APPROVED

INNUVATION by UEBERALL

Product Safety Data Sheet

prepared in accordance with Annex II of the REACH Regulation EC 1907/2006, Regulation (EC) 1272/2008 and Regulation (EC) 453/2010.

Version *0*

Revision Date 30.08.2012 Print Date 30.08.2012

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Substance name	**Calcium magnesium carbonate oxide**
Synonyms	Dolomite calcined, Half-burnt dolomite, Half-calcined dolomite, Calcium magnesium carbonate oxide, Dolomitic lime. Please note that this list may not be exhaustive.
Trade name	Rehardening Material H06
Chemical Name - Formula	Calcium magnesium carbonate oxide - CaCO3.MgO
CAS-No.	83897-84-1
EINECS-No.	281-192-5
Molecular Weight	140,39 g/mol
REACH Registration Number	01-2119474891-28

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

Find hereunder a general description of uses. All the identified combinations of use descriptors are listed in Table 1 of the Annex.

Water treatment chemicals

No uses identified in Table 1 of the Annex are advised against.

1.3 Details of the supplier of the safety data sheet

Company	UEBERALL GmbH
Address	Otto-Hahn-Strasse 11 25337 Elmshorn Germany
Telephone	+49(0)4121-7809-010
Telefax	+49(0)4121-277 68 10
E-mail of competent person responsible for SDS in the MS or in the EU:	mail@ueberall-gmbh.de

1.4 Emergency telephone number

Emergency telephone number (Europe)	**112** ***This telephone number is available 24 hours per day, 7 days per week.***

Poison Information Centre telephone number	+44 (0)121 507 4123 - 0870 600 6266 (emergency – UK only)
Emergency telephone number (Company)	**+492058170** ***This telephone number is available 24 hours per day, 7 days per week.***
2. Hazards identification	
2.1 Classification of the substance or mixture	
REGULATION (EC) No 1272/2008	Specific target organ toxicity - single exposure, Category 3, Exposure routes: Inhalation. Skin irritation, Category 2, Exposure routes: Dermal. Serious eye damage, Category 1.
According to European Directive 67/548/EEC as amended.	Xi - Irritant
2.2 Label elements	
2.2.1 REGULATION (EC) No 1272/2008	
Signal word	Danger
Hazard pictograms	
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: IF IN EYES: P351: 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. 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 local regulation.
2.2.2 According to European Directive 67/548/EEC as amended.	
Signal word	Irritant
Hazard statements	R37: Irritating to respiratory system. R38: Irritating to skin. R41: Risk of serious damage to eyes.

S-phrase(s)	S2: Keep out of the reach of children. S25: Avoid contact with eyes. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37: Wear suitable gloves. S39: Wear eye/face protection.

2.3 Other hazards

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

3. Composition/information on ingredients

3.1 Substances

Chemical Name	CAS-No.	EC-No.	REACH No.	Index-No.	Weight percent
Calcium magnesium carbonate oxide	83897-84-1	281-192-5	01-2119474891-28	—	100

Degree of purity (%): No impurities relevant for classification and labelling.

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.
Inhalation	Move source of dust or move person to fresh air. Obtain medical attention immediately.
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 skin irritation persists, call a physician.
Eye contact 	Rinse immediately with plenty of water and seek medical advice.
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

The substance 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 advises given in section 4.1.

5. Firefighting measures

5.1 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.
Unsuitable extinguishing media	DO NOT use water.

5.2 Special hazards arising from the substance or mixture

none

5.3 Advice for firefighters

Avoid dust formation.
Use breathing apparatus.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 Advice 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 Advice for emergency responders	See section 6.1.1

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 materials for containment and cleaning up	
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 section 8 and 13 and the Annex of the safety data sheet.	
7. Handling and storage	
7.1 Precautions for safe handling	
7.1.1 Protective measures	Avoid contact with skin and eyes. For personal protection see section 8. 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, 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 (i.e. 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	
Store in a dry place. Minimise exposure to air and moisture to avoid degradation. Bulk storage should be in purpose designed silos. Keep out of the reach of children. Keep away from acids, significant quantities of paper, straw and nitro compounds. DO NOT use aluminium for transport and 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, available via your supplier/given in the Appendix, and check section 2.1: Control of worker exposure.	

8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit

Chemical Name	Form	Limit value	Legal basis
Calcium magnesium carbonate oxide	STEL 15 min Respirable dust 8h TWA Respirable dust	4 mg/m3 1 mg/m3	These values are read-across to calcium magnesium oxide. Magnesium is – like calcium – an essential mineral nutrient which will in itself not exert any local effects in contact with mucous membranes of the respiratory system. Human data support the finding that effects of calcium magnesium oxide are limited to the external surfaces of the body (local irritation, pH-effect) and no systemic effects are anticipated.

