Appendice H

Schede Tecniche/Sicurezza Sostanze per la Preparazione dei Fanghi di Perforazione

Doc. No. P0012454-1-H5 Rev.2 - Aprile 2020

PRODUCT DATA

Cebo Holland

CEBOGEL OCMA

Use
For the production of drilling fluid for horizontal directional drilling. CEBOGEL OCMA is an all-round drilling product that is particularly suitable for machines with a tractive power from approximately 30 tons upwards.
Production of drilling fluid for soil drilling.

For optimal efficiency the **mixing water** of the slurry should have the following properties:
Conductivity : ≤ 1000 µS/cm
pH : 4.5 - 9

Description
The basis for CEBOGEL OCMA is an activated sodium bentonite. CEBOGEL OCMA complies with the OCMA specifications as laid down for oil drilling and is also KIWA certified.

Advantages
- Stabilises the borehole
- Improves the discharge of drilling waste
- Reduces torsion
- Easy to recycle
- Outstanding price - quality ratio
- Certified according to KIWA-ATA, therefore safe for use in drinking water areas.

Specification
Complies with the specifications for bentonite as drawn up by the "Oil Companies Materials Association DFCP-4.
Is supplied with KIWA certificate for Toxicological aspects (ATA), which guarantees a 100 % environmentally-friendly product.

Parameter	Method	Requirement	Typical Value
Yield	OCMA DFCP-4	≥ 16.0 m^3/ton	17.4 m^3/ton
API Filtrate water loss	OCMA DFCP-4	≤ 15 ml	13 ml
Dry sieve analysis through 150 µm	OCMA DFCP-4	≥ 98 %	99 %

Cebo Holland BV
Westerduinweg 1
NL-1976 BV IJMUIDEN
P.O. Box 70
NL-1970 AB IJMUIDEN

Tel.: +31 255546262
Fax: +31 255546202
e-mail : sales@ceboholland.com
www.ceboholland.com

PRODUCT DATA

Cebo Holland

Parameter	Method	Requirement	Typical Value
Wet sieve analysis 75 µm	OCMA DFCP-4	≤ 2.5 %	2 %
Moisture content	OCMA DFCP-4	≤ 15.0 %	9.8 %

Chemical and physical properties

Composition	High-quality activated sodium bentonite
Colour	Yellow beige
Form	Soft powder

Slurry properties
CEBOGEL OCMA mixed with distilled water in various concentrations.

Parameter	Method	30 kg/m^3	40 kg/m^3	50 kg/m^3	60 kg/m^3
Liquid limit ball number	Kugelharfengerät DIN 4126	1	1	2	4
Density	Mud balance	1.02 g/ml	1.03 g/ml	1.03 g/ml	1.04 g/ml
Filtrate water loss	DIN 4127	15.5 ml	13 ml	10 ml	8 ml
Marsh funnel API	API RP 13B 2 (1 litre outflow)	31 s	38.5 s	46 s	54 s

Packaging
- 1000 kg packed in 25 kg bags on a pallet with shrink film
- 1400 kg packed in 50 kg bags on a pallet with shrink film
- 1000 kg big bags
- bulk

Cebo Holland BV
Westerduinweg 1
NL-1976 BV IJMUIDEN
P.O. Box 70
NL-1970 AB IJMUIDEN

Tel.: +31 255546262
Fax: +31 255546202
e-mail : sales@ceboholland.com
www.ceboholland.com

Revision date : 01.02.2005
Document no : OC01IP

Soda Ash

Specialty Chemical

Description

Soda Ash is a white, granular powder primarily used to condition and soften make-up water and raise pH

Applications/Functions

- Treat out hardness due to calcium in make-up water
- Raise pH

Advantages

- Eliminate calcium ions by removing them as insoluble calcium carbonate
- Maximize the performance of bentonite and polymer product

Typical Properties

• Appearance	Variable-colored powder (gray to tan)
• pH of 5% solution	11.5
• Bulk density, lb/ft^3	57-65

Recommended Treatment

- Hardness and pH levels of make-up water should be checked prior to addition of Soda Ash.
- Addition of Soda Ash should always be done prior to addition of bentonite or polymer to the fluid system.
- Soda Ash should not be added at the same time as other drilling fluid components.
- When treating make-up water pH ranges should be maintained between 8.5 – 9.5

General Treatment:

- 1-2 pounds per 100 gallons of make-up water or 1.2-2.4 kilograms per cubic meter of make-up water.
- Use as required to remove calcium ions but do not add in excess as overtreatment can lead to detrimental effects and reduced performance of the drilling fluid components and/or system.
- Mix slowly through a jet mixer or sift slowly into the vortex of a high-speed stirrer.

Rev. 2/2006 · IDP 055

Packaging

Soda Ash is packaged in 50-lb (22.7 kg) or 100-lb (45.4 kg) multiwall paper bags.

Availability

Soda Ash can be purchased through any Baroid Industrial Drilling Products Distributor. To locate the Baroid IDP distributor nearest you contact the Customer Service Department in Houston or your area IDP Sales Representative.

Baroid Industrial Drilling Products
Product Service Line, Halliburton
3000 N. Sam Houston Pkwy. E.
Houston, TX 77032

Customer Service	(800) 735-6075 Toll Free	(281) 871-4612
Technical Service	(877) 379-7412 Toll Free	(281) 871-4613

HALLIBURTON

SAFETY DATA SHEET

PAC™-L

Revision Date: 18-Nov-2010 **Revision Number:** 9

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

Product Identifier

Product Name PAC™-L

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

Recommended Use Fluid Loss Additive

Uses Advised Against No information available

Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

Emergency telephone number

+44 1224 795277 or +1 281 575 5000

Emergency telephone §45 - (EC)1272/2008	
Europe	**112**
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not classified

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16

Classification Not Classified

2. HAZARDS IDENTIFICATION

Risk Phrases None

Label Elements
Not classified

Signal Word **None**

EUH210 - Safety data sheet available on request

Other Hazards
Dust can form an explosive mixture in air

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	EINECS	CAS Number	PERCENT	EEC Classification	EU - CLP Substance Classification	REACH No.
Glyoxal	203-474-9	107-22-2	Trace	Muta.Cat.3; R68 Xn; R20 Xi; R36/38 R43	Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Muta. 2 (H341)	No data available

For the full text of the R-phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Most Important symptoms and effects, both acute and delayed
No significant hazards expected.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIREFIGHTING MEASURES

Extinguishing media
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Special hazards arising from the substance of mixture
Special Exposure Hazards
Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Advice for firefighters
Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Avoid creating and breathing dust.
See Section 12 for additional information

Environmental precautions
None known.

Methods and material for containment and cleaning up
Scoop up and remove.

Reference to other sections
See Section 12 for additional information.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid creating or inhaling dust. Avoid dust accumulations. Slippery when wet.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice

Conditions for safe storage, including any incompatibilities
Store away from oxidizers. Store in a dry location. Product has a shelf life of 36 months.

Specific End Use(s)
Exposure Scenario No information available
Other Guidelines No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Substances	EU	UK OEL	Netherlands	France OEL	Germany MAK/TRK
Glyoxal	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

Exposure controls
Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (95%)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Physical State: Powder **Color:** White to off white

Odor: Odorless

Property	Values	Remarks/ Method
pH:	6.5-9 (1%)	

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point/Range	No data available
Freezing Point/Range (C):	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.6
Water Solubility	No data available
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other information

VOC Content (%) No data available

10. STABILITY AND REACTIVITY

Reactivity

Not applicable

Chemical Stability

Stable

Possibility of Hazardous Reactions

Will Not Occur

Conditions to Avoid

None anticipated

Incompatible Materials

Strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	None known

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Substances	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glyoxal	No data available	No data available	No data available

12. ECOLOGICAL INFORMATION

Toxicity

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

Substances	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Glyoxal	No information available	No information available	No information available	No information available

Persistence and degradability
Readily biodegradable

Bioaccumulative potential
No information available

Mobility in soil
No information available

Results of PBT and vPvB assessment
No information available.

Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

IMDG/IMO

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Environmental Hazards: Not applicable

RID

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

ADR

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

IATA/ICAO

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

Special Precautions for User None
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

15. REGULATORY INFORMATION

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

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK)	WGK 1: Low hazard to waters.

Chemical Safety Assessment
No information available

16. OTHER INFORMATION

Full text of R-phrases referred to under Sections 2 and 3
None

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date:	18-Nov-2010
Revision Note	Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

N-SEAL™

Revision Date: 21-Sep-2015 **Revision Number:** 21

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name N-SEAL™
Internal ID Code HM003708

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

Recommended Use Viscosifier
Sector of use SU2 - Mining, (including offshore industries)
Product category PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC 26 - Handling of solid inorganic substances at ambient temperature

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact
E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not classified

2.2. Label Elements

Not classified

Hazard Pictograms

Signal Word **None**

Hazard Statements
Not Classified

Precautionary Statements - EU (§28, 1272/2008)
None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

2.3. Other Hazards
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.1. Substances Substance

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	NA	60 - 100%	Not applicable	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

4.2. Most Important symptoms and effects, both acute and delayed
No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture
Special Exposure Hazards

Not applicable.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid creating and breathing dust. Ensure adequate ventilation.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry location.

7.3. Specific End Use(s)

Exposure Scenario No information available

Other Guidelines No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.

Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: fibers **Color:** White to gray
Odor: Odorless **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.6
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Bulk Density	12-26 lbs/ft3

SECTION 10: Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical Stability
Stable
10.3. Possibility of Hazardous Reactions
Will Not Occur
10.4. Conditions to Avoid
None anticipated
10.5. Incompatible Materials
Strong acids.
10.6. Hazardous Decomposition Products
Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects
Acute Toxicity

Inhalation	None known.
Eye Contact	May cause mechanical irritation to eye.
Skin Contact	May cause mechanical skin irritation.
Ingestion	None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

SECTION 12: Ecological Information

12.1. Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to	NA	No information available

the competent authority		

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

RID

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

ADR

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

14.1. UN Number: Not restricted

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information

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

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
None

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 21-Sep-2015
Revision Note
SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

DIAMOND SEAL®

Revision Date: 16-Sep-2015 **Revision Number:** 19

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name DIAMOND SEAL®
Internal ID Code HM003617

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

Recommended Use Loss Circulation Material
Sector of use SU2 - Mining, (including offshore industries)
Product category PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact
E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not classified

2.2. Label Elements
Not classified

Hazard Pictograms

Signal Word **None**

Hazard Statements
Not Classified

Precautionary Statements - EU (§28, 1272/2008)
None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

2.3. Other Hazards
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.1. Substances Substance

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	NA	60 - 100%	Not applicable	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

4.2. Most Important symptoms and effects, both acute and delayed
No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media
Suitable Extinguishing Media
Carbon dioxide, dry chemical, foam.
Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Slippery when wet. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling

Avoid creating or inhaling dust. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Slippery when wet. Use appropriate protective equipment.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from oxidizers. Store in a dry location.

7.3. Specific End Use(s)

Exposure Scenario No information available
Other Guidelines No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Contains no hazardous substances in	NA	Not applicable	Not applicable	Not applicable	Not applicable

concentrations above cut-off values according to the competent authority					

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.

Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls A well ventilated area to control dust levels.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid **Color:** White

Odor: Odorless **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	4-11
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.4
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

Bulk Density 40-50 lbs/ft3

SECTION 10: Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical Stability
Stable
10.3. Possibility of Hazardous Reactions
Will Not Occur
10.4. Conditions to Avoid
None anticipated
10.5. Incompatible Materials
Strong oxidizers.
10.6. Hazardous Decomposition Products
Oxides of nitrogen. Ammonia. Hydrocarbons. Carbon monoxide and carbon dioxide. In the event of oxygen depletion, hydrocyanic acid can be formed.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects
Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	None known.
Ingestion	None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

SECTION 12: Ecological Information

12.1. Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

RID

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

ADR

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

14.1. UN Number: Not restricted

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information

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

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 2: Hazard to waters.

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
None

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date: 16-Sep-2015
Revision Note
SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

Material Safety Data Sheet

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(as Used on Label and List)*

BALLBUSTER BB-2 STICKS

Section I

Manufacturer's name **Expert's Choice, Inc.**

Address *(Number, Street, City, State and ZIP Code)*

207 S Main

Kemp, TX 75143

Emergency Telephone Number **512-657-9629**

Telephone Number for Information **512-657-9629**

Date Prepared **January 10, 2008**

Signature of Preparer *(optional)*

Section II—Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Glycerin				
Sodium Stearate				
Sodium Palmate				
Walnut Grit (400 micron to 900 micron)				

THIS PRODUCT CONTAINS NO HAZARDOUS COMPONENTS UNDER CURRENT OSHA DEFINITIONS. THIS PRODUCT CONTAINS NO SARA SECTION 313 LISTED CHEMICALS. NOT DOT REGULATED.

