is not justified.

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Germ cells mutagenicity

Bacterial reverse mutation tests (Ca(OH)₂ and CaO, Tests d'Ames, OCDE 471) : negative.

Mammalian chromosome aberration test [Ca(OH)₂]: negative.

By cross reference these results are applicable to NHLs.

None of the components of NHLs is known as genotoxic. Considering the pH effect, there is no mutagenicity.

The definition "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 definition "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 any effect on reproduction or developmental.

NHLs are not toxic for reproduction or development.

The definition "toxic to reproduction" conforming to Regulation (CE)1272/2008 is not justified.

Specific toxicity for target organs (STOT)-single exposure

Calcium dihydroxide does not have specific toxicity for any exposure medium (dermal, oral, inhalation)

Specific toxicity for target organs (STOT)-repeated exposure

The toxicity of Calcium ingested is specified by the maximum tolerable limit (UL) for adults:

UL = 2500 mg of Ca corresponding to 36 mg of Ca per kg of body weight for an adult weighing 70kg (Data from CSAH: Comité Scientifique en matière d'Alimentation Humaine).

The toxicity of NHLs by skin absorption is not considered pertinent due to its insignificant absorption and the primary effect of local irritation (effect pH).

The toxicity due to inhalation (localised effects, mucous irritation) due to the CaO and the Ca(OH)₂ is determined by SCOEL (Scientific Committee on exposure levels) as follows:

DNEL = 1 mg / m³ breathable dust (see section 8.1) and VLEP (8h) = 1 mg / m³.

The definition "toxic after repeated exposure" is not justified.

Hazards due to ingestion

Ingesting large quantity causes burns in the mouth, oesophagus, digestive track, nausea and vomit.

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SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity :

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

12.1.1 Acute/chronic toxicity to fish

LC50 (96h) for fresh water fish : 50,6 mg/l (Calcium dihydroxide)

LC50 (96h) for salt water fish : 457 mg/l (Calcium dihydroxide)

12.1.2 Acute/chronic toxicity to aquatic invertebrates

EC50 (48h) for fresh water invertebrates : 49,1 mg/l (Calcium dihydroxide)

LC50 (96h) for salt water invertebrates: 158 mg/l (Calcium dihydroxide)

12.1.3 Acute/chronic toxicity to aquatic plants

EC50 (72h) for fresh water plants : 184,57 mg/l (Calcium dihydroxide)

NOEC (72h) for salt water plants : 48 mg/l (Calcium dihydroxide)

12.1.4 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.

12.1.5 Chronic toxicity to aquatic organisms

NOEC (14d) for seawater invertebrates : 32 mg/l (Calcium dihydroxide)

12.1.6 Toxicity to organism in the soil

EC10/LC10 or NOEC for soil macro organisms : 2000 mg/kg of dry soil (Calcium dihydroxide)

EC10/LC10 or NOEC for soil micro organisms : 12000 mg/kg of dry soil (Calcium dihydroxide)

12.1.7 Toxicity to terrestrial flora

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

12.1.8 General effects

The product modifies the pH.

Although this product is useful for the modification of the Ph of the water (acidity reduction), a dosage of over 1g/l can be harmful to aquatic life.

A pH value >12 will decrease rapidly due to dilution and carbonation.

12.2 Persistence and degradability

Not relevant (inorganic substance).

12.3 Potential bio-accumulation

Not relevant (inorganic substance).

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12.4 Mobility in soil

Calcium dihydroxide reacts with moisture and/or Carbon dioxide forming Calcium Carbonate and water $\text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$ which is sparingly soluble, presenting a low mobility in most soils.

12.5 Results of PBT et vPvB evaluations

Not relevant (inorganic substance).

12.6 Other adverse effects

Not identified.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal must be in accordance with National or Local legislation and directives. Bags are exclusively for containing the product and must not be utilised for other use. Dispose of the contents and bags at a point of refuse collection. Harden the product before disposal by wetting it. Bags should be totally emptied.

SECTION 14: TRANSPORT INFORMATION

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

Note: rules described below are the ones valid when this document was prepared. Considering possible changes, it is advisable to consult your supplier. This also applies if you consult this document 12 months after its publication.

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

None.

14.6 Particular precautions to be taken by the user

Avoid dust spillages during transport.

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14.7 Bulk Transport conforming to Annex II of the MARPOL73/78 convention and to the IBC Code

Not regulated.

SECTION 15: REGULATORY INFORMATION

15.1 Regulations/legislation specific to the substance or blends related to health, safety or environment.

Authorisations : none required

Use restrictions: none

Other EU regulations - NHLs are not:

- A SEVESO substance.
- Ozone layer depleting substance.
- Persistence organic pollutant

National Regulations (France): Code du travail : Articles L4411-1 et suivants.

15.2 Evaluation of chemical safety

An evaluation of chemical safety of the substance has been carried out.

SECTION 16: OTHER INFORMATION

All data are based on our current knowledge but do not constitute a guarantee for the properties of the product and do not form a contractual relationship.

Hazard mentions, precaution recommendations and risk phrases are detailed in section 2

16.1 Scope of revision

To establish a Safety data sheet in conformity with annex II of the European regulation 1907/2006/CE modified by regulation 453/2010 dated 20 May 2010.

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

CSAH : Comité Scientifique en matière d'Alimentation Humaine

EC50 : Median Effective Concentration : concentration with medium effect.

NOEC : Non Observable Effect Concentration : concentration with no observable effects.

LC50 : Lethal Concentration (concentration létale) : 50% of tested animals die.

DL50 : Dose létale (lethal dose) : 50% of tested animals die.

16.3 Principal bibliography and Sources

Bureau Européen des substances Chimiques (ECB)

CIRC (Centre International de Recherche sur le Cancer)

HSDB (Hazardous Substances Data Bank) (National Library of Medicine)

Published 15.01.2020

Cancel and replaces the 01.12.2010 edition

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INRS (Institut National de Recherche et de Sécurité)

IUCLID (International Uniform Chemical Information data Base)

RTECS (Registry of Toxic effects of Chemical Substances)

[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

[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]

ANNEXE :

Exposure Scenario: available on request.

*This document accompanies the application information for the product but does not replace it.
The information contained in this document represent our knowledge as at the time of publishing. It is given in good faith.*

The user attention is drawn to the possible risk incurring when using the product for applications other than those for which it is designed.

This document does not dispense the user from knowing and applying all rules and practices related to his activity and the responsibility for the precautions to be taken are solely his.

The information contained in this document is given to assist the user to comply with the obligations related to the use of hazardous products.

The information provided must not be considered exhaustive and it does not exonerate the user from other obligations to be respected, supplementary or prescribed, outside the content of this document for which he remains solely responsible.