Safety datasheet HDG DAEMO HS

pursuant to: REACH regulation (EC) no. 1907/2006

HDG UMWELTTECHNIK GmbH
Systempartner für Bohr- und Installationsunternehmen

1 Designation of the material or of the preparation and of the company

1.1 Designation of the preparation:

HDG DAEMO HS

1.2 Designation of the preparation:

Ready-mixed mortar for filling drill holes, especially for geothermal probes

1.3 Designation of the company:

Manufacturer/supplier:	HDG Umwelttechnik GmbH
Address:	Stolzenseeweg 1, D-88353 Kisslegg, Germany
Phone:	+49 (0)7563 / 912 478 – 0
Fax:	+49 (0)7563 – 912 478 - 20
Expert:	info@hdg-gmbh.com

1.4 Emergency phone number:

Vergiftungs-Informations-Zentrale Freiburg (VIZ) (toxic Information centre)
Zentrum für Kinderheilkunde und Jugendmedizin (Centre for paediatrics and youth medicine, University Medical Centre Freiburg
Phone:+49 (0)7 61-19 24 0

2 Possible dangers

2.1 Classification

The preparation is dangerous according to the 1999/45/EC directive and is classified as follows:
irritant, sensitising substance

R 36 Irritating to eyes
R 37 Irritating to respiratory system
R 38 Irritating to skin
R 43 May cause sensitisation by skin contact

2.2 Other information:

The preparation is low in chromate according to EU directive 2003/53/EC

3 Composition / information on constituents

3.1 Chemical characterisation

Cement according to DIN ÖNORM EN 197-1
Natural sands and other non-hazardous minerals
regulating additives (approx. 2 %)
regulierende Zusatzmittel (ca. 2%)

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3.2 Hazardous constituents:

Material designation	CAS no..:	EINECS no.	Content in weight %	Code letter of hazard symbol	Classification
Cement according to DIN ÖNORM EN 197-1 (contains Portland cement clinker)	65997-15-1	266-043-4	≤ 60 %	Xi	Portland cement Irritant, sensitising R 36/37/38 R43

The wording of the listed risk statements is given in point 16.

4 First aid measures

If a doctor is consulted, please take this safety datasheet with you.

4.1 after inhalation:

ample supply of fresh air; clear the respiratory tract of dust as fast as possible
In the event of health complaints (discomfort, coughing or lasting irritation), consult a doctor.

4.2 after contact with eyes:

do not rub the eyes; rinse immediately under running water for at least 45 minutes with the eyelid open.
If possible, use isotonic eye-rinse (0.9 % NaCl).
Consult a company doctor or eye doctor immediately.

4.3 after skin contact:

remove dry dust and wash off with plenty of water. In the event of contact with wet/moist product, the skin with plenty of water. Remove contaminated clothing, shoes, wristwatch... and clean thoroughly before using again.
In the event of health complaints (skin irritation), seek medical advice.

4.4 after swallowing:

do not induce vomiting; keep respiratory tract open. If the person is conscious, the mouth should be rinsed with water and drink plenty of water in small sips. Consult doctor or toxic information centre!

5 Fire-fighting measures

5.1 Suitable extinguishing agents:

The product is not flammable or explosive either as delivered or when treated by mixing with water.
Extinguishing agents and fire-fighting measures are to be coordinated in accordance with the surrounding fire.

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5.2 Unsuitable extinguishing agents for safety reasons:
None

5.3 Particular risks due to processing, its combustion products or gases produced:
When heated to very high temperatures or in the event of fire, carbon dioxide may be released from the lime flux

5.4 Special protective equipment for fire-fighting
Fire-fighters should wear suitable protective clothing and self-contained breathing apparatus with a full-face respirator operated with overpressure.

6 Measures in the event of unintentional release

6.1 Personal precautionary measures
Wear personal protective clothing (see 8.2). Observe information on safe usage according to 7.1. Avoid breathing in dust. Ensure sufficient ventilation.

6.2 Environmental protection measures
Do not allow the preparation to enter the drainage system, surface water or ground water. Inform the responsible authorities if the product has caused environmental pollution.

