DESOI VP1 SUPERFINE CEMENT

Microfine cement suspension for filling cavities and force-fitting closure of cracks

Safety data sheet

No.: 56397 | 56401

in accordance with Regulation (EC) no. 1907/2006 (REACH) and (EU) no. 453/2010

1. Identification of the substance/preparation and of the company

1.1 Product information

Trade name: Microfine cement

1.2 Information on the manufacturer/supplier

Supplier:	**DESOI GmbH**
Street:	Gewerbestraße 16
Nat.Ref./Postcode/City:	36148 Kalbach/Rhön
Phone:	+49 6655 9636-0
Fax:	+49 6655 9636-6666

Emergency information

Poison Information Center Mainz:	+49 6131 19-240
Emergency information Berlin:	+49 30 1924-0

Accessibility 24 hours a day

2. Information on Contents and Composition

2.1 Chemical Properties (Preparation)

Preparation/Mixture of mineral binding agents, granular stone and additives

Dangerous ingredients:

EC No.	CAS No.	Designation	REACH No.	Classification	GHS Classification	Percentage
266-043-4	65997-15-1	Portland cement		Xi - irritating R37/38-41-43 Exact wording of hazard and precautionary statements in Section 15	STOT SE 3, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1; H335 H315 H318 H317	30 – 99 %
270-659-9	68475-76-3	Portland cement, Fine dust	01-2119486767-17	Xi - irritating R37/38-41-43 Exact wording of hazard and precautionary statements in Section 15	STOT SE 3, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1; H335 H315 H318 H317	0 – 5 %

Additional information:

The preparation is low in chromate. The amount of dissolvable chromium trioxide has been reduced to less than 2 ppm by admixtures to the cement portion. Proper storage and prompt usage (see date of expiry) are required to ensure the effectiveness of the chromate reduction.

3. Possible Hazards

3.1 Description of Hazards

Xi (irritant), Signal word: hazardous, Symbols: GHS05-GHS07

Safety warnings: Keep containers closed tightly. Wear protective gloves / clothing/eye protection / face protection. In case of contact with skin: wash with copious amounts of soap and water. Avoid breathing in dust. In case of contact with eyes: rinse carefully with water for several minutes, remove contact lenses, continue to rinse. Immediately call poison information center or doctor.

Information on product identification / designation: The product has been classified and designated in accordance with EC regulations and national laws.

3.2 Special hazard notifications for human beings and the environment

R37/38	Irritates respiratory tract and skin
R41	Danger of serious eye injury
GHS Classification:	Hazard categories:

	Corrosion/Irritation effects on the skin: Skin irritation 2
	Serious eye injury/irritation: Eye injury 1
	Sensitization of respiratory tract/skin: Skin sensitization 1
	Specific target organ toxicity (single exposure): STOT single exposure category 3
Notification of hazard:	Causes skin irritations. May cause allergic skin reactions. Causes serious eye injury.
	May irritate respiratory tract

3.3 Additional hazards

The irritating properties of this product can lead to the exacerbation of an existing dermatitis or other skin condition in the case that contact cannot be avoided.

4. First Aid Measures

4.1 Basic information

In case of illness seek out professional medical assistance. (If possible, bring this label with you.) Show this safety data sheet to the doctor treating you. If somebody loses consciousness, position their body on its side and get medical help immediately. Never attempt to pour liquids into the mouth of an unconscious person. Make sure not to bring yourself in danger!

4.2 In case of inhalation

Provide fresh air. Seek out medical assistance if respiratory tract or mucous membranes (eg. coughing) are irritated, if the affected person feels ill, or in case of prolonged exposure. Oxygen may be helpful. Keep affected persons warm and calm. If large amounts of material are involved: get a doctor immediately.

4.3 In case of contact with skin

Immediately remove any material sticking to skin. Brush any dust from skin before washing. Wash contaminated skin thoroughly with water and soap. Rinse thoroughly with water. Immediately remove dirty clothing and/or shoes.

4.4 In case of contact with eyes

Rinse immediately with copious amounts of water at least 15 minutes, including under the eye lids. Remove contact lenses. Keep eyes wide open and rinse. Do not rub the eyes while dry, as the mechanical friction may increase damage to the cornea. Immediately contact an eye doctor/opthalmologist. Protect the uninjured eye.

4.5 In case of swallowing

Do not induce vomiting. Rinse mouth. Spit out fluid. Drink 1 to 2 glasses of water. Call doctor immediately.