Section III—Physical/Chemical Characteristics

Boiling Point	**N/A**	Specific Gravity (H_20 = 1)	**1.26**
Vapor Pressure (mm Hg)	**N/A**	Melting Point	**112 Degrees F**
Vapor Density (AIR = 1)	**N/A**	Evaporation Rate (Butyl Acetate = 1)	**N/A**

Solubility in Water **100%**

Appearance and Odor **Brown Color. Waxy solid at room temperature. In stick form.**

Section IV—Fire and Explosion Hazard Data

Flash Point (Method Used) **N/A** | Flammable Limits **N/A** | LEL **N/A** | UEL **N/A**

Extinguishing Media **N/A**

Special Fire Fighting Procedures **N/A**

Unusual Fire and Explosion Hazards **N/A**

Section V—Reactivity Data

Stability	Unstable		Conditions to Avoid **NONE**
	Stable	**X**	

Incompatibility *(Materials to Avoid)* **N/A**

Hazardous Decomposition or Byproducts **Carbon Monoxide, Carbon Dioxide, or Oxides of Nitrogen**

Hazardous Polymerization	May Occur		Conditions to Avoid **NONE**
	Will Not Occur	**X**	

Section VI—Health Hazard Data

Route(s) of Entry Inhalation? **NO** Skin? **NO** Ingestion? **NO**

Health Hazards *(Acute and Chronic)* **NONE KNOWN**

Carcinogenicity NTP? **NO** IARC Monographs? **NO** OSHA Regulated? **NO**

Signs and Symptoms of Exposure **May cause skin Irritations in some individuals**

Medical Conditions
Generally Aggravated by Exposure **N/A**

Emergency and First Aid Procedures **For eye contact: Flush with water**

Section VII—Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

Wipe up, absorb on suitable material or shovel up and dispose of. Slippery when wet.

Waste Disposal Method

According to Local, State, or Federal regulations – Landfill.

Precautions to Be Taken in Handling and Storing

Store in a cool, dry place. Keep container tightly closed.

Other Precautions

Product is intended to be inserted inside drill pipe upon connections. Precautions should be taken so as not to injure hands or fingers.

Section VII—Control Measures

Respiratory Protection *(Specify Type)* **None Necessary**

Ventilation	Local Exhaust **Sufficient**	Special **N/A**
	Mechanical *(General)* **N/A**	Other **N/A**

Protective Gloves **N/A** Eye Protection **N/A**

Other Protective Clothing or Equipment **N/A**

Work/Hygienic Practices **Rince after handling**

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

Baryte

Version number: GHS 1.0 Date of compilation: 2015-10-22

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance	**Barite**
Registration number (REACH)	the substance is exempted from the obligation to register - REACH regulation, Annex V) - If available, the MsDs is supplemented by data from the REACH registration dossier of barium sulphate.
EC number	231-784-4
CAS number	7727-43-7
Other means of identification	
Alternative name(s)	STANDARD BARYTE SDS

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

Relevant identified uses	industrial use
Uses advised against	consumer uses

1.3 Details of the supplier of the safety data sheet

Cebo Holland BV
Westerduinweg 1
1976 BV IJmuiden
Netherlands

Telephone: +31 (0) 255-546262
info@cebo.com
www.cebo.com

Competent person responsible for the safety data sheet	HSEQ Department
e-mail (competent person)	msds@cebo.com

1.4 Emergency telephone number

Emergency information service	**+31 (0) 255-546262** This number is only available during the following office hours: 08:30 - 17:00

Poison centre		
Country	**Name**	**Telephone**
United Kingdom	National Poison Information Service (NPIS) For medical professionals only.	0844-8920111 (UK only)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

not required

2.3 Other hazards

Depending on the type of handling and use (e.g. grinding, drying), airborne respirable crystalline silica may be generated. Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Barite
EC number	231-784-4
CAS number	7727-43-7

Impurities and additives, classification acc. to EU regulation

Name of substance	Identifier	Wt%	Classification acc. to 1272/2008/EC
Crystalline silica (fine fraction)	CAS No 14808-60-7 EC No 238-878-4	≤ 1	STOT RE 1 / H372

Molecular formula	Ba.H2O4S
Molar mass	235.4 $^{g}/_{mol}$

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Brush off loose particles from skin. - Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Let water be drunken in little sips (dilution effect).

4.2 Most important symptoms and effects, both acute and delayed

The acute symptoms would cause pain in the eyes because of dust. No delayed effects are anticipated if first aid treatment is applied effectively.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

water, foam, alcohol resistant foam, ABC-powder, co-ordinate firefighting measures to the fire surroundings

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Warning and evacuating people in the neighbourhood. Ventilate affected area. Control of dust. Avoid contact with skin and eyes. Avoid inhalation of the product. Avoid breathing dust. Special danger of slipping by leaking/spilling product.

For emergency responders

Standard equipment for firefighters. Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains. - Take up mechanically.

Advices on how to clean up a spill

Take up mechanically. Collect spillage Vacuuming or wet sweeping may be used to avoid dust dispersal.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

• Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Removal of dust deposits. Ground/bond container and receiving equipment. Avoid formation of dust.

• Warning

Dust deposits may accumulate on all deposition surfaces in a technical room.

Advice on general occupational hygiene

Wash hands after use. Do not to eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

Minimise airborne dust generation and prevent wind dispersal during loading and unloading. Keep containers closed and store packaged products so as to prevent accidental bursting.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

• Ventilation requirements

Use local and general ventilation.

7.3 Specific end use(s)

If you require advice on specific uses check the Good Practice Guide referred to in section 16.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
GB	dust		WEL		10			EH40/2005
GB	dust		WEL		4			EH40/2005
GB	barium sulphate	7727-43-7	WEL		10			EH40/2005
GB	barium sulphate	7727-43-7	WEL		4			EH40/2005
GB	silica, crystalline	7727-43-7	WEL		0.1			EH40/2005

Notation

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	10 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	10 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Organism	Environmental compart-ment	Exposure time
PNEC	115 µg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	62.2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	600.4 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
PNEC	207.7 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

Employ good industrial hygiene practice. If you require advice on specific uses check the Good Practice Guide referred to in section 16.

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection. EN166

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Skin protection

• hand protection

Wear protective gloves.

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. P3 (filters at least 99,95 % of airborne particles, colour code: White).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	solid (powder)
Colour	different
Odour	odourless
Other physical and chemical parameters	
pH (value)	
Melting point/freezing point	1,580 °C
Initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	
Explosion limits of dust clouds	not determined
Vapour pressure	not determined
Density	not determined
Relative density	Information on this property is not available.
Solubility(ies)	
- Water solubility	3.1 $^{mg}/_{l}$ at 20 °C
Partition coefficient	
- n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	not determined
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidising properties	none

9.2 Other information

Of no significance.

SECTION 10: Stability and reactivity

10.1 Reactivity

this material is not reactive under normal ambient conditions

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Staubentwicklung gering halten und Verteilung durch Wind verhindern, beim Be- und Entladen. Behälter geschlossen halten und verpackte Produkte zu speichern, so dass versehentliche Bersten zu verhindern.

10.5 Incompatible materials

Do not store together with materials that may be affected by dust.

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification according to GHS (1272/2008/EC, CLP)

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.
This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Method	Notes
oral	LD50	>20000 $^{mg}/_{kg}$	rat		

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin. Bentonite is not irritating to skin (in vivo, OECD 404, rabbit). .

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant. Bentonite is not irritating to eye (in vivo, OECD 405, rabbit). Bentonite is classified as a mild irritant to eyes (according to the modified Kay & Calandra criteria).

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser. Bentonite is not a skin sensitiser in accordance with the local lymph node assay (OECD 429, mouse) .

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

- The classification as germ cell mutagenic is based on

  In vitro tests (OECD 471, 473 and 476) negative.

- The classification as carcinogenic is based on

  In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)
  In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. “There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore preventing the onset of silicosis will also reduce the cancer risk…“ (SCOEL SUM Doc 94-final, June 2003).
  So there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required (see section 16 below).

Specific target organ toxicity (STOT)

Shall not be classified as a specific target organ toxicant.

- Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

- Specific target organ toxicity - repeated exposure

Prolonged and/or massive exposure to respirable crystalline silica-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by deposition in the lungs of fine respirable particles of crystalline silica. .

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Exposure time
LC50	>3.5 $^{mg}/_{l}$	fish	96 hours
ErC50	>1.15 $^{mg}/_{l}$	algae	72 hours

Aquatic toxicity (chronic)

Endpoint	Value	Species	Exposure time
EC50	>1,000 $^{mg}/_{l}$	microorganisms	3 h

12.2 Persistence and degradability

The study does not need to be conducted because the substance is inorganic.

12.3 Bioaccumulative potential

The study does not need to be conducted because the substance is inorganic.

12.4 Mobility in soil

Insoluble.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Other adverse effects

Data are not available.

Endocrine disrupting potential

Not listed. None of the ingredients are listed.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials.

Sewage disposal-relevant information

Do not empty into drains. Please consider the relevant national or regional provisions.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1	UN number	(not subject to transport regulations)
14.2	UN proper shipping name	not relevant
14.3	Transport hazard class(es)	
	Class	-
14.4	Packing group	not relevant
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

• Restrictions according to REACH, Annex XVII

not listed

• List of substances subject to authorisation (REACH, Annex XIV)

not listed

None of the ingredients are listed.

• Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

• Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

• Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
not listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits, Table 1: List of approved workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant)
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
STOT RE	specific target organ toxicity - repeated exposure
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H372	causes damage to organs through prolonged or repeated exposure

Training advice

A multi-sectoral social dialogue agreement on Workers Health Protection through the Good Handling and Use of Crystalline Silica and Products Containing it was signed on 25 April 2006. This autonomous agreement, which receives the European Commission's financial support, is based on a Good Practices Guide. The requirements of the Agreement came into force on 25 October 2006. The Agreement was published in the Official Journal of the European Union (2006/C 279/02). The text of the Agreement and its annexes, including the Good Practices Guide, are available from http://www.nepsi.eu and provide useful information and guidance for the handling of products containing respirable crystalline silica. Literature references are available on request from EUROSIL, the European Association of Industrial Silica Producers, .

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Date: 7-5-2003

MATERIAL SAFETY DATASHEET

CEBODOL

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product name	-	Microdol
Product type	-	Weighting agent
Supplier	-	Cebo Holland B.V. Westerduinweg 4 1976 BV IJmuiden
Emergency telephone	-	(0)255546245

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name (IUPAC)	-	Calcium-Magnesiumcarbonate
Customary name	-	Dolomite
CAS Registration number	-	16389-88-1
R- and S- phrases	-	None
EU Hazard symbol	-	

3 HAZARDS IDENTIFICATION

Specific health risk	-
Safety hazards	-
Hazards for the environment	-

4 FIRST AID MEASURES

Symptoms and effects -

FIRST AID:

Skin contact	-	No measures are required
Eye contact	-	Irrigate with plenty of water
Ingestion	-	No measures are required
Inhalation	-	Remove to fresh air
Advice to physicians	-	

5 FIRE FIGHTING MEASURES

Extinghuishing media	-	All media accepted
Unsuitable media	-	None
Protective equipment	-	
Special exposure hazards	-	
NFPA-code	-	

6 ACCIDENTAL RELEASE MEASURES

Environmental care	-	No known risks
Personal care	-	Avoid breathing dust
Cleaning methods	-	Scoop up spilled product, flush rests with water

7 HANDLING AND STORAGE

Handling precautions	-	Avoid dusting
Storage conditions	-	Cool and dry

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure controls	-	
MAC value (mg/m^3)	-	10 (dust)

PERSONAL PROTECTION:

Inhalation	-	Dustmask
Hands	-	
Eyes	-	Goggles
Skin	-	

9 PHYSICAL AND CHEMICAL PROPERTIES

State of aggregation	-	Powder
Colour	-	Lightbrown/yellow
Odour	-	Odourless
pH	-	9 (10% suspension)
Boiling Point (^oC)	-	N.a.
Melting Point (^oC)	-	N.a.
Flashpoint (^oC)	-	N.a.
Flammability	-	
Autoflammability	-	
Explosion limits	-	
Oxidizing properties	-	
Vapour pressure	-	
Relative density (kg/m^3)	-	2850
Solubility (water)	-	Insoluble/slight
(fat)	-	
Particle size (µm)	-	< 45
Partition coefficient n-octanol/water	-	
Other data	-	

10 STABILITY AND REACTIVITY

Stability	-	Stable
Conditions to avoid	-	None
Materials to avoid	-	Acids
Hazardous decomposition	-	When heated above 800 °C CO_2 will be released

11 TOXICOLOGICAL INFORMATION

Acute toxicity	-	None known
Oral LD_{50}(rat)	-	No data
Ivn LD_{50}(rat)	-	

12 ECOLOGICAL INFORMATION

Ecotoxicity	-	Naturally occurring substance presenting no known ecological hazards
Mobility	-	
Accumilation	-	
Degradation	-	
Other effects	-	Aquatic toxicity: TLm 96 > 1000 ppm

13 DISPOSAL CONSIDERATIONS

Landfill

14 TRANSPORT INFORMATION

Not regulated

15 REGULATORY INFORMATION

Labelling	-	No labelling required
E.U. number	-	240-440-2
R phrases	-	None
S phrases	-	None

16 OTHER INFORMATION

Uses and restrictions		-	
Sources used		1	Producers information
		2	
		3	
		4	
MSDS History	Document nr.	-	13
	Date	-	28-02-1996
	Revised	-	12-02-2003
	Signature	-	

HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

CON DET®

Revision Date: 20-Dec-2012 **Revision Number:** 13

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

Product Identifier

Product Name CON DET®

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

Recommended Use Anionic Surfactant

Uses Advised Against No information available

Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

Emergency telephone number

+44 1224 795277 or +1 281 575 5000

Emergency telephone §45 - (EC)1272/2008	
Europe	**112**
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC
For the full text of the R-phrases mentioned in this Section, see Section 16

2. HAZARDS IDENTIFICATION

Symbol(s)

Classification Xi - Irritant.