6.3 Cleaning methods
Where possible, use dry methods to collect spilt mortar.

Dry mortar:
Where possible, use dry methods for cleaning which do not produce dust (e.g. industrial vacuum cleaner with suitable filter), or in the case of small quantities moisten the mortar and remove as moist mortar.
If dust is produced with a dry cleaning method, personal protective equipment must always be used.

Moist mortar:
Collect the moist mortar mechanically, allow to harden on a film base or in a container and dispose of according to point 13.

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7 Handling and storage

Do not store or use near food, drinks or tobacco. The persons handling the product must wash their hands and face before eating, drinking or smoking.

7.1 Handling

Please observe the recommendations in point 8. Avoid producing dust, only use with sufficient ventilation. In the case of insufficient ventilation, wear breathing apparatus. Do not allow the product to come into contact with eyes or clothing.
In the case of bagged goods and use of open mixing receptacles, first pour in water and then carefully fill with dry mortar. Keep the drop height low. Start the mixer slowly.
To collect spilt dry product, see 6.3.
Carrying sacks of mortar can result in sprains and tenseness of the back, arms, shoulders and legs. Therefore handle carefully, lift correctly and take suitable measures.

7.2 Storage

Always keep in original container.
Do not store together with food, drinks or tobacco.
Store loose product in silos which are dry (minimise internal condensation), waterproof, clean and protected against dirt.
Do not enter storage spaces containing product, such as silos, vessels, silo vehicles or other containers without suitable safety measures, as there is a risk of being buried and suffocated. In such enclosed spaces, the dry mortar may form walls and bridges which may unexpectedly collapse.
Packaged products should be stored in opened sacks on the floor in cool, dry conditions, without strong air draughts, in order to prevent a reduction in quality. Sacks must be stored in a stable condition.

7.3 Specific uses

Checking the water-soluble chromium(VI) content:
In the case of mortars which contain chromate reducers, it must be noted that the efficacy of the reducing agent is reduced over time. Therefore, product sacks and or delivery documents contain information on the minimum effective period. Within this period, the quantity of water-soluble chrome(VI) remains less than 0.0002 % (regulation as per EN 196-10). The manufacturers instructions on correct storage are to be observed.
In the event of incorrect storage (ingress of moisture) or overlong storage, the chromate reducers contained in the product lose their efficacy prematurely and a sensitising effect of the product in the event of contact with the skin cannot be excluded.

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8 Limitation and monitoring of exposure / personal protective equipment

8.1 Exposure limits

Bezeichnung	Grenzwert	Expositionsweg	Expositionsfrequenz	Bemerkungen
Water-soluble chromium(VI)	2 ppm	dermal	short-term (acute) long-term (repeated)	EN 196-10
Portland cement (dust)	5 (E) mg/m³	inhalative	short-term (acute) long-term (repeated)	GKV 2007
General dust limit	5 (A) mg/m³ 10 (E) mg/m³	inhalative	short-term (acute) long-term (repeated)	GKV 2007

8.2 Limitation and monitoring of exposure

8.2.1 Limitation and monitoring of exposure in the workplace

Only use with sufficient ventilation. Avoid producing dust.

General protection and hygiene measures:
Avoid contact with eyes or skin. When working, do not kneel or stand in fresh mortar or concrete if possible. If this is nevertheless necessary, always wear suitable alkali-resistant waterproof protective clothing. Change soaked clothing immediately.
Do not eat, drink or smoke when working. Before breaks and when finishing work, wash hands and shower if necessary to remove adhering product dust. Clean contaminated clothing, shoes, watches etc. before using again.

Respiratory protection:
If exposure limits are exceeded (possible, for example, when mixing), use an FFP2 half-face respirator with a particle filter.

Eye protection:
If dust is produced or there is a risk of splashing, use close fitting safety goggles as per EN 166.

Skin protection:
Wear waterproof, abrasion- and alkali-resistant protective gloves. For example, nitrile-impregnated cotton gloves with the CE mark are suitable (observe maximum period of use). Wear closed, long-sleeved protective clothing and close-fitting shoes. It must be ensured that no fresh mortar or concrete gets into shoes or boots from above. Use skin care products especially after finishing work.

