

SAFETY DATA SHEET

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name/ Category: MicroFine Cement

Other Designation: **MicroCem**

Description: Tricalcium silicate ($3\text{CaO} \cdot \text{SiO}_2$) and dicalcium silicate ($2\text{CaO} \cdot \text{SiO}_2$) are Microfine cement's essential constituent, along with varying amount of alumina, tricalcium aluminate and iron oxide as tetracalcium aluminoferrate. Small amounts of magnesia, sodium, potassium and sulfur are also present. Chromium may be present in the finished cement since the kiln's refractory lining and steel balls used in the finish-milling operations are possible sources. To improve adhesion, strength and flexibility, cement may be modified with various plastic latexes.

CAS Reg. No.: 65997-15-1 (In reference to Portland Cement)

Supplier: EnGro Corporation Limited

DOT Classification: Not Hazardous by DOT classifications

2. HAZARDS IDENTIFICATION

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Category Classification(s): SKIN CORROSION/IRRITATION - Category 1
EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY/INHALATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)
[Respiratory tract irritation] – Category 3

GHS label elements

Hazard pictograms:



Signal word: Danger

Hazard statements: Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.
May cause cancer.

Precautionary Statements: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Do not breathe dust.
Wash clothing, face and hands thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace
Wear eye protection, protective clothing and protective gloves.

3. COMPOSITION / HAZARDOUS INFORMATION ON INGREDIENTS

<u>Hazardous Components</u>	<u>Typical Percent (%)</u>	<u>*Limits and Toxicity Data</u>
CaO (calcium oxide)	63-67	8 hr. TWA-PEL
SiO ₂ (silicon dioxide)	20-24	10 mg/m ³ (total dust)
Al ₂ O ₃ (aluminum oxide)	3-7	
Fe ₂ O ₃ (iron III oxide)	2.1-4.1	8 hr. TWA-PEL
SO ₃ (sulfur trioxide)	1.0-3.0	5 mg/m ³ (respirable fraction)
MgO (magnesium oxide)	1.0-4.0	
K ₂ O (potassium oxide)	0.2-1.0	AGGIH TLV-TWA
Na ₂ O (sodium monoxide)	0.1-1.0	10 mg/m ³ (nuisance dust)
Mn ₂ O ₃ (manganese trioxide)	0.1-0.4	No toxicity data documented

*Limits set for the compound as a whole, **NOT** the individual components.

4. FIRST AID MEASURES

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Contact medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under eye lids, with copious amounts of water until victim is transported to an emergency medical facility. **Contact the physician immediately!**
This material can cause corneal edema!

Inhalation: Move the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial breathing. Contact medical assistance if necessary.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, have the conscious victim drink 4 to 8 oz. of milk or water. Contact the physician immediately.

Note to Physician: Ingestion of large amounts of cement is unlikely. However, to prevent re-exposing the esophagus and the stomach, do not induce emesis or perform gastric lavage. Immediate dilution may prevent esophageal burns. For severe esophageal burns, consider esophagocopy within the first 24 hours. Neutralization with acidic agents is not advised because of the increased risk of exothermic burns. Water-mineral oil soaks may aid in the removal of hardened cement from the skin. Dried on cement is extremely difficult to remove; surgical debridement and possibly even skin grafting may be necessary. Consult an ophthalmologist for ocular burns. Consider topical mydriatic-cycloplegics to guard against development for posterior synechiae and ciliary spasm.

5. FIRE-FIGHTING MEASURES

Flash Point:	Non-combustible
Extinguishing Media:	This media is non-combustible. Use extinguishing media that is appropriate to the surrounding fire. (FPN)
Special Fire Fighting Procedures:	Since the fire may produce toxic fumes, wear a self contained breathing apparatus (SCBA) with a full face-piece operated in the pressure-demand or positive-pressure mode
Unusual Fire & Explosion Hazards:	None reported
Flammable Limits in Air (Volume %):	N/A
Lower Explosive Limit:	N/A
Upper Explosive Limit:	N/A
Additional information:	Product is not combustible. Only the packaging will result to fire.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Use dry clean-up methods that do not disperse dust into the air. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment. Scrape up wet material and place in an appropriate container. Allow the material to "dry" before disposal.

Personal precaution: Avoid dust formation and avoid contact with skin and eyes. Use personal protective clothing. Ensure adequate ventilation

Environmental precautions: Prevent large volumes from passing into the drain, watercourses or small pools of water

Measure for cleaning: To prevent dust creation, cement should be vacuumed away. Cement that has been mixed with water sets and can be disposed as per normal under in accordance with federal, state and local regulations (FPN)

7. HANDLING AND STORAGE

Neutralizing Agent:	None specified by manufacturer
Precautions– Handling/Storing:	None
Housekeeping:	Avoid actions cause the cement to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA Vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8 below
Do not:	Store or handle near food and beverages or smoking materials
Respirable dust	Maybe generated during processing, handling and storage. The personal protection and controls identified in Section 8 of SDS should be applied as appropriate

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection:	The use of a NIOSH/MSHA approved respirator is recommended, based on airborne concentrations
Engineering Controls/Ventilation:	Local exhaust can be used to control airborne dust levels
Protective Gloves:	Impervious gloves (FPN)
Eye Protection:	ANSI approved chemical work goggles (FPN)
Other Protective Equipment:	EMER eyewash & DLUGE SHWR meeting ANSI design criteria (FPN). Use BARR creams, boots & clothing to protect skin (SUPDAT)
Work Hygienic Practices:	Immediately after working with cement, shower with soap & water, Precaution must be observed because cement burns with little warning.

9. PHYSICAL / CHEMICAL CHARACTERISTICS

Appearance and Odor:	