Risk Phrases

R36/38 Irritating to eyes and skin.

Safety Phrases

S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Hazard Overview May cause eye and skin irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	EINECS	CAS Number	PERCENT	EEC Classification	EU - CLP Substance Classification	REACH No.
Isopropanol	200-661-7	67-63-0	1 - 5%	F; R11 Xi; R36 R67	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225)	No data available

For the full text of the R-phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Most Important symptoms and effects, both acute and delayed

May cause eye and skin irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIREFIGHTING MEASURES

Extinguishing mediaó

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Special hazards arising from the substance of mixture
Special Exposure Hazards
Decomposition in fire may produce toxic gases.

Advice for firefighters
Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment.
See Section 12 for additional information

Environmental precautions
Prevent from entering sewers, waterways, or low areas.

Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

Reference to other sections
See Section 12 for additional information.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice

Conditions for safe storage, including any incompatibilities
Keep container closed when not in use. Product has a shelf life of 60 months.

Specific End Use(s)
Exposure Scenario No information available
Other Guidelines No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Substances	EU	UK OEL	Netherlands	France OEL	Germany MAK/TRK
Isopropanol	Not applicable	400 ppm	Not applicable	Not applicable	200 ppm

Substances	Italy	Poland	Hungary	Czech Republic	Denmark
Isopropanol	Not applicable	900 mg/m^3	500 mg/m^3	500 mg/m^3	Not applicable

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

Exposure controls
Engineering Controls Use in a well ventilated area.
Personal protective equipment

Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Organic vapor respirator.
Hand Protection	Impervious rubber gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.
Environmental Exposure Controls	No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State:	Liquid	**Color:**	Transparent Red
Odor:	Alcohol	**Odor Threshold:**	No information available

Property Remarks/ Method	Values
Melting Point/Range	No data available
Freezing Point/Range (C):	-2.2
Flash Point/Range (C):	99
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Specific Gravity @ 20 C (Water=1):	1.025
Density @ 20 C (kg/l):	1.025
Solubility in Water (g/100ml):	Soluble
Solubility in other solvents	No data available
Partition Coefficient/n-Octanol/Water:	Not Determined
Decomposition Temperature (C):	Not Determined
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other information

Molecular Weight (g/mole):	Not Determined
VOC Content (%)	No data available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable
Chemical Stability
Stable
Possibility of Hazardous Reactions
Will Not Occur
Conditions to Avoid
None anticipated
Incompatible Materials
Strong oxidizers.
Hazardous Decomposition Products
Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Inhalation May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact May cause mild eye irritation.
Skin Contact Causes drying of the skin. May cause mild skin irritation.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Substances	LD50 Oral	LD50 Dermal	LC50 Inhalation
Isopropanol	4396 mg/kg	12870 mg/kg	72.6 mg/l

12. ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity Effects

Substances	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Isopropanol	EC50: > 1000 mg/l(Desmodesmus subspicatus)	LC50: 9640 mg/l (Pimephales promelas)	No information available	EC50: 13299 mg/l (Daphnia magna)

Persistence and degradability
No information available

Bioaccumulative potential
No information available

Mobility in soil
No information available

Results of PBT and vPvB assessment
No information available.

Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal Method Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

14. TRANSPORT INFORMATION

IMDG/IMO

UN Number:	Not restricted.
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable

RID

UN Number:	Not restricted.
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable

ADR

UN Number:	Not restricted.
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable

IATA/ICAO

UN Number:	Not restricted.
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable

Special Precautions for User None

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

15. REGULATORY INFORMATION

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

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 1: Low hazard to waters.

Chemical Safety Assessment
No information available

Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC
For the full text of the R-phrases mentioned in this Section, see Section 16

Symbol(s)

Classification Xi - Irritant.

Risk Phrases

R36/38 Irritating to eyes and skin.

Safety Phrases

S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Hazard Overview May cause eye and skin irritation.

16. OTHER INFORMATION

Full text of R-phrases referred to under Sections 2 and 3
F - Highly Flammable.
Xi - Irritant.
R11 Highly flammable.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date: 20-Dec-2012
Revision Note Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

NO-SAG®

Revision Date: 21-Sep-2015 **Revision Number:** 15

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name NO-SAG®
Internal ID Code HM003705

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

Recommended Use Viscosifier
Sector of use SU2 - Mining, (including offshore industries)
Product category PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact
E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not classified

2.2. Label Elements
Not classified

Hazard Pictograms

Signal Word **None**

Hazard Statements
Not Classified

Precautionary Statements - EU (§28, 1272/2008)
None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

2.3. Other Hazards
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.1. Substances Substance

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	NA	60 - 100%	Not applicable	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

4.2. Most Important symptoms and effects, both acute and delayed
No significant hazards expected.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards
Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential. Decomposition in fire may produce harmful gases.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling

Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Slippery when wet. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from oxidizers. Store in a cool, dry location.

7.3. Specific End Use(s)

Exposure Scenario No information available
Other Guidelines No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Contains no hazardous substances in	NA	Not applicable	Not applicable	Not applicable	Not applicable

concentrations above cut-off values according to the competent authority					

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.

Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid **Color:** White to yellow

Odor: Slight **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	7
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.5
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	204 °C / 400 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight 1000000

VOC Content (%) No data available

SECTION 10: Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical Stability
Stable
10.3. Possibility of Hazardous Reactions
Will Not Occur
10.4. Conditions to Avoid
None anticipated
10.5. Incompatible Materials
Strong oxidizers.
10.6. Hazardous Decomposition Products
Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects
Acute Toxicity

Inhalation	May impede respiration.
Eye Contact	May cause mild eye irritation.
Skin Contact	None known.
Ingestion	None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

SECTION 12: Ecological Information

12.1. Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

RID

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

ADR

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

14.1. UN Number: Not restricted

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information

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

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
None

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit

SU – Sector of Use category

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date: 21-Sep-2015
Revision Note
SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET (MSDS) FOR GYPSUM

(Complies with OSHA's Hazard Communication Standard, 29 CFR 1910.1200)

CEMEX, INC.
920 Memorial City Way, SUITE 100
HOUSTON, TEXAS 77024

Section 1 - IDENTIFICATION

Supplier/Manufacturer

CEMEX, Inc.
920 Memorial City Way, Suite 100
Houston, Texas 77024

Emergency Contact Information

(713) 650-6200

Product name and synonyms

Calcium Sulfate Dihydrate, Gypsum Stone,
Hydrated Calcium Sulfate, Mineral White

Chemical family

Limestone/Dolomite (CAS #13397-24-5)

Formula

$CaSO_4 - 2H_2O$

Section 2 - COMPONENTS

Hazardous Ingredients

Respirable quartz (CAS# 14808-60-7) – greater than 0.1% by weight
ACGIH TLV-TWA (2006) = 0.025 mg respirable quartz dust/m^3
OSHA PEL (8-hour TWA) = (10 mg respirable dust/$m^{3)}$/(percent silica + 2)
NIOSH REL (8-hour TWA) = 0.05 mg respirable dust/m^3

Section 3 - HAZARD IDENTIFICATION

Potential Health Effects

Relevant Routes of Exposure:
Eye contact, skin contact, inhalation, and ingestion.

Effects Resulting from Eye Contact:
Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact by large amounts of dry powder or splashes of wet gypsum dust may cause eye irritation. Such exposures may require immediate first aid (see Section 4) and medical attention to prevent damage to the eye.

Effects Resulting from Skin Contact:
Direct contact may cause irritation by mechanical abrasion.

Effects Resulting from Inhalation:
Gypsum may contain trace amounts of free crystalline silica. Prolonged exposure to respirable free silica can aggravate other lung conditions and cause silicosis, a disabling and potentially fatal lung disease.

Exposure to gypsum dust may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

Effects Resulting from Ingestion:
Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed.

Carcinogenic potential:
Limestone is **not** listed as a carcinogen by NTP, OSHA, or IARC. It may however, contain trace amounts of substances listed as carcinogens by these organizations.

Crystalline silica, which is a component of limestone, is now classified by IARC as known human carcinogen (Group I). NTP has characterized respirable silica as "reasonably anticipated to be [a] carcinogen".

Medical conditions which may be aggravated be, inhalation or dermal exposure:

Pre-existing upper respiratory and lung diseases.

Section 4 - FIRST AID

Eyes

Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician if irritation persists or later develops.

Skin

Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation persists or later develops.

Inhalation of Airborne Dust

Remove to fresh air. Seek medical help if coughing and other symptoms do not subside.

Ingestion

Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Section 5 - FIRE AND EXPLOSION DATA

Flash point .....None	Lower Explosive Limit.....…...None
Upper Explosive Limit.....None	Auto ignition temperature.....….Not Combustible
Extinguishing media.....Not Combustible	Special fire fighting Procedures....….....None
Hazardous combustion products..None	Unusual fire and explosion hazards…..None

Section 6 - ACCIDENTAL RELEASE MEASURES

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wetting of spilled materials may be beneficial to minimize generation of airborne dusts.

None of the components of this product are subject to the reporting requirements of Title III of SARA 1986, and 40 CFR 372.

Section 7 - HANDLING AND STORAGE

Follow the personal protection and controls set forth in Section 8 of this MSDS when handling this product. Respirable crystalline silica-containing dust may be generated during processing, handling and storage.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Skin Protection

Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using the toilet facilities. Wash work cloths after each use.

Respiratory Protection

Avoid actions that cause dust to become airborne. Use local or general exhaust ventilation to control exposures below applicable exposure limits.

Use NIOSH/MSHA approved (under 30 CFR 11) or NIOSH approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after June 10, 1998 must be certified under 42 CFR 84.)

Ventilation

Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye Protection

Safety glasses with side shields should be worn as minimum protection. In extremely dusty environments and unpredictable environments wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with products which may generate airborne dust.

Section 9 - PHYSICAL AND CHEMICAL, PROPERTIES

Odor.....….....No distinct odor
Solubility in water...Negligible
Vapor density.....Not applicable
Melting point.....Not applicable
Evaporation rate.....Not applicable

Physical state.....……White or nearly white, odorless, crystalline solid
Vapor pressure.....…….…...Not applicable
Boiling point.....…….....Not applicable (i.e., > 1000 C)
Specific gravity (H20 = 1.0)…...2.32

Section 10 - STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
Avoid contact with incompatible materials (see below).

Incompatibility
Materials to avoid include; Aluminum (at high temperatures), Diazomethane.

Hazardous decomposition
Will not spontaneously occur. Silica-containing respirable dust particles may be generated by handling.

Hazardous Polymerization
Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

For a description of available, more detailed toxicological information contact the supplier or manufacturer.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
No recognized unusual toxicity to plants or animals

Relevant physical and chemical properties
(See Sections 9 and 10.)