8.2.2 Limitation and monitoring environmental exposure

In accordance with the available technology

9 Physical and chemical properties

9.1 General information

Appearance / form powder
Colour grey
Odour odourless

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9.2 Important information on health and safety and environmental protection

Solubility (in water at 20°C) < 1.5 g/l
pH value (in saturated solution 20 °C) > 11 (conc.: 50 mass % in water)
Apparent density (20 °C) 0.9-1.0 kg/dm^3
All other physical and chemical parameters in accordance with Appendix II to the regulation (EC) 1907/2006 are irrelevant/not applicable.

10 Stability and reactivity

Dry mortar is stable as long as it is stored correctly (point 7) and the use by date is not exceeded (Cr(VI) content).
Mortar mixed correctly with water hardens and forms a solid mass which does not react with its surroundings.

10.1 Conditions to be avoided

Moisture during storage may lead to formation of lumps and a reduction in product quality.

10.2 Substances to be avoided

Uncontrolled use of aluminium powder in moist mortar should be avoided, as hydrogen is produced.

10.3 Hazardous decomposition products

No hazardous decomposition products are produced under the specified storage conditions.

11 Toxicological information

11.1 Acute toxicity

Contact with eyes:
Direct contact with the product may damage the cornea, on the one hand due to the mechanical effect and on the other due to an immediate or later irritation or inflammation.

Contact with the skin:
the cement contained in the product has an irritant effect on the skin and mucous membranes. Dry cement in contact with moist skin or skin in contact with moist or wet cement may lead to various irritative and inflammatory reactions of the skin, e.g. redness and cracking. Sustained contact combined with mechanical abrasion may lead to serious skin damage.

Acute dermal toxicity of cement:
Limit Test, Kaninchen, 24 Stunden Exposition, 2.000 mg/kg Körpergewicht – keine Letalität (4).

Swallowing:
Swallowing large quantities may cause irritations of the mouth, throat and the gastrointestinal tract.

Inhalation:
Exposure to product dust may irritate the respiratory tract (pharynx, throat, lungs). This may lead to coughing, sneezing and shortness of breath if exposure exceeds the workplace limit.

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11.2 Chronic effects

Inhalation:
Long-term exposure with respirable product dust exceeding the workplace limit may lead to coughing, shortness of breath and chronically obstructive changes in the respiratory tract.

Carcinogenity of cement:
No causal relationship was detected between exposure to cement and cancer diseases (1).

Contact dermatitis/sensitising effect:
In individual cases, skin eczemas may occur after contact with moist mortar. These are caused either by the pH value (irritative contact dermatitis) or by immunological reactions to water-soluble chromium(VI) (allergic contact dermatitis) (5). The skin may react in different ways, from a slight rash to serious dermatitis, and is the result of a combination of both mechanisms. An exact diagnosis is often very difficult. The water-soluble chromium(VI) content must therefore be reduced to less than 0.0002 % with a suitable reducing agent in a stable condition.
As long as the minimum use by date of the chromate reducer is not exceeded, a sensitising effect is not to be expected (6).

11.3 Medical effects of exposure

Inhalation of product dust may worsen existing illnesses or damage to the respiratory organs, such as asthma or emphysema. Contact with product dust may worsen existing skin or eye complaints.

12 Environmental information

12.1 Ecotoxicity

The product is regarded as not harmful to the environment. Ecotoxicological tests with Portland cement on Daphnia magna (U.S. EPA, 1994a) (7) and Selenastrum Coli (U.S. EPA, 1993) (8) have shown only a limited toxic effect. The LC50 and EC50 values could therefore not be determined (9). In addition, no toxic effects on sediments were detected (10). However, the release of large quantities of the product may lead to a change in the pH value and may therefore be toxic for aquatic life in certain circumstances.

12.2 Mobility

Dry mortar is non-volatile. However, when handled, microparticles may be stirred up and remain in the air as floating particles.

12.3 Persistence and degradability

Not applicable, as the product is essentially an anorganically mineral material.

12.4 Bioaccumulation potential

Not applicable, as the product is essentially an anorganically mineral material.

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13 Information on disposal

13.1 Product with exceeded efficacy date of the reducing agent or with a water-soluble chromium(VI) content of more than 0.0002 %:
The product must no longer be used or sold unless used in controlled, closed and fully automatic processes or it is treated again with a chromate reducer.