4.6 Information for doctors

Irritation to eyes, skin and mucous membranes. Danger of burns. Inflammation of conjunctiva. Danger of blinding, abdominal pain. Chronic exposure can cause dermatitis. Repeated inhalation can lead to long-term respiratory illness. Reference (1). Symptomatic treatment. (decontamination, vital functions)

5. Measures to take in case of fire

5.1 Suitable extinguishing agents

This material is not flammable. Choose fire extinguishing measures suitable to the environment.

5.2 Unsuitable extinguishing agents due to safety reasons

Pressurized jets of water

5.3 Special hazards caused by the material itself or its preparation, or by the by-products or gases released by its combustion.

The material itself is not flammable.

5.4 Special protective equipment while fighting fire

It is recommended that firefighters wear breathing apparatus with self-contained air supply.

5.5 Additional information

It is strongly advised to prevent water being used to extinguish fire or other water containing material reaching surface bodies of water or drinking water reservoirs. Contaminated water and earth must be disposed of in accordance with the relevant laws and regulations.

6. Measures to take in case of spills

6.1 Person-related precautionary measures

Avoid breathing dust. Use personal protective clothing. Observe hygiene and security recommendations while handling product. Prevent material from blowing away by covering with tarpaulines, especially in case of leakage. (see Section 7)

6.2 Environmental protection measures

Avoid polluting ground water with material. Do not allow it to reach surface water or sewage system. Do not allow it to penetrate into the earth. If material is spilled onto the earth, into surface water or the sewage system, it is required that local authorities are notified.

6.3 Cleaning/vacuuming procedures

Vacuum dry. Use only certified industrial vacuum cleaners. (EPA/HEPA - Filter, EN 1822 - 1:2009)

Avoid dust gathering. Protect your respiratory tract with suitable measures. Dampen and remove carefully. Allow the material to harden and remove mechanically. Dispose of material as described in Section 13.

6.4 Additional information

See Section 8.

7. Handling and Storage

7.1 Handling

7.1.1 Instructions on handling safely

Avoid dust gathering/formation. Do not inhale airborne dust. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or consume snuff while working. Keep food and drinks away from material. The material may not come into contact with any moisture or humidity prior to use.

When mixing material from sacks in open containers, first add water, then the dry material, carefully, from a low height to avoid unnecessary dust getting airborne. Start the mixer slowly.

7.1.2 Instructions on prevention of fire and explosions

Special measures are unnecessary.

Follow hygiene and safety recommendations while handling material. Handling, storage and transport only in accordance with local regulations and in clearly-labelled containers which are suitable for this material.

7.2 Storage

7.2.1 Requirements for storage rooms and containers

Follow manufacturer‘s instructions. Store only in original containers. Avoid any contact with water during storage. Store cool and dry. Prevent contamination. Protect from humidity and water.

Use only clean eqipment.

7.2.2 Instructions on storing with other materials

No special information available

7.2.3 WAdditional information on storage conditions:

When not in use, the material must be stored in its original transport containers. Store product upright. Keep packaging dry and tightly closed in order to avoid contamination and absorption of moisture. Proper storage and prompt usage (see date of expiry) are required to ensure the effectiveness of the chromate reduction.

8. Limitation of exposure and personal safety equipment

8.1 Additional instructions for technical equipment

No special measures are required.

8.2 Allotted materials with their workplace-specific threshold values

CAS-No.	Designation	Value	Unit	F/m³	Category	Source
68475-76-3	Portland cement	5 (E)	mg/m³		Tmw (8 h) Kzw (15 min)	MAK

8.3 Personal protective equipment

8.3.1 General safety and hygiene measures

Avoid contact with the eyes and skin. Remove dirty clothing and wash before using again. Do not eat, drink, smoke or use snuff while working. Wash hands before taking breaks and at the end of the workday. Take a bath or shower at the end of the workday.

8.3.2 Breathing protection

Effective dust mask EN149, EN140, EN14387, EN1827. (Equipped filtration FFP1 or FFP2) Wear breathing apparatus with self-contained air and dust-proof protective clothing in case of vapor and/or airborne breathable dust.

8.3.3 Hand protection

Protective gloves, chemical-resistant. The manufacturer recommends gloves made of the following materials: nitrile-infused cotton gloves with CE certificate. Protective gloves should be chosen on the basis of the actual conditions on the job and in observance of the manufacturer's instructions. Only certified protective gloves should be worn. The gloves should be replaced immediately in case of damage to the gloves or at first sign of wear. Note that, as a result of various influences, such as temperature, the daily time of use of a chemical-resistant glove may be significantly shorter than the permeation time as measured in accordance with EN 374.