Section 13 - DISPOSAL

Pickup and reuse clean materials. Dispose of waste materials in accordance with applicable federal, state, and local laws and regulations.

Where applicable, dispose of bags in an approved landfill or incinerator.

Section 14 - TRANSPORTATION DATA

Hazardous materials description/proper shipping name
Not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard class
Not applicable.

Identification number
Not applicable

Required label text
Not applicable.

Hazardous substances/reportable quantities (RQ)
Not applicable.

Section 15 - OTHER REGULATORY INFORMATION

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200

Gypsum is considered a "hazardous chemical" under this regulation, and should be part of any hazard communication program.

Status under CERCLA/SUPERFUND 40 CFR 117 and 302

Not listed.

Hazard Category under SARA(Title III), Sections 311 and 312

Gypsum qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III), Section 313

Not subject to reporting requirements under Section 313.

Status under TSCA (as of May 1997)

Some substances in gypsum are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act

Gypsum is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under California Proposition 65

This product contains up to 0.05 percent of chemicals (trace elements) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

Section 16 - OTHER INFORMATION

Prepared by

Kevin Keegan
Director - Health and Safety
CEMEX, Inc.
Houston, Texas

Approval date or Revision date

Approved: July 1998
Revised: January 2008

Other important information

This product should only be used by knowledgeable persons. While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards this product as it is commonly used, the sheet cannot anticipate and provide the all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CEMEX, Inc. except that the product shall conform to contracted specifications. The information provided herein was believed by CEMEX, Inc. to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

SAFETY DATA SHEET

1. Identification

Product identifier	**HYDRAUL-EZ®**
Other means of identification	None.
Recommended use	Not available.
Recommended restrictions	Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	CETCO, an MTI Company
Address	2870 Forbs Avenue Hoffman Estates, IL 60192 United States
Telephone	General Information 800 527-9948
Website	http://www.cetco.com/
E-mail	safetydata@mineralstech.com
Emergency phone number	.
Americas	1.866.519.4752 (US, Canada, Mexico) 1 760 476 3962 Access Code 333562, (Available 24 hours a day. SDS/Product information may not be available for the Emergency Services.)

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Not applicable.

3. Composition/information on ingredients

Mixtures

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments	This product contains naturally occurring crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantities less than 6%. Occupational Exposure Limits for constituents are listed in Section 8.

4. First-aid measures

Inhalation If symptoms are experienced, remove source of contamination or move victim to fresh air. Call a physician if symptoms develop or persist.

Skin contact Not available.

Eye contact Flush eyes immediately with large amounts of water.

Ingestion Not available.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Dry chemical, CO2, water spray or regular foam. Carbon dioxide (CO2).

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Material can be slippery when wet.

Fire fighting equipment/instructions In the event of fire, cool tanks with water spray.

Specific methods Cool containers exposed to flames with water until well after the fire is out.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Material can be slippery when wet. Wear a dust mask if dust is generated above exposure limits. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up This product is miscible in water. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS. Reduce airborne dust and prevent scattering by moistening with water.

Environmental precautions No special environmental precautions required.

7. Handling and storage

Precautions for safe handling Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Guard against dust accumulation of this material.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-3 (29 CFR 1910.1000)

Constituents	Type	Value	Form
INERT OR NUISANCE DUSTS	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
QUARTZ (CAS 14808-60-7)	TWA	0.3 mg/m3	Total dust.
		0.1 mg/m3	Respirable.
		2.4 mppcf	Respirable.

US. ACGIH Threshold Limit Values

Constituents	Type	Value	Form
QUARTZ (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Constituents	Type	Value	Form
QUARTZ (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Appropriate engineering controls If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.

Individual protection measures, such as personal protective equipment

Eye/face protection Not available.

Skin protection

Hand protection For prolonged or repeated skin contact use suitable protective gloves.

Other No special protective equipment required.

Respiratory protection Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Powder. Granular. Pellets. or Chips.

Color Various.

Odor None.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point Non-flammable

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Non-explosive

Flammability limit - upper (%) Non-explosive

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 0.00004 hPa estimated

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Negligible

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not available.

Decomposition temperature	Not available.
Viscosity	45 - 50 45 - 50

Other information

Bulk density	54 lb/ft³
Density	2.16 g/cm3 estimated
Percent volatile	0 % estimated
Specific gravity	2.6
VOC (Weight %)	CARB

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Not available.
Hazardous decomposition products	None known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	Not available.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Toxicological data

Constituents	Species	Test Results
QUARTZ (CAS 14808-60-7)		
Acute		
Oral		
LD50	Rat	500 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Mild irritant to eyes (according to the modified Kay & Calandra criteria) Mild irritant to eyes (according to the modified Kay & Calandra criteria)

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	According to the classification criteria of the European Union, the product is not considered as being a skin irritant.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

IARC Monographs. Overall Evaluation of Carcinogenicity

QUARTZ (CAS 14808-60-7) 1 Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

QUARTZ (CAS 14808-60-7) Known To Be Human Carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)

In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003)

According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

12. Ecological information

Ecotoxicity This material is not expected to be harmful to aquatic life.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations. Material should be recycled if possible.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

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

15. Regulatory information

US federal regulations OSHA Process Safety Standard: This material is not known to be hazardous by the OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Total food additive
Indirect food additive
GRAS food additive

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US - New Jersey RTK - Substances: Listed substance

QUARTZ (CAS 14808-60-7)

US - Pennsylvania RTK - Hazardous Substances: Listed substance

QUARTZ (CAS 14808-60-7)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

QUARTZ (CAS 14808-60-7)

US. Massachusetts RTK - Substance List

QUARTZ (CAS 14808-60-7)

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania Worker and Community Right-to-Know Law

QUARTZ (CAS 14808-60-7)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

QUARTZ (CAS 14808-60-7) Listed: October 1, 1988

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 07-November-2014

Revision date 09-February-2016

Version # 13

Further information This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

HMIS® ratings
Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The manufacturer expressly does not make any representations, warranties, or guarantees as to its accuracy, reliability or completeness nor assumes any liability, for its use. It is the user's responsibility to verify the suitability and completeness of such information for each particular use.

Third party materials: Insofar as materials not manufactured or supplied by this manufacturer are used in conjunction with, or instead of this product, it is the responsibility of the customer to obtain, from the manufacturer or supplier, all technical data and other properties relating to these and other materials and to obtain all necessary information relating to them. No liability can be accepted in respect of the use of this product in conjunction with materials from another supplier. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information in the sheet was written based on the best knowledge and experience currently available.

Revision Information
Product and Company Identification: Alternate Trade Names
Fire-fighting measures: Suitable extinguishing media
Fire-fighting measures: Fire fighting equipment/instructions
Fire-fighting measures: General fire hazards
Stability and reactivity: Conditions to avoid
Stability and reactivity: Possibility of hazardous reactions

HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

PENETROL®

Revision Date: 01-Feb-2017 **Revision Number:** 20

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name PENETROL®
Internal ID Code HM003729

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

Recommended Use Wetting Agent
Sector of uses SU2 - Mining, (including offshore industries)
Product category(ies) PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact
E-mail Address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961
Global Incident Response Access Code: 334305
Contract Number: 14012

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Bulgaria	Bulgarian poison centre: +359 2 915-44-09 or +359 2 915-43-46
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+357 1401
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Portugal	CIAV - Centro de Informação Antivenenos (Portuguese Poison Centre): + 351 213 303 271
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Chronic Aquatic Toxicity	Chronic 3 - H412

2.2. Label Elements

Hazard Pictograms

Signal Word: **Warning**

Hazard Statements:
H315 - Causes skin irritation
H318 - Causes serious eye damage
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements:
P273 - Avoid release to the environment
P280 - Wear protective gloves/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical advice/attention
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

Contains

Substances	**CAS Number**
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9
Diethanolamine	111-42-2

2.3. Other Hazards

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).

SECTION 3: Composition/information on ingredients

3.2. Mixtures Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH Reg. No
Amides, coco, N,N-bis (hydroxyethyl)	271-657-0	68603-42-9	10 - 30%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Aquatic Chronic 2 (H411)	No data available
Diethanolamine	203-868-0	111-42-2	1 - 5%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) STOT RE 2 (H373) Aquatic Chronic 3 (H412)	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Causes serious eye damage. Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician Treat symptomatically

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

5.3. Advice for firefighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.
See Section 8 for additional information

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

6.4. Reference to other sections
See Section 8 and 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 36 months.

7.3. Specific end use(s)
Exposure scenario No information available
Other Guidelines No information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable	Not applicable	Not applicable	Not applicable
Diethanolamine	111-42-2	Not applicable	3 ppm	Not applicable	3 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable	Not applicable	Not applicable	Not applicable
Diethanolamine	111-42-2	TWA: 1 mg/m³ Peak: 1 mg/m³	TWA: 0.46 ppm TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 0.46 ppm TWA: 2 mg/m³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable	Not applicable	Not applicable	Not applicable
Diethanolamine	111-42-2	TWA: 0.46 ppm TWA: 2 mg/m³ STEL" 0.92 ppm STEL" 4 mg/m³	1 mg/m³ TWA (inhalable fraction and vapour) 3 mg/m³ STEL (calculated, inhalable fraction and vapour)	TWA: 1 mg/m³ STEL: 1 mg/m³	TWA: 3 ppm TWA: 15 mg/m³ STEL: 6 ppm STEL: 22.5 mg/m³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable	Not applicable	Not applicable	Not applicable
Diethanolamine	111-42-2	Not applicable	TWA: 9 mg/m³	Not applicable	TWA: 5 mg/m³

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus	Bulgaria
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Diethanolamine	111-42-2	TWA: 0.46 ppm TWA: 2 mg/m³	Not applicable	TWA: 3 ppm TWA: 15 mg/m³	Not applicable	TWA: 10 mg/m³

Derived No Effect Level (DNEL) No information available

Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Organic vapor respirator.

Hand Protection Polyvinylchloride gloves.
Skin Protection Rubber apron.
Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid **Color:** Green
Odor: Coconut **Odor Threshold:** No information available

Property Values
Remarks/ - Method

pH:	9.3
Freezing Point / Range	No data available
Melting Point / Range	No data available
Boiling Point / Range	157 °C / 315 °F
Flash Point	No data available
Flammability (solid, gas)	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	< 1 mmHg
Vapor Density	No data available
Specific Gravity	1
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Avoid contact with oxidizers.

10.5. Incompatible materials

Strong acids. Zinc. Copper and copper alloys.

10.6. Hazardous decomposition products

Oxides of nitrogen. Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Toxicity

Inhalation	May cause respiratory irritation. Excessive inhalation causes headache, dizziness, nausea and incoordination.
Eye Contact	Causes serious eye damage.
Skin Contact	Causes skin irritation.
Ingestion	Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause liver, kidney and blood effects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	>5000 mg/kg-bw (rat)	>2000 mg/kg-bw (rabbit)	No information available
Diethanolamine	111-42-2	620 µL/kg (Rat) 1600 mg/kg (Rat)	7640 µL/kg (Rabbit) 13,000 mg/kg (Rabbit)	3.35 mg/L (Rat)

Substances	CAS Number	Skin corrosion/irritation
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Irritating to skin. (Rabbit)
Diethanolamine	111-42-2	Causes moderate skin irritation. (Rabbit)

Substances	CAS	Serious eye damage/irritation

	Number	
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Irritating to eyes (Rabbit) Causes severe eye irritation (similar substances)
Diethanolamine	111-42-2	Causes severe eye irritation (Rabbit)

Substances	CAS Number	Skin Sensitization
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Did not cause sensitization on laboratory animals (guinea pig)
Diethanolamine	111-42-2	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	No information available
Diethanolamine	111-42-2	No information available

Substances	CAS Number	Mutagenic Effects
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	In vitro tests did not show mutagenic effects. Some in vivo tests have shown mutagenic effects.
Diethanolamine	111-42-2	In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	No data of sufficient quality are available.
Diethanolamine	111-42-2	No data of sufficient quality are available.

Substances	CAS Number	Reproductive toxicity
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Did not show teratogenic effects in animal experiments.
Diethanolamine	111-42-2	Animal testing did not show any effects on fertility. (similar substances) Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	No significant toxicity observed in animal studies at concentration requiring classification.
Diethanolamine	111-42-2	No information available

Substances	CAS Number	STOT - repeated exposure
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	No data of sufficient quality are available.
Diethanolamine	111-42-2	Causes damage to organs through prolonged or repeated exposure if swallowed: (Liver) (Blood) Kidney

Substances	CAS Number	Aspiration hazard
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Not applicable
Diethanolamine	111-42-2	Not applicable

SECTION 12: Ecological information

12.1. Toxicity

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	EC50(72 h)=2.2 mg/L (Scenedesmus subspicatus)	LC50(96 h)=3.6 mg/L (Brachydanio rerio) NOEC(28 d)=0.32 mg/L (Oncorhynchus mykiss)	No information available	EC50(48 h)=2.25 mg/L (Ceriodaphnia dubia) NOEC(21 d)=0.07 mg/L (Daphnia magna)
Diethanolamine	111-42-2	EC50 7.8 mg/L (Desmodesmus subspicatus) EC50 (96h) 2.2 mg/L (growth rate)	LC50 4460-4980 mg/L (Pimephales promelas) LC50 (96h) 1460 mg/L (Pimephales promelas)	EC20 >1000 mg/L (respiration rate) (activated sludge) EC90 (30min) > 1000 mg/L (Activated sludge)	EC50 (48h) 30.1 mg/L (Ceriodaphnia dubia) EC50 (48h) 55 mg/L (Daphnia magna) NOEC (21d) 0.78 mg/L

		(Selenastrum capricornutum)			(Daphnia magna) (Reproduction)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Readily biodegradable (84% @ 28d)
Diethanolamine	111-42-2	Readily biodegradable (88 - 97% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	Log Pow=3.52
Diethanolamine	111-42-2	-1.71

12.4. Mobility in soil

Substances	CAS Number	Mobility
Amides, coco, N,N-bis (hydroxyethyl)	68603-42-9	No information available
Diethanolamine	111-42-2	No information available

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).

Substances	PBT and vPvB assessment
Amides, coco, N,N-bis (hydroxyethyl)	Not PBT/vPvB
Diethanolamine	Not PBT/vPvB

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport information

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

RID

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group Not applicable
Environmental Hazards: Not applicable

ADR

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
UN proper shipping name: Not restricted

Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

14.1. UN Number Not restricted

14.2. UN proper shipping name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group Not applicable

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User None

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

SECTION 15: Regulatory information

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

International Inventories

EINECS (European Inventory of Existing Chemical Substances)	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK)	Not determined

15.2. Chemical safety assessment
No information available

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled
H411 - Toxic to aquatic life with long lasting effects
H412 - Harmful to aquatic life with long lasting effects

Key or legend to abbreviations and acronyms used in the safety data sheet
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Revision Date: 01-Feb-2017
Revision Note
SDS sections updated:
2

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

ASCON®	Ground-mix	Procrete®	ThermoCem®
Blitzdämmer®	GrowCem®	RBM	Tübbingmörtel
Brunnen-Dämmer®	H4E	Recyclingbinder®	Ultrafin
CableCem®	HT 33	RM-Conline	VPM
CemConex®-Mörtel	Jet-Mix®	Seku-mix®	WatCem
CEM-Rock®	MIXXAN®	Spezial-Fertigbeton (Zaunmörtel)	WipoCem®
Dämmer®	Owalith	Spritzbeton	Zement/Bentonit-Gemisch
Depocrete®	P2	Spritzmörtel	
DiWa-mix®	P4	Stabiflex	
Drill-mix®	Powercrete®	SWM	

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

The building material is a hydraulically setting dry mortar for the use in earth works and civil engineering. The product is mixed by simply adding water and contains no further additives. The related activities include the handling of dry (powder) materials as well as of materials where water has been added (suspensions).

Identified uses for professionals including process categories and descriptors according to ECHA Guidance R.12 (ECHA-2010-G-05) are listed in Section 16.

1.3. Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier:	HeidelbergCement AG	
Street address/P.O. Box:	Berliner Str. 6	
Country ID/Postcode/Place:	69120 Heidelberg, Germany	
Telephone number:	+49 6221 / 481 – 0	
Telefax:	+49 6221 / 481 13 – 554	
Information provided by:	Engineering and Innovation	Phone: +49 2524 / 29–51740
E-mail address of competent person responsible for the SDS:	sdb-z@heidelbergcement.com	

Production locations: Ennigerloh-South Plants in D-59320 Ennigerloh, Leimen Plant in D-69181 Leimen.

1.4. Emergency telephone number

Emergency telephone number: +49 6131 / 19 240 (Poison Control Center in Mainz, Germany)
Hours of operation: 24 hours / 7 days
Service is provided in the following languages: German, English

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]

Skin Irrit. 2, H315
Eye Dam. 1, H318
STOT SE 3, H335

2.1.2 Additional information

Full text of the hazard statements and EU hazard statements is listed in Section 16.

When cement/binding agent comes into contact with water or becomes damp, a strong alkaline solution is produced. Due to the high alkalinity, wet cements/binding agents may provoke skin and eye irritation.

2.2. Label elements

2.2.1 Labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard pictograms:		
Signal word:	Danger	
Hazard statements:	H315	Causes skin irritation.
	H318	Causes serious eye damage.
	H335	May cause respiratory irritation.
Precautionary statements:	P280	Wear protective gloves/protective clothing/eye protection.
	P305+P351+P338 and 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 and P333+P313	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
	P261 and P304+ P340 and P312	Avoid breathing dust. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
	If the product is offered or sold to the general public, additionally:	
	P102	Keep out of reach of children.
	P501	Dispose of contents/container to suitable waste collection points.
Supplementary information:	On the delivery note or on the bag, it is indicated for how many months after consignment date the product will remain low-chromate in case of appropriate, dry storage.	

2.3. Other hazards

Cement/binding agent does not meet the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation (EC) No 1907/2006.

Product contains chromate reducing agent. Therefore, the cement/binder contains less than 0.0002% of water-soluble Chromium(VI). If the storage conditions are not appropriate (exposure to humidity) or the storage period is exceeded, the effectiveness of the present reducing agent can be diminished prematurely, and the cement/binder can become skin sensitizing (H317 or EUH203, respectively).

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable, as these products are mixtures, not substances.

3.2. Mixtures

Cement/standard cements according to DIN EN 197 and DIN 1164.

Hazardous ingredients:

Constituent	Concentration Range (M. %)	EC No.	CAS No.	Registration No. (REACH)	Classification according to (EC) No. 1272/2008 (CLP)	
Portland cement	2-95	(a)	(b)	(c)	Skin Irrit. 2 Eye Dam. 1 STOT SE 3	H315 H318 H335

(a) EG-Nr. of Portland cement clinker contained in the Portland cement 266-043-4.
(b) CAS-Nr. of Portland cement clinker contained in the Portland cement 65997-15-1.
(c) Portland cement clinker is, according to Art. 2.7(b) and Annex V.10 of EC Regulation 1907/2006 (REACH), exempt from the registration requirement

SECTION 4: First aid measures

4.1. Description of first aid measures

General notes
No special personal protective equipment is required for first aiders. First aiders should, however, avoid contact with wet cement/binding agents.

Following eye contact
Do not rub eyes dry, because mechanical stress may cause additional damage to the cornea. Where applicable, remove contact lenses and immediately rinse the eye, while open, under running water for at least 20 minutes in order to remove all particles. If possible, use isotonic eye-cleansing solution (0.9 % NaCl). Always consult an occupational physician or ophthalmologist.

Following skin contact
Remove dry cement/binding agent and rinse abundantly with water. Rinse wet cement/binding agent with plenty of water. Remove contaminated clothing, footwear, watches, etc. and clean these thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

Following inhalation
Seek fresh air. Dust should quickly be removed from throat and nose. Consult a physician, should symptoms such as discomfort, coughing or persistent irritation occur.

Following 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 poison control center.

4.2. Most important symptoms and effects, both acute and delayed

Eyes: Eye contact with cement/binding agent (dry or wet) may cause serious and potentially irreversible eye damage.

Skin: Sustained contact with cement/binding agents may cause irritation on damp skin (due to sweating or humidity).
Contact of cement/binding agents with damp skin may cause skin irritation, dermatitis or severe skin damage.
For more details see reference (1).

***Inhalation*:** Repeated inhalation of large amounts of cement/binding agent dust over a long period of time increases the risk of developing lung diseases.

Environment: Under normal use, cement/binding agents are not hazardous to the environment.

4.3. Indication of any immediate medical attention and special treatment needed

When contacting a physician, take this safety data sheet with you.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Cement/binding agents are not flammable.

5.2. Special hazards arising from the substance or mixture

Cement/binding agents are non-combustible and non-explosive, and will not facilitate or sustain the combustion of other materials.

5.3. Advice for firefighters

No special measures are required, as cement/binding agents do not pose any fire-related hazards.

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 in Section 8. Follow the advice for safe handling and use given in Section 7.

6.1.2 For emergency responders

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

6.2. Environmental precautions

Cement/binding agents should not penetrate the sewage water system, surface water or groundwater.

6.3. Methods and material for containment and cleaning up

Absorb spilled cement/binding agent and reuse, if possible.
Where possible, use dry methods to clean, such as vacuum exhaust (portable devices with highly efficient filter systems (EPA and HEPA filters, EN 1822-1:2009) or equivalent techniques), which do not generate dust formation. Never use compressed air for cleaning.
If dust is formed applying a dry cleaning method, personal protective equipment must be used.
Avoid inhalation of cement/binding agent dust and skin contact. Place spilled material into a container for potential subsequent use.

6.4. Reference to other sections

See Sections 8 and 13 for further details.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.1.1 Protective measures

Follow the recommendations as given in Section 8.
To clean up dry cement/binding agent, see Subsection 6.3.

Measures to prevent fire
Not applicable.

Measures to prevent aerosol and dust generation
Do not sweep. Where possible, use dry methods for cleaning, such as vacuum exhaust, which do not generate dust formation.

Measures to protect the environment
No special measures required.

7.1.2 Advice on general occupational hygiene

Do not eat, drink or smoke when working. Wear dust respirator and protective goggles in dusty environment. Use protective gloves to avoid skin contact.

7.2. Conditions for safe storage, including any incompatibilities

Cement/binding agents should be stored under dry (minimizing internal condensation), water-protected conditions, clean and protected from contamination.
Do not enter storage areas for cement/binding agents such as silos, tanks, silo vehicles or other containers without suitable safety measures, because there is a danger of being buried and suffocated. In such confined spaces, cement/biding agent can form walls and bridges, which can, however, collapse or fall unexpectedly.

Do not use aluminum containers due to incompatibility of the materials.

For cement/binding agents containing Chromium(VI) reducing agents (see Section 15), please note that the effectiveness of the reducing agent decreases over time. Therefore, cement/binding agent bags and/or delivery documents include information on the packing date, the storage conditions and the storage period appropriate to maintain the activity of the reducing agent , keeping the content of water-soluble Chromium(VI) below 0.0002% of the total dry weight of the cement ready for use (determination according to EN 196-10). The manufacturer's instructions on proper storage must be followed. As a result of inappropriate storage (ingress of moisture) or expiration, the contained chromate reducers can lose their effectiveness, and a sensitizing effect of cement/binding agents upon skin contact cannot be excluded (see Section 2.3).

Storage class: VCI Storage class 13 (non-flammable solids).

7.3. Specific end use(s)

These products are assigned to GISCODE ZP 1 (cement-containing products, low chromate, see also Section 15). Further information about safe handling, protective measures and rules of conduct can be gathered from GISCODE ZP 1. It is available as part of the hazardous substance information system of the Occupational Insurance Association of the Construction Industry at “http://www.gisbau.de”.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Type of Evaluation Value	Evaluation Value		Peak Limitation		Source	Monitoring Procedure, e.g.
General Dust Limit Value						
Maximum Allowable Concentration	8 h	1.25 mg/m^3 (R) 10 mg/m^3 (I)	2 (II) 15 min	20 (I)	TRGS 900	TRGS 402
Water-soluble Chromium(VI)						
Restriction Condition		2 mg/kg in cement	Not determined.		Regulation (EC) No 1907/2006	EN 196-10

(R): Respirable dust fraction.
(I): Inhalable dust fraction.

8.2. Exposure controls

To comply with occupational exposure limits, combinations of technical and/or individual protective measures are often required. If no adequate workplace measurements are available for exposure, an exposure assessment and selection of appropriate protective measures based on the MEASE tool (Reference 3) may be carried out. Engineering controls (Table in 8.2.1) and individual protective measures (Table in 8.2.2) are recommended for the identified uses in the professional sector (Subsection 16.3). In this context, option A can only be combined with A, and B can only be combined with B. Furthermore, it must be taken into consideration that the indications apply to a continuous exposure of 8 hours per day and 5 days per week.

For the private end consumer applies that the products shall only be used outdoors or in well-ventilated rooms and that personal protective equipment shall be worn (general indications in Subsection 8.2.2).

8.2.1 Appropriate engineering controls

Measures to prevent generation and spreading of dust, for example suitable ventilation systems and cleaning methods, which do not stir up dust.

Exposure Scenario	PROC*	Exposure	Technical Installation	Efficiency
Industrial manufacturing/formulation of hydraulic binding agents and	2, 3	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week)	not required	-
	14, 26		A) not required or B) local exhaust ventilation	- 78%

building materials	5, 8b, 9		A) general ventilation or B) local exhaust ventilation	17% 78%
Industrial use of dry hydraulic binding agents and building materials (indoor, outdoor)	2		not required	-
	14, 22, 26		A) not required or B) local exhaust ventilation	- 78%
	5, 8b, 9		A) general ventilation or B) local exhaust ventilation	17% 78%
Industrial use of wet suspensions of hydraulic binding agents and building materials (indoor, outdoor)	2, 5, 8b, 9, 10, 13, 14		not required	-
	7		A) not required or B) local exhaust ventilation	- 78%
Professional use of dry hydraulic binding agents and building materials (indoor, outdoor)	2		not required	-
	9, 26		A) not required or B) local exhaust ventilation	- 72%
	5, 8a, 8b, 14		A) not required or B) local exhaust ventilation	- 87%
	19		Exhaust ventilation is not required, but process only in well-ventilated rooms or outdoors.	-
Professional use of wet suspensions of hydraulic binding agents and building materials (indoor, outdoor)	11		A) not required or B) local exhaust ventilation	- 72%
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required	-

* Defined in Subsection 16.3.

8.2.2 Individual protection measures, such as personal protective equipment

General information: Do not eat, drink or smoke when working. Wash hands and if necessary shower before breaks and after work to remove adherent cement/binding agent. Avoid contact with eyes and skin. After working with cement/binding agent, workers should wash or shower and use skin care products. Clean contaminated clothing, footwear, watches, etc. thoroughly before re-using them.

Eye/face protection

Use tight-fitting safety goggles according to EN 166 where dust is formed or in case of risk of spilling.

Skin protection

Wear waterproof, abrasion and alkali-resistant gloves. Leather gloves are not suitable due to their water penetrability, and can release chromate-containing compounds. For handling cement/binders, special gloves for chemicals (Cat. III) are not required. Investigations have proven that nitrile impregnated cotton gloves (layer thickness of about 0.15 mm) provide sufficient protection over a period of 480 minutes. Change soaked gloves. Have spare gloves ready.
General information about skin protection can be found in the rule BGR/GUV-R 195 of the German Accident Prevention & Insurance Association.
Wear tight footwear and long-sleeved clothing. If contact with moist cement/binder cannot be avoided, protective clothing should also be waterproof. Take care that no moist cement/binder is running in shoes or boots from above. Observe skin protection plan. Apply skin care products, in particular after work.

Respiratory protection

Use adequate respirator masks when there is a risk that exposure limit values are exceeded (e.g. during open handling of dry powder products).

Mixing and transferring dry cement/binder in open systems, e.g. manual mixing of cement paste or cement mortar, transferring bagged products to batch mixers: If compliance with maximum allowable concentrations cannot be guaranteed by dust-limiting measures, e.g. local exhaust ventilation, particle-filtering half-masks of the type FFP (according to EN 149) must be used (see table).

Exposure Scenario	PROC*	Exposure	Specification of respiratory protective equipment (RPE)	RPE efficiency – assigned protection factor (APF)
Industrial manufacturing/formulation of hydraulic binding agents and building materials	2, 3	Duration is not restricted (up to 480 minutes per shift, 5 shifts per week).	not required	-
	14, 26		A) FFP1 mask or B) not required	APF = 4 -
	5, 8b, 9		A) FFP2 mask or B) FFP1 mask	APF = 10 APF = 4
Industrial use of dry hydraulic binding agents and building materials (indoor, outdoor)	2		not required	-
	14, 22, 26		A) FFP1 mask or B) not required	APF = 4 -
	5, 8b, 9		A) FFP2 mask or B) FFP1 mask	APF = 10 APF = 4
Industrial use of wet suspensions of hydraulic binding agents and building materials (indoor, outdoor)	2, 5, 8b, 9, 10, 13, 14		not required	-
	7		A) FFP1 mask or B) not required	APF = 4 -
Professional use of dry hydraulic binding agents and building materials (indoor, outdoor)	2		FFP1 mask	APF = 4
	9, 26		A) FFP2 mask or B) FFP1 mask	APF = 10 APF = 4
	5, 8a, 8b, 14		A) FFP3 mask or B) FFP1 mask	APF = 20 APF = 4
	19		FFP2 mask	APF = 10
Professional use of wet suspensions of hydraulic binding agents and building materials (indoor, outdoor)	11		A) FFP1 mask or B) not required	APF = 4 -
	2, 5, 8a, 8b, 9, 10, 13, 14, 19		not required	-

* Defined in Subsection 16.3.

For the **manual and mechanical handling of ready-made cement paste, cement mortar and concrete**, respiratory protective equipment is not required.

General information can be found in the rule BGR/GUV-R 190 of the German Accident Prevention & Insurance Association.

An instruction of employees on the appropriate application of the personal protection equipment is essential in order to guarantee the required effectiveness.

8.2.3 Environmental exposure controls

Air: Compliance with dust emission limit values in accordance with the Technical Instructions on Air Quality.

Water: Do not discharge cement/binding agents into groundwater or wastewater systems in larger quantities. An increase in pH value is possible through exposure. At a pH value above 9, ecotoxicological effects may occur. Water directed or drained off into the wastewater system or surface water should therefore not lead to such a relevant pH value. Wastewater and groundwater regulations must be observed.

Soil: Compliance with the German Federal Soil Protection Act and the German Federal Soil Protection and Contamination Ordinance. No special control measures required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

(a) Appearance: Cement/binding agent is a finely ground inorganic solid (grey or white powder)
(b) Odor: Odorless
(c) Odor threshold: No odor threshold, odorless
(d) pH (T = 20 °C in water, water-solid ratio 1:2): 11-13.5
(e) Melting point / freezing point: > 1250 °C
(f) Initial boiling point and boiling range: Not applicable, as under normal atmospheric conditions the melting point is above 1250 °C.
(g) Flash point: Not applicable, as is not a liquid
(h) Evaporation rate: Not applicable, as is not a liquid
(i) Flammability (solid, gas): Not applicable, as it is a solid and non-flammable material
(j) Upper/lower flammability or explosive limits: Not applicable, as it is not gaseous
(k) Vapor pressure: Not applicable, as melting point > 1250 °C
(l) Vapor density: Not applicable, as melting point > 1250 °C
(m) Relative density: 2.75-3.20 g/cm³; bulk density: 0.9-1.5 g/cm³
(n) Solubility(ies): low (0.1-1.5 g/l)
(o) Partition coefficient: n-octanol/water: Not applicable, as it is an inorganic mixture
(p) Auto-ignition temperature: Not applicable (not pyrophoric – no organo-metallic, organo-metalloid or organo-phosphine bindings or derivatives, and no other pyrophoric components)
(q) Decomposition temperature: Not applicable, as no inorganic peroxides are present
(r) Viscosity: Not applicable, as it is no liquid
(s) Explosive properties: Not explosive and not pyrotechnical. No gas development or self-sustaining exothermic chemical reactions.
(t) Oxidizing properties: Not applicable, as cement/binding agent has no oxidizing properties.

9.2. Other information

Not applicable.

SECTION 10: Stability and Reactivity

10.1. Reactivity

Cement/binding agent is a hydraulic material. When mixed with water, an intended reaction takes place. As a result, cement hardens and forms a solid mass, which does not react with its environment.

10.2. Chemical stability

Cement/binding agent is stable, as long as it is properly stored (see Section 7). It should be kept dry. Contact with incompatible materials should be avoided. Wet cement/binding agent is alkaline and incompatible with acids, ammonium salts, aluminum and other base metals. Here, hydrogen can be formed. Cement/binding agent dissolves in hydrofluoric acid, forming corrosive silicon tetrafluoride gas. Avoid contact with these incompatible materials.
With water, cement/binding agent forms calcium silicate hydrates, calcium aluminate hydrates and calcium hydroxide.
The calcium silicates of the cement/binding agent may react with strongly oxidizing agents such as fluorides.

10.3. Possibility of hazardous reactions

Not applicable.

10.4. Conditions to avoid

Moisture during storage can lead to lumping and loss of product quality.

10.5. Incompatible materials

Acids, ammonium salts, aluminum or other base metals.

10.6. Hazardous decomposition products

Cement/binding agent does not decompose into hazardous components.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Hazard Class	Cat.	Effect	Reference
Acute toxicity – dermal	-	Limit test, rabbit, 24 hour exposure, 2,000 mg/kg body weight – no lethality Based on available data, the classification criteria are not fulfilled.	(4)
Acute toxicity – inhalation	-	Limit test, rat, with 5 g/m³, no acute toxicity. Study was conducted with Portland cement clinker, the main component of cement. Based on available data, the classification criteria are not fulfilled.	(10)
Acute toxicity – oral	-	No acute oral toxicity was found in animal studies with cement kiln dusts and cement dusts. Based on available data, the classification criteria are not fulfilled.	Literature survey
Skin corrosion/irritation	2	Cement has an irritating effect on skin and mucous membranes. Dry cement in contact with moist skin or skin in contact with damp or wet cement can lead to various irritating and inflammatory skin reactions, e.g. redness and chaps. Prolonged contact in combination with mechanical abrasion may cause severe skin damages.	(4) and human experience

Hazard Class	Cat.	Effect	Reference
Serious eye damage/irritation	1	In the in vitro test, Portland cement clinker (the main component of cement) showed varying degrees of impact on the cornea. The calculated “irritation index” was 128. Direct contact with cement can lead to cornea damage, due to either an immediate or delayed irritation or inflammation, or the mechanical stress. Direct contact with large amounts of dry cement or splashes of wet cement may have effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) to serious eye damage and blindness.	(11), (12) and human experience
Skin sensitization	1B	Some individuals may develop eczema after contact with wet cement. This is triggered either by pH value (irritant contact dermatitis) or by immunological reactions with water-soluble Chromium(VI) (allergic contact dermatitis).	(5), (13)
Respiratory sensitization	-	There is no indication of respiratory sensitization. Based on available data, the classification criteria are not fulfilled.	(1)
Germ cell mutagenicity	-	No indication of germ cell mutagenicity. Based on available data, the classification criteria are not fulfilled.	(14), (15)
Carcinogenicity	-	A causal relationship between cement exposure and cancer has not been determined. Epidemiological studies were not indicative of an association between exposure to cement and cancer. Portland cement is not classified as a human carcinogen according to ACGIH A4: "Agents causing concern that they could be carcinogenic for humans, but cannot be assessed conclusively because of a lack of data. In vitro tests or animal experiments do not provide sufficient evidence of carcinogenicity to assign this substance to another classification.” Portland cement contains more than 90% Portland cement clinker. Based on available data, the classification criteria are not fulfilled.	(1) (16)
Reproductive toxicity	-	Based on available data, the classification criteria are not fulfilled.	No evidence from human experience.
Specific target organ toxicity (STOT) – single exposure	3	Cement dust exposure can lead to irritation of the respiratory system (throat, neck, lungs). Coughing, sneezing, and shortness of breath can be the result if the exposure is above the occupational exposure limit. Occupational exposure to cement dust can lead to impairment of respiratory functions. However, currently there is insufficient evidence to deduce a dose-effect relationship.	(1)
Specific target organ toxicity (STOT) – repeated exposure	-	Long-term exposure to respirable cement dust above the occupational exposure limit may cause coughing, shortness of breath and chronic obstructive changes in the respiratory tract. No chronic effects have been observed at low concentrations. Based on available data, the classification criteria are not fulfilled.	(17)
Aspiration hazard	-	Not applicable, as cement/binder is not available as an aerosol.	

Cements (common cements)/binding agents and Portland cement clinkers have the same toxicological and ecotoxicological properties.

Medical conditions aggravated by exposure

Cement/binding agent may aggravate existing skin, eye and respiratory tract diseases, for example emphysema or asthma.

SECTION 12: Ecological information

12.1. Toxicity

Cement/binding agents are not considered hazardous to the environment. Ecotoxicological studies with Portland cement on Daphnia magna (U.S. EPA, 1994a) [Reference (6)] and Selenastrum coli (U.S. EPA, 1993) [Reference (7)] have shown little toxicological impact. Therefore, LC50 and EC50 values could not be determined [Reference (8)]. No toxic effects on sediments were determined either [Reference (9)]. The release of large amounts of cement in water can, however, lead to rise in pH and thus be toxic for aquatic life under certain circumstances.

12.2. Persistence and degradability

Not applicable, as cement/binding agent is an inorganic mineral material. After hydration, residual cement/binding agents present no toxicological risk.

12.3. Bioaccumulative potential

Not applicable, as cement/binding agent is an inorganic mineral material. After hydration, residual cement/binding agents present no toxicological risk.

12.4. Mobility in soil

Not applicable, as cement/binding agent is an inorganic mineral material. After hydration, residual cement/binding agents present no toxicological risk.

12.5. Results of PBT and vPvB assessment

Not applicable, as cement/binding agent is an inorganic mineral material. After hydration, residual cement/binding agents present no toxicological risk.

12.6. Other adverse effects

Not applicable.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product exceeding the effective date of the reducing agent
(and if its content of water-soluble Chromium(VI) is higher than 0.0002%): The product must not be used or placed on the market anymore, except it is used in well-controlled, closed and fully automated processes or it is retreated with Chromium(VI) reducing agent.

Unused residual amount of dry product
Gather dryly. Label container. If possible, reuse material, avoiding dust exposure and observing date of expiry. In case of disposal, cure with water and dispose of as described under “Products cured after water addition”.

Moist products and product sludge
Let moist products and product sludge cure. Do not dispose of in wastewater or surface water. Dispose of as described under “Products cured after water addition”.

Products cured after water addition
Dispose of in strict accordance with local official directives. Do not dispose of in the sewage water system. Dispose of the cured products like of concrete waste and concrete sludge. Waste code according to EWC (European Waste Catalogue), depending on the source:
As 17 01 01 (concrete) or 10 13 14 (waste concrete and concrete sludge).

Packaging
Empty packaging completely and recycle. Otherwise, dispose of the completely emptied packaging according to waste code EWC:
15 01 01 (paper and cardboard packaging) or 15 01 05 (composite packaging).

SECTION 14: Transport information

Cement/binding agent is not subject to the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID). Therefore, no dangerous goods classification is required.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

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

EU Regulatory Information

Restrictions on use:
According to Annex XVII Paragraph 47 of EC Regulation 1907/2006 (REACH), the marketing and use of cements and cement-containing preparations is subject to restriction:

1. Cement and cement-containing mixtures shall not be used or placed on the market if they contain, when hydrated, more than 0.0002% soluble Chromium(VI) of the total dry weight of the cement.
2. If reducing agents are used, then, without prejudice to the application of other Community provisions on the classification, packaging and labeling of dangerous substances and mixtures, suppliers shall ensure, before placing on the market, that the labeling of cement and cement-containing mixtures is clearly readable and durably indicating when the product was packaged and under what conditions and for how long it can be stored without the effect of the reducing agent decreasing and the content of soluble Chromium(VI) exceeding the limit value specified in Number 1.
3. By way of derogation, Numbers 1 and 2 shall not apply to the placing on the market with regard to well-controlled, closed and fully automated processes, and to use in processes, in which cement and cement-containing mixtures are handled solely by machines and in which there is no possibility of contact with the skin.
4. The standard, which has been adopted by the European Committee for Standardization (CEN) for the determination of the content of water-soluble Chromium(VI) of cement and cement-containing mixtures, has to be applied as the procedure to provide evidence of compliance with Number 1.

Within the scope of the “Agreement on Workers’ Health Protection through the Good Handling and Use of Crystalline Silica and Products containing it”, manufacturers of cement have committed themselves to implement “Best Practices” for safe handling (http://www.nepsi.eu/good-practice-guide.aspx).

National legislation/requirements

- Ordinance on Hazardous Substances (GefStoffV)
- Water Hazard Class: WGK 1 (slightly hazardous to water), self-assessment according to VwVwS from 17.05.1999
- GISCODE: ZP 1 (cement-containing products, low in chromate)
- Storage class according to TRGS 510: Storage class 13 (non-flammable solids)
- Directive on the European List of Waste Materials
- Technical Rules for Hazardous Substances 900 “Maximum Allowable Concentrations” (TRGS 900)
- Technical Rules for Hazardous Substances 402 “Determination and Evaluation of Hazards during Operations with Hazardous Substances” (TRGS 402)

15.2. Chemical Safety Assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1 Indication of changes

Compared to Version 2.7, the references to the classification according to Directive 1999/45/EC and 67/548/EEC have been removed. Subsections 2.1; 2.3; 3.2 and 16.4.

16.2 Abbreviations and acronyms

ACGIH	American Conference of Industrial Hygienists
ADR/RID	European Agreements on the transport of Dangerous goods by Road/Railway
APF	Assigned Protection Factor
CAS	Chemical Abstracts Service
CLP	Classification, labeling and packaging (Regulation (EC) No 1272/2008)
COPD	Chronic Obstructive Pulmonary Disease
DNEL	Derived no-effect level
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Type of high efficiency air filter
ES	Exposure scenario
EWC	European Waste Catalogue
FF P	Filtering facepiece against particles (disposable)
FM P	Filtering mask against particles with filter cartridge
HEPA	Type of high efficiency air filter
H&S	Health and Safety
IATA	International Air Transport Association
IMDG	International Agreement on the Maritime Transport of Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
LC50	Median lethal dose
MEASE	Metals estimation and assessment of substance exposure
OELV	Occupational exposure limit value
PBT	Persistent, bio-accumulative and toxic
PNEC	Predicted no-effect concentration
PROC	Process category
RE	Repeated exposure
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals (Regulation (EC) 1907/2006)
RPE	Respiratory protective equipment
SCOEL	Scientific Committee on Occupational Exposure Limit Values
SDS	Safety Data Sheet
SE	Single exposure
STP	Sewage treatment plant
STOT	Specific target organ toxicity
TLV-TWA	Threshold Limit Value-Time-Weighted Average
TRGS	Technical Rules for Hazardous Substances
UVCB	Substances of Unknown or Variable Composition, Complex Reaction Products or Biological Materials
VCI	German Chemical Industry Association
VLE-MP	Exposure limit value-weighted average in mg by cubic meter of air
vPvB	Very persistent, very bioaccumulative
VwVwS	Administrative Regulation on Substances Hazardous to Water

16.3 Process categories and descriptors

For the professional user, process categories and descriptors according to ECHA Guidance R.12 (ECHA-2010-G-05) can be assigned (see table).

PROC	Identified Uses – Use Description	Manufacture/ Formulation of hydraulic binding agents and building materials	Professional/ Industrial use of hydraulic binding agents and building materials
2	Use in closed, continuous process with occasional controlled exposure (e.g. sampling)	**X**	**X**
3	Use in closed batch process (formulation)	**X**	**X**
5	Mixing or blending in batch processes for formulation of mixtures and articles (multiple and/or significant contact)	**X**	**X**
7	Industrial spraying		**X**
8a	Transfer (charging/discharging) from/to vessels/large containers at non-dedicated facilities		**X**
8b	Transfer (charging/discharging) from/to vessels/large containers at dedicated facilities	**X**	**X**
9	Transfer into small containers (dedicated filling plant, including weighing)	**X**	**X**
10	Roller application or brushing		**X**
11	Non-industrial spraying		**X**
13	Treatment of articles by dipping and pouring		**X**
14	Production of mixtures or articles by tableting, compression, extrusion, pelletization	**X**	**X**
19	Hand-mixing with intimate contact and only personal protective equipment (PPE) available		**X**
22	Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting		**X**
26	Handling of solid inorganic substances at ambient temperature	**X**	**X**

16.4 Relevant H-statements (number and full text)

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
EUH203 Contains Chromium(VI). May produce an allergic reaction.

16.5 Key literature references and sources for data

(1) *Portland Cement Dust - Hazard assessment document EH75/7,* UK Health and Safety Executive, 2006: Available from: http://www.hse.gov.uk/pubns/web/portlandcement.pdf.

(2) Technische Regel für Gefahrstoffe „Arbeitsplatzgrenzwerte" [Technical Rules for Hazardous Substances "Occupational Exposure Limit Values"], 2009, GMBI No. 29 P. 605.

(3) MEASE 1.02.01 Exposure assessment tool for metals and inorganic substances, EBRC Consulting GmbH for Eurometaux, 2010: http://www.ebrc.de/ebrc/ebrc-mease.php.

(4) *Observations on the effects of skin irritation caused by cement*, Kietzman et al, Dermatosen, 47, 5, 184-189 (1999).

(5) *Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr(VI) in cement*, NIOH, Page 11, 2003.

(6) U.S. EPA, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1994a).

(7) U.S. EPA, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1993).

(8) *Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology*, Laboratory Results, and Model Development. NCHRP report 448, National Academy Press, Washington, D.C., 2001.

(9) *Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker* prepared for Norcem A.S. by AnalyCen Ecotox AS, 2007.

(10) TNO report V8801/02, *An acute (4-hour) inhalation toxicity study with Portland Cement Clinker CLP/GHS 03-2010-fine in rats*, August 2010.

(11) TNO report V8815/09, *Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test*, April 2010.

(12) TNO report V8815/10, *Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test*, April 2010.

(13) *European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr(VI) in cement* (European Commission, 2002): http://ec.europa.eu/health/archive/ph_risk/committees/sct/documents/out158_en.pdf.

(14) *Investigation of the cytotoxic and proinflammatory effects of cement dusts in rat alveolar macrophages*, Van Berlo et al, Chem. Res. Toxicol., 2009 Sept; 22(9):1548-58.

(15) *Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro*; Gminski et al, Abstract DGPT Conference Mainz, 2008.

(16) *Comments on a recommendation from the American Conference of governmental industrial Hygienists to change the threshold limit value for Portland cement*, Patrick A. Hessel and John F. Gamble, EpiLung Consulting, June 2008.

(17) *Exposure to thoracic dust, airway symptoms and lung function in cement production workers; Nordby, K.-C., et al; Eur Respir J, 2011. 38(6).*

16.6 Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No. 1272/2008	Classification Procedure
Skin Irrit. 2, H315	On basis of test data.
Eye Dam. 1, H318	On basis of test data.
STOT SE 3, H335	Human experience.

16.7 Training advice

In addition to training programs for employees on the topics health, safety and the environment, companies must ensure that their employees are able to read and understand the safety data sheet, and to implement the requirements.

16.8 Disclaimer

The information given in this safety data sheet describes the safety requirements of our product and is based on the currently available knowledge. It does not represent any warranty of end product properties. Existing legislation, ordinances and regulations, including those not mentioned in this safety data sheet, are to be observed by the recipient of our products at his own responsibility.

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RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

· ***1.1 Productidentificatie***

· ***Handelsnaam:*** **Cebo drill-Grout (plus)**

· ***1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik***

· ***Toepassing van de stof / van de bereiding*** Civil engineering

· ***1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad***

· ***Fabrikant/leverancier:***

CEBO Holland B.V.
Westerduinweg 4
NL-1970 AB IJmuiden
The Netherlands
tel: +31(0)255-546262
fax: +31(0)255-546202
www.cebo.com

· ***Inlichtingengevende sector:*** Product safety department: msds@cebo.com

· ***1.4 Telefoonnummer voor noodgevallen:***

Nationale Vergiftigingen Informatie Centrum (Bilthoven): +31 30 274 8888
Uitsluitend bestemd om artsen te informeren bij accidentele vergifigingen.
Cebo Holland +31(0)255-546245 (alleen tijdens kantooruren bereikbaar)

RUBRIEK 2: Identificatie van de gevaren

· ***2.1 Indeling van de stof of het mengsel***

· ***Indeling overeenkomstig Verordening (EG) nr. 1272/2008***

GHS05 corrosie

Eye Dam. 1 H318 Veroorzaakt ernstig oogletsel.

GHS07

Acute Tox. 4 H312 Schadelijk bij contact met de huid.
Skin Irrit. 2 H315 Veroorzaakt huidirritatie.
STOT SE 3 H335 Kan irritatie van de luchtwegen veroorzaken.

· ***Indeling overeenkomstig Richtlijn 67/548/EEG of Richtlijn 1999/45/EG***

Xi; Irriterend

R37/38-41: Irriterend voor de ademhalingswegen en de huid. Gevaar voor ernstig oogletsel.

· ***Speciale gevaaromschrijving voor mens en milieu:*** Vervalt.

· ***2.2 Etiketteringselementen***

· ***Kentekening volgens EEG-richtlijnen:***

Het produkt is volgens de EG-richtlijnen/GefStoffV (de verordening inzake gevaarlijke stoffen) geclassificeerd en gekenmerkt.

· ***Kenletter en gevaaromschrijving van het produkt:***

Xi Irriterend

· ***R-zinnen:***

37/38 Irriterend voor de ademhalingswegen en de huid.
41 Gevaar voor ernstig oogletsel.

(Vervolg op blz. 2)

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· ***S-zinnen:***
2 Buiten bereik van kinderen bewaren.
22 Stof niet inademen.
25 Aanraking met de ogen vermijden.
26 Bij aanraking met de ogen onmiddellijk met overvloedig water afspoelen en deskundig medisch advies inwinnen.

*
RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· ***3.2 Mengsels*** < 30% Portland cement clinker
· ***Beschrijving:*** -

· ***Gevaarlijke inhoudstoffen:***		
CAS: 65997-15-1 EINECS: 266-043-4	cement, portland, chemicaliën Xi R37/38-41 Eye Dam. 1, H318; Skin Irrit. 2, H315; STOT SE 3, H335	25-50%

RUBRIEK 4: Eerstehulpmaatregelen

· ***4.1 Beschrijving van de eerstehulpmaatregelen***
· ***Na het inademen:*** Frisse lucht toedienen; bij klachten arts ontbieden.
· ***Na huidcontact:***
Wanneer de huid geïrriteerd blijft, een dokter raadplegen.
Onmiddellijk met water afwassen.
· ***Na oogcontact:***
Spoelen met veel water, ook onder de oogleden, gedurende tenminste 15 minuten. Indien mogelijk gebruik, handwarm water.
Raadpleeg een arts.
Niet in de ogen wrijven, mechanische irritatie.
· ***Na inslikken:***
Geen braken teweegbrengen en onmiddellijk medische hulp raadplegen.
Mond spoelen en overvloedig water drinken.
· ***4.2 Belangrijkste acute en uitgestelde symptomen en effecten*** Geen verdere relevante informatie verkrijgbaar.
· ***4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling***
Voor specialistisch advies dient de arts contact op te nemen met het gifinformatiecentrum.

RUBRIEK 5: Brandbestrijdingsmaatregelen

· ***5.1 Blusmiddelen***
· ***Geschikte blusmiddelen:***
Het product is niet brandbaar. Gebruik een droge water, poeder, schuim of CO2 brandblusser om het vuur te blussen Omgeving.
Gebruik de juiste blusmiddelen die zijn plaatselijke tijden voor de omstandigheden en de omgeving.
· ***5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt*** Geen gevaarlijke thermische ontleding producten.
· ***5.3 Advies voor brandweerlieden***
· ***Speciale beschermende kleding:***
Perslucht wordt geadviseerd.
Standaard brandweer uitrusting.

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

· ***6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures***
Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.
· ***6.2 Milieuvoorzorgsmaatregelen:*** Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
· ***6.3 Insluitings- en reinigingsmethoden en -materiaal:*** Mechanisch opnemen.
· ***6.4 Verwijzing naar andere rubrieken***
Informatie inzake veilig gebruik - zie hoofdstuk 7.
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.

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Informatie inzake berging - zie hoofdstuk 13.

RUBRIEK 7: Hantering en opslag

· ***7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel*** Stofvorming vermijden.
· ***Informatie m.b.t. brand- en ontploffingsgevaar:*** Geen bijzondere maatregelen noodzakelijk.

· ***7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten***
· ***Opslag:***
· ***Eisen ten opzichte van opslagruimte en tanks:*** Geen bijzondere eisen.
· ***Informatie m.b.t. gezamenlijke opslag:*** Geen.
· ***Verdere inlichtingen over eisen m.b.t. de opslag:*** Tanks ondoordringbaar gesloten houden.
· ***7.3 Specifiek eindgebruik*** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

· ***Aanvullende gegevens m.b.t. de inrichting van technische installaties:*** Geen aanvullende gegevens. Zie 7.

· ***8.1 Controleparameters***
· ***Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:***
Het produkt bevat geen relevante hoeveelheden van stoffen, die met betrekking tot de werkplaatsen, qua grenswaarden gecontroleerd moeten worden.
· ***Aanvullende gegevens:*** Als basis dienden lijsten die bij opstelling geldig waren.

· ***8.2 Maatregelen ter beheersing van blootstelling***
· ***Persoonlijke beschermingsvoorzieningen:***
· ***Algemene beschermings- en gezondheidsmaatregelen:***
De gebruikelijke voorzorgsmaatregelen bij de omgang met chemicaliën moeten in acht genomen worden.
Verwijderd houden van eet- en drinkwaren.
Verontreinigde kleding onmiddellijk uittrekken.
Vóór de pauze en aan het einde van werktijd handen wassen.
Aanraking met de huid vermijden.
Aanraking met de ogen en de huid vermijden.
Niet eten, drinken of roken tijdens gebruik.
· ***Ademhalingsbescherming:***
Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingstoestel gebruiken.
· ***Handbescherming:***

Veiligheidshandschoenen

Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.
De te gebruiken beschermende handschoenen, moeten voldoen aan de specifiacties van de EG regeling 89/686/EEG en de daaruit voortkomende norm EN374
· ***Handschoenmateriaal***
De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant. Aangezien het product uit meerdere stoffen is samengesteld, is de duurzaamheid van de handschoenmaterialen niet vooraf berekenbaar en moet derhalve vóór het gebruik worden getest.
· ***Doordringingstijd van het handschoenmateriaal***
De vastgestelde penetratietijden volgens EN 374 Deel III werden niet onder de praktijkvoorwaarden bepaald. Er wordt bijgevolg een maximale draagtijd aanbevolen die overeenkomt met 50 % van de opgegeven penetratietijd.

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· ***Oogbescherming:***

Nauw aansluitende veiligheidsbril

· ***Beperking en bewaking van de blootstelling van het milieu***
Uitstoot van ventilatie of bewerkingsapparatuur moet worden gecontroleerd om er zeker van te zijn dat deze voldoet aan de eisen van de milieubeschermingswetgeving. In sommige gevallen zijn gaswassers, filters of technische modificaties van de procesapparatuur nodig om de emissie terug te brengen tot een aanvaardbaar niveau.

RUBRIEK 9: Fysische en chemische eigenschappen

· ***9.1 Informatie over fysische en chemische basiseigenschappen***	
· ***Algemene gegevens***	
· ***Voorkomen:***	
Vorm:	Poeder.
Kleur:	Zilvergrijs
· ***Reuk:***	Geurloos.
· ***Geurdrempelwaarde:***	Niet bepaald.
· ***pH-waarde bij 20°C:***	11,0 - 13,5
· ***Toestandsverandering***	
Kookpunt/kookpuntbereik:	Niet bepaald.
· ***Vlampunt:***	Niet bruikbaar.
· ***Ontvlambaarheid (vast, gasvormig):***	De stof is niet ontvlambaar.
· ***Ontstekingstemperatuur:***	
Ontbindingstemperatuur:	Niet bepaald.
· ***Zelfonsteking:***	Niet bepaald.
· ***Ontploffingsgevaar:***	Het produkt is niet ontploffingsgevaarlijk.
· ***Ontploffingsgrenzen:***	
Onderste:	Niet bepaald.
Bovenste:	Niet bepaald.
· ***Dampdruk:***	Niet bruikbaar.
Dichtheid bij 20°C:	900 - 1500 kg/m³
· ***Dampdichtheid***	Niet bruikbaar.
· ***Verdampingssnelheid***	Niet bruikbaar.
· ***Oplosbaarheid in/mengbaarheid met***	
Water bij 20°C:	0,1 - 1,5 g/l
· ***Verdelingscoëfficiënt (n-octanol/water):***	Niet bepaald.
· ***Viscositeit***	
Dynamisch:	Niet bruikbaar.
Kinematisch:	Niet bruikbaar.
· ***Oplosmiddelgehalte:***	
Organisch oplosmiddel:	0,0 %
Gehalte aan vaste bestanddelen:	100,0 %
· ***9.2 Overige informatie***	Geen verdere relevante informatie verkrijgbaar.

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RUBRIEK 10: Stabiliteit en reactiviteit

· ***10.1 Reactiviteit***
Er zijn voor dit product of de bestanddelen ervan geen specifieke testgegevens beschikbaar met betrekking tot de reactiviteit.
· ***10.2 Chemische stabiliteit***
· ***Thermische afbraak / te vermijden omstandigheden:*** Geen afbraak bij gebruik volgens voorschrift.
· ***10.3 Mogelijke gevaarlijke reacties*** Geen gevaarlijke reacties bekend.
· ***10.4 Te vermijden omstandigheden*** Geen verdere relevante informatie verkrijgbaar.
· ***10.5 Chemisch op elkaar inwerkende materialen:*** Geen verdere relevante informatie verkrijgbaar.
· ***10.6 Gevaarlijke ontledingsproducten:*** Geen gevaarlijke ontbindingsprodukten bekend.

RUBRIEK 11: Toxicologische informatie

· ***11.1 Informatie over toxicologische effecten***
· ***Acute toxiciteit:***
· ***Primaire aandoening:***
· ***op de huid:*** Prikkelt de huid en de slijmvliezen.
· ***aan het oog:*** Sterk prikkelend effect met gevaar voor ernstige oogbeschadiging.
· ***Overgevoeligheid:*** Kan overgevoeligheid veroorzaken bij contact met de huid.

RUBRIEK 12: Ecologische informatie

· ***12.1 Toxiciteit***
· ***Aquatische toxiciteit:*** Vormt geen gevaar voor het milieu.
· ***12.2 Persistentie en afbreekbaarheid*** Niet relevant voor anorganische stoffen.
· ***12.3 Bioaccumulatie*** Geen verdere relevante informatie verkrijgbaar.
· ***12.4 Mobiliteit in de bodem*** Geen verdere relevante informatie verkrijgbaar.
· ***Verdere ecologische informatie:***
· ***Algemene informatie:***
Waterbezwaarlijkheid (NL) 10: Kan in het aquatisch milieu op lange termijn schadelijke effecten veroorzaken.
Gevaar voor water klasse 1 (D) (Zelfclassificatie): gevaar voor water klein
Niet onverdund of in grote hoeveelheden lozen in grondwater, in oppervlaktewater of in de riolering.
· ***12.5 Resultaten van PBT- en zPzB-beoordeling***
· ***PBT:*** Voldoet niet aan de criteria voor indeling als PBT.
· ***zPzB:*** Voldoet niet aan de criteria voor indeling als vPvB.
· ***12.6 Andere schadelijke effecten*** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 13: Instructies voor verwijdering

· ***13.1 Afvalverwerkingsmethoden***
· ***Aanbeveling:*** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.

· ***Niet gereinigde verpakkingen:***
· ***Aanbeveling:*** Afvalverwijdering volgens overheidsbepalingen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

· ***14.1 VN-nummer***	
· ***ADR, ADN, IMDG, IATA***	Niet van toepassing
· ***14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN***	
· ***ADR, ADN, IMDG, IATA***	Niet van toepassing

(Vervolg op blz. 6)

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· ***14.3 Transportgevarenklasse(n)***	
· ***ADR, ADN, IMDG, IATA***	
· ***klasse***	Niet van toepassing
· ***14.4 Verpakkingsgroep:***	
· ***ADR, IMDG, IATA***	Niet van toepassing
· ***14.5 Milieugevaren:***	
· ***Marine pollutant:***	Neen
· ***14.6 Bijzondere voorzorgen voor de gebruiker***	Niet bruikbaar.
· ***14.7 Vervoer in bulk overeenkomstig bijlage II bij MARPOL 73/78 en de IBC-code***	Niet bruikbaar.
· ***VN "Model Regulation":***	-

RUBRIEK 15: Regelgeving

· ***15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel***

· ***Nationale voorschriften:***

· ***Gevaarklasse v. water:*** Waterbezwaarlijkheid (NL) 10: Saneringsinspanning A
· ***15.2 Chemischeveiligheidsbeoordeling:*** Een chemische veiligheidsbeoordeling is niet uitgevoerd.

RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.

· ***Relevante zinnen***
H315 Veroorzaakt huidirritatie.
H318 Veroorzaakt ernstig oogletsel.
H335 Kan irritatie van de luchtwegen veroorzaken.

R37/38 Irriterend voor de ademhalingswegen en de huid.
R41 Gevaar voor ernstig oogletsel.
· ***Contact-persoon:*** Mr. M. van der Tempel
· ***Afkortingen en acroniemen:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
· **** Gegevens die ten opzichte van de voorgaande versie zijn veranderd***