13.2 Collect unused residual quantities of the dry product
using a dry method. Mark the container. Continue to use where possible preventing exposure to dust (observe use by date). In the case of disposal, harden with water and dispose of in accordance with 13.4.

13.3 Moist products and product slurries
Allow moist products and product slurries to harden and do not allow them to enter the drainage system or water. Disposal according to 13.4.

13.4 Products hardened after adding water
Dispose of in accordance with local authority regulations. Do not allow to enter the drainage system. Hardens after 5 to 6 hours after contact with water and can then be disposed of as concrete waste and concrete slurries (waste code number according to EWC: 170101 "Concrete demolition"; waste code number according to the Austrian standard ÖNORM S 2100: 31.427 "Concrete demolition solidified").

13.5 Uncleansed packaging materials
Completely empty packaging and recycle. Otherwise disposal according to waste code number 18.718 "Waste paper, paper, cardboard, uncoated", or 18.702 "Paper and cardboard, coated" (according to ÖNORM S 2100) or 150101 "Paper and cardboard waste" (according to EWC) ARA no. 2676

14 Information on transport

The product is not subject to the international dangerous goods regulations (IMDG, IATA, ADR/RID). Therefore, no classification is necessary.

15 Legal regulations

15.1 EU regulations

15.1.1 Material safety assessment
A material assessment regulation is not necessary, as the product is a preparation.

15.1.2 Labelling
Labelling according to the EU Directives 1999/45/EC and 67/548/EEC

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Contains Portland cement clinker, EINECS no. 266-043-4

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Risk statements:

R 36	Irritating to eyes
R 37	Irritating to respiratory system
R 38	Irritating to skin
R 43	May cause sensitisation by skin contact

Safety statements:

S 2	Keep out of the reach of children
S 22	Do not breathe dust
S 24	Avoid contact with skin
S 25	Avoid contact with eyes
S 26	In the event of contact with eyes, rinse immediately with plenty of water and seek medical advice
S 28	After contact with skin, wash immediately with plenty of water
S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S 46	If swallowed, seek medical advice immediately and show this container or label

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15.2 Approval and/or restrictions on use

In accordance with Appendix XVII Section 47 of the EC Regulation 1907/2006, the use and sale of cement and preparations containing cement are prohibited if the content of soluble chromium(VI) after hydration is more than 0.0002 % of the dry matter of the cement. Exceptions only apply to monitored, closed and fully automatic processes and for uses in such processes in which cement and preparations containing cement only come into contact with machines and there is no risk of skin contact.

15.3 National regulations

Information on restrictions of employment: None

GISCODE: ZP 1 (products containing cement, low chromate content)

Water pollution category: WGK 1 (low water pollution level) Self-classification as per VwVwS of 17.05.1999

Other regulations, restrictions and prohibition ordinances:
Chemical prohibition ordinance (ChemVerbotsV)

Storage category: VCI storage category 13 (non-flammable solid materials)

16 Other information

16.1 Wording of the risk statements (point 3)

R 36 Irritating to eyes
R 37 Irritating to respiratory system
R 38 Irritating to skin
R 43 May cause sensitisation by skin contact

16.2 Sources of information

(1) Portland Cement Dust - Hazard assessment document EH75/7, UK Health and Safety Executive, 2006. See: http://www.hse.gov.uk/pubns/web/portlandcement.pdf
(2) http://www.baua.de/prax/
(3) http://www.hvbg.de/d/praev/vorschr/index.html
(4) Anmerkungen zu hautirritierenden Wirkungen von Zement (Notes on skin-irritating effects of 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) 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).
(7) 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).
(8) 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).

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

16.3 Abbreviations:

IMDG: International Maritime Dangerous Goods
IATA: International Air Transport Association
ADR/RID: Agreement on the transport of dangerous goods by road/Regulations on the international transport of dangerous goods by rail
LC50: median lethal concentration at which 50 % of the tested population die
EC50: half maximal concentration at which 50 % of the tested population display a defined effect
BGR: Berufsgenossenschaftliche Regel für Sicherheit und Gesundheit (health and safety regulations of the German trade association)
AVV: Abfallverzeichnisverordnung (List of Wastes Ordinance)

16.4 Changes compared with the previous version:

No previous version (new product).

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