Unsuitable for use are gloves made from leather. Gloves may only be worn on clean hands. After removing gloves, wash hands thoroughly and dry completely. Skin may be protected further by using skin protective cream.

8.3.4 Eye protection

Wear protective glasses, especially when working near liquids which may splash. Glasses should seal to face. (EN 166)

8.3.5 Body protection

Wear suitable protective clothing while working. Protect yourself from water. Waterproof protective clothing, long-sleeved work clothes, safety shoes/boots. Remove dirty or soaked clothing immediately. Avoid contact with material on neck or wrists to prevent skin irritation or inflammation. Rings, watches and other jewelry or objects to which material might stick should not be worn.

9. Physical and chemical properties

9.1 Appearance

Form:	Powder
Color:	gray/white
Odor:	odorless

9.2 Safety-relevant data

State change:	
Melting point:	> 1250 °C
Ignition point:	n.a.
Properties facilitating ignition:	
Lower explosion limit:	n.a.
Upper explosion limit:	n.a.
Ignition temperature:	n.a.
Vapor pressure:	n.a.
Density:	2,75 – 3,2 g/cm³
Powder density:	0,9 – 1,5 kg/m³
Water solubility:	(bei 20 °C) 0,1 – 1,5 g/L
pH value (at 20 °C):	11,0 – 13,5 (Solids to water 2 : 1)
Distribution coefficient	n.a.
Dynamic viscosity:	n.a.
Kinetic viscosity:	n.a.
Evaporation rate:	n.a.

9.3 Additional information

No data available.

10. Stability and reactivity

10.1 Conditions to be avoided
Stable under normal conditions.

10.2 Materials to be avoided/Dangerous reactions
Reacts with water, generating heat. Dangerous reactions are not to be expected under normal storage conditions and normal usage.

10.3 Thermal decomposition and dangerous by-products
Stable when stored and handled properly.

10.4 Additional information
No data available.

10.5. Incompatible materials
Acids, aluminium, ammonia salts. Corrosive to non-precious metals.

10.6. Dangerous products of decomposition
No decomposition to be expected when stored and used properly.

10.7. Additional instructions
Prevent any water coming into contact with material during storage.

11. Toxicology Information

11.1 General information
No toxicology tests on animals are available for this material.

11.2 Acute toxicity
No data is available for this material.
Prolonged exposure to concentrations above the MAK value can lead to health problems. Material dust can irritate eyes, skin and respiratory tract. Risk of injury to lungs if dust is inhaled regularly, which can irritate eyes, nose and throat. Dust irritates eyes, skin and mucous membranes and can lead to toxic lung edemas. Swallowing large amounts can lead to health impairment. Swallowing causes irritation of the upper respiratory tract and gastrointestinal disturbances.

Toxicity after contact with skin:	LD50/dermal/rabbit: 200 mg/kg (24 h) (4)
Irritation and burning:	The material causes irritation to the eyes, skin and mucous membranes. The eyes will be irritated if they come into contact with the material. Granulate particles irritate the eyes through mechanical friction, just as all other inert materials do. High concentrations of the material cause serious inflammation of the conjunctiva and cornea and can cause irreversible damage to the eyes. There is a danger of blinding. Skin contact: repeated or long-term exposure/contact. The material can cause local skin irritation, especially in wrinkles or when wearing tight clothing. Can cause reddening. Can cause skin irritation and/or dermatitis. May lead to skin eczema in certain people after contact with wet material. (Reference 4, 11, 12)
Sensitizing effects:	Skin eczema is triggered either by the pH value (irritant contact dermatitis) or by immunological reactions with water-soluble chromate trioxide. (allergic contact dermatitis) (Reference 1, 5, 13)
Specific target organ toxicity after single exposure:	Lungs, (respiratory difficulty), (Reference 1, 17)
Serious effects after repeated or prolonged exposure:	Inhaling the dust can lead to shortness of breath, tightness in the breast, sore throat and cough. Repeated or prolonged contact with the skin can cause changes to the skin. The material is a skin irritant and repeated contact can increase this effect. Repeated or prolonged contact causes sensitization, asthma and eczema. Excessive exposure can exacerbate existing asthma and other conditions of the respiratory tract. (eg. emphysema, bronchitis, reactive airway dysfunction syndrome)
Carcinogenic, mutagenic and toxic to reproduction effects:	Carcinogenic, mutagenic and teratogenic substances. (Reference 1, 14, 15, 16)

11.3 Additional toxicological information
When combined with water, the material can cause serious injury to eyes and skin if allowed to stay in contact for prolonged periods. Simultaneous mechanical friction with the skin can increase such effects.