Derived No Effect Level

Workers

Chemical Name	Exposure routes	Acute local effects	Acute systemic effects	Long-term local effects	Long-term systemic effects
Calcium magnesium carbonate oxide	Oral	no exposure expected	no exposure expected	no exposure expected	no exposure expected
	Inhalation	4 mg/m3	no data available	1 mg/m3	no data available
	Dermal	no data available	no data available	no data available	no data available

Consumers

Chemical Name	Exposure routes	Acute local effects	Acute systemic effects	Long-term local effects	Long-term systemic effects
Calcium magnesium carbonate oxide	Oral	no data available	no data available	no data available	no data available
	Inhalation	4 mg/m3	no data available	1 mg/m3	no data available
	Dermal	no data available	no data available	no data available	no data available

Predicted No Effect Concentration

Chemical Name	Environmental protection target							
	Fresh water	Fresh water sediment	Marine water	Marine sediment	Food chain	Microorganisms in sewage treatment	Soil	Air
Calcium magnesium carbonate oxide	470 µg/m3	no data available	303 µg/m3	no data available	Does not bioaccumulate.	2.850 mg/l	1.023,1 mg/kg soil dw	no data available

8.2 Exposure controls	
To control potential exposures, generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. 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/available via your supplier.	
8.2.1 Appropriate engineering controls	Handling systems should preferably be enclosed or suitable ventilation installed to maintain atmospheric dust below the OES, if not wear suitable protective equipment.
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	Use approved nitrile impregnated gloves having CE marks. Use clothing fully covering skin, full length pants, long sleeved overalls, with close fittings at openings. Footwear resistant to caustics and avoiding dust penetration.
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/available via your supplier.
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. 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. 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.

9. Physical and chemical properties	
9.1 Information on basic physical and chemical properties	
Appearance:	Colour: white, off-white, beige, grey, light brown Form: Solid material of varying sizes: lump, granular or fine powder.
Odour:	Odourless
Odour threshold:	Not applicable
pH:	10,6; 20 °C; saturated solution
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 rate:	Not applicable (solid with a melting point > 450°C)
Flammability:	The product is not flammable.; study result, EU A.10 method
Explosive properties:	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
Density:	2.760 g/cm3
Water solubility:	study result, EU A.6 method; slightly soluble
Partition coefficient: n-octanol/water:	Not applicable (inorganic substance).
Auto-ignition temperature:	No relative self-ignition temperature below 400°C (study result, EU A.16 method)
Decomposition temperature:	study result, EU A.1 method; Possible decomposition from approx. 320°C
Viscosity, kinematic:	Not applicable (solid with a melting point > 450°C)
Oxidising properties (liquids):	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).
9.2 Other information	
Bulk density	700 - 1.300 kg/m3; 20 °C
10. Stability and reactivity	
10.1 Reactivity	
slightly soluble	

10.2 Chemical stability

Under normal conditions of use and storage (dry conditions), the product is stable.

10.3 Possibility of hazardous reactions

The product reacts exothermically with acids.
When heated above 600°C, calcium carbonate decomposes to produce calcium oxide (CaO) and carbon dioxide (CO_2). Calcium oxide reacts with water and generates heat. This may cause risk to flammable material.

10.4 Conditions to avoid

None

10.5 Incompatible materials

The product reacts exothermically with acids to form salts.

10.6 Hazardous decomposition products

none
Further information:
When heated above 600°C, calcium carbonate decomposes to produce calcium oxide (CaO) and carbon dioxide (CO_2).
The product absorbs moisture and carbon dioxide from air to form calcium magnesium carbonate (dolomite), which is a common material in the nature.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Calcium magnesium oxide is not acutely toxic.
Oral: LD50 > 2000 mg/kg bw (OECD 425, rat)
Dermal: no data available
Inhalation: no data available
Classification for acute toxicity is not warranted.,By read across these results are also applicable to the product.

Skin corrosion/irritation
Calcium dihydroxide is irritating to skin (OECD 404, in vivo, rabbit).
Based on experimental results, calcium dihydroxide requires classification as irritating to skin [R38, irritating to skin; Skin Irrit 2 (H315 – Causes skin irritation)].,By read across these results are also applicable to the product.

Serious eye damage/eye irritation
Calcium oxide causes irreversible lesions in the eye (OECD 405, in vivo, rabbit).
By read across these results are also applicable to the product.
Based on experimental results on a similar substance utilized by read-across, the product requires classification as severely irritating to the eye [R41, Risk of serious damage to eye; Eye Damage 1 (H318 - Causes serious eye damage)].

Respiratory or skin sensitisation
No data available.
The product is considered not to be a skin sensitiser, based on the nature of the effect (pH

shift) and the essential requirement of calcium and magnesium for human nutrition.
Classification for sensitisation is not warranted.

Germ cell mutagenicity
There is no indication for genotoxic/mutagenic effects of either calcium dihydroxide or other calcium or magnesium salts in in vitro studies (gene mutation in bacteria).
In view of the omnipresence and essentiality of Ca and Mg and of the physiological non-relevance of any pH shift induced in aqueous media, the product is obviously void of any genotoxic potential.
Classification for genotoxicity is not warranted.