12. Ecological Information

12.1 Information on elimination (persistence and degradability)
Not applicable

12.2 Behavior/properties in environmental areas
Not applicable

12.3 Ecotoxic effects
Not applicable

12.4 Additional ecotoxicological information

Low-level acute toxicity:	Water flea (Daphnia Magna) (U.S. EPA, 1994a) (7); Algae (Selenastrum capricornutum) (U.S. EPA, 1993) (8). The material is not seen as dangerous for water organisms.
Aquatic toxicity:	Larger amounts: Toxic effect on aquatic life may be possible due to change in pH value. When released into the environment, the material is primarily absorbed by sediments and the earth.

Do not allow material to enter surface water or sewage. Avoid polluting ground water with material. Prevent material entering underlying ground.

13. Instructions for Disposal

13.1 Material recommendations: For hardened material: dispose in accordance with local regulations. Do not allow material to enter surface water or sewage.
Disposal of remaining powder: Vacuum dry. Avoid dust build-up and follow waste disposal laws.

Material waste code (EWC):	170101 Concrete. Construction and demolition waste including excavated material from contaminated locations; Concrete, tiles, and ceramic; Concrete
Waste code left-over material:	101314 Waste concrete and concrete sludge. Waste from thermal processes; Waste from the manufacture of cement, burnt lime, gypsum and related products

13.2 Uncleaned packaging
Empty packaging must be emptied thoroughly before being disposed of. Dispose in accordance with local regulations. Recycle after proper usage.

Waste code:	150110 Packaging containing residues of or contaminated by hazardous substances. Waste packaging, soaked materials, cleaning materials, filters and protective clothing; Packaging including separately-collected communal packaging wastes.

14. Transport rules

14.1 Transport by land ADR/RID
Material not considered to be a hazardous material for the purposes of transport regulations.

14.2 Transport by inland waterways ADR/RID
Material not considered to be a hazardous material for the purposes of transport regulations.

14.3 Transport by seagoing vessels IMDG
Material not considered to be a hazardous material for the purposes of transport regulations.

14.4 Transport by air ICAO-TI and IATA-DGR
Material not considered to be a hazardous material for the purposes of transport regulations.

14.5 Transport, other information
Ecologically dangerous: no

14.6. Special precautionary measures for the user
Material not considered to be a hazardous material for the purposes of transport regulations.

14.7. Transport of bulk materials in accordance with Appendix II of MARPOL 73/78 and the IBC code
Material not considered to be a hazardous material for the purposes of transport regulations.

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15. Rules

15.1 Designation in accordance with EC rules

Additional information: This material is not considered a substance of very high concern (SVHC) as defined in REACH, Article 57. Note: Rule 1907/2006 (REACH) Annex XVII, 47

15.1.1 Code letter and hazard designation of this material.

Xi (irritating).

15.1.2 Risk Statements

R37/38	Irritates the respiratory tract and skin
R41	Danger of serious eye injury
R43	Sensitization possible through skin contact

15.1.3 Hazard Statements

H335	Can irritate the respiratory tract
H315	Causes skin irritations
H318	Causes serious eye injury
H317	Can cause allergic skin reactions

15.2 National Rules

Information on limitation of employment:	none
Water hazard category:	1 (slight hazard to water)
Other rules, limitations and prohibitions:	
Regulations on Hazardous Materials:	German regulations on sale/transport of chemical substances (ChemVerbotsV)
Technical Rules for Hazardous Substances:	German TRGS 613 „Substitute materials, substitution procedures and limitations on usage of chromate-based cements and chromate-based cementitious materials“
Storage class:	VCI class 13 (non-flammable materials)

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(2) Technical Rules for Hazardous Materials „ Arbeitsplatzgrenzwerte“, 2009, GMBI Nr.29 S.605.
(3) MEASE 1.02.01 Exposure assessment tool for metals and inorganic substances, EBRC Consulting GmbH für 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 (Europäische Kommission, 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) Prospective monitoring of exposure and lung function among cement workers, Interim report of the study after the data collection of Phase I-II 2006-2010, H. Notø, H. Kjuus, M. Skogstad and K.-C. Nordby, National Institute of Occupational Health, Oslo, Norway, March 2010.

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
n.a. = not applicable;
n.b. = undetermined

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