Carcinogenicity
Both calcium (administered as Ca-lactate) and magnesium (administered as Mg-chloride) are not carcinogenic (experimental results, rat/mouse).
The pH effect of the product does not give rise to a carcinogenic risk.
Human epidemiological data support lack of any carcinogenic potential of the product.
Classification for carcinogenicity is not warranted.

Reproductive toxicity
Both calcium (administered as Ca-carbonate) and magnesium (administered as Mg-sulphate) are not toxic to reproduction (experimental results, mouse/rat).
The pH effect does not give rise to a reproductive risk.
Human epidemiological data support lack of any potential for reproductive toxicity of the product.
Both in animal studies and human clinical studies on various calcium and magnesium salts no reproductive or developmental effects were detected. Also see the Scientific Committee on Food (Section 16.6). Thus, the product is not toxic for reproduction and/or development.
Classification for reproductive toxicity according to regulation (EC) 1272/2008 is not required.

STOT - single exposure
From human data it is concluded that calcium oxide is irritating to the respiratory tract.
As summarised and evaluated in the SCOEL recommendation (Anonymous, 2008), based on human data calcium oxide is classified as irritating to the respiratory system [R37, Irritating to respiratory system; STOT SE 3 (H335 – May cause respiratory irritation)].,By read across these results are also applicable to the product.

STOT - repeated exposure
Toxicity of calcium and magnesium 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, and
UL = 250 mg/d, corresponding to 3.6 mg/kg bw/d (70 kg person) for magnesium.
Toxicity of the product 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 calcium oxide 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/m³ respirable dust (see section 8.1).
Therefore, classification of the product for toxicity upon prolonged exposure is not required.

Aspiration hazard
The product is not known to present an aspiration hazard.

12. Ecological information

12.1 Toxicity

12.1.1 Toxicity to fish	LC50 (96h) for freshwater fish: 50.6 mg/l (calcium dihydroxide) LC50 (96h) for marine water fish: 457 mg/l (calcium dihydroxide)
12.1.2 Toxicity to aquatic invertebrates	EC50 (48h) for freshwater invertebrates: 49.1 mg/l (calcium dihydroxide) LC50 (96h) for marine water invertebrates: 158 mg/l (calcium dihydroxide)
12.1.3 Chronic toxicity to aquatic plants	EC50 (72h) for freshwater algae: 184.57 mg/l (calcium dihydroxide) NOEC (72h) for freshwater algae: 48 mg/l (calcium dihydroxide)
12.1.4 Toxicity to microorganisms / **Toxicity to bacteria**	At high concentration, through the rise of temperature and pH, the product is used for disinfection of sewage sludge.
12.1.5 Toxicity to daphnia and other aquatic invertebrates	NOEC (14d) for marine water invertebrates: 32mg/l (calcium dihydroxide)
12.1.6 Toxicity to soil dwelling organisms	EC10/LC10 or NOEC for soil macroorganisms: 2000 mg/kg soil dw (calcium dihydroxide) EC10/LC10 or NOEC for soil microorganisms: 12000 mg/kg soil dw (calcium dihydroxide)
12.1.7 Toxicity to terrestrial plants	NOEC (21d) for terrestrial plants: 1080 mg/kg (calcium dihydroxide)
12.1.8 Other effects	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.
12.1.9 Other information	The results by read across are also applicable to the product.

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 magnesium 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

Not relevant for inorganic substances.

12.6 Other adverse effects

No other adverse effects are identified.

13. Disposal considerations

13.1 Waste treatment methods

Disposal of the product 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 packaging is only meant for packing this product; it should not be reused for other purposes.

14. Transport information

The product 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 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

15. Regulatory information

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

Authorisations	Not required
Restrictions on use	None
Other regulations (European Union)	The product is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.
National regulatory information	German legislation on water endangering substances VwVwS slightly water endangering (WGK 1)

15.2 Chemical Safety Assessment

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

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: IF IN EYES: P351: 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. 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 local regulation.
16.3 R-phrase(s)	
	R37: Irritating to respiratory system. R38: Irritating to skin. R41: Risk of serious damage to eyes.
16.4 S-phrase(s)	
	S2: Keep out of the reach of children. S25: Avoid contact with eyes. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37: Wear suitable gloves. S39: Wear eye/face protection.

16.5 Abbreviations	
	DNEL: Derived no effect level EC50: median effective concentration LC50: median lethal concentration LD50: median lethal dose NOEC: no observable effect concentration OEL: occupational exposure limit PBT: persistent, bioaccumulative, toxic chemical PNEC: predicted no-effect concentration SDS: Safety data sheet STEL: short-term exposure limit STOT: specific target organ toxicity TWA: time weighted average vPvB: very persistent, very bioaccumulative chemical

16.6 Literary reference

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 (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

16.7 Additions, Deletions, Revisions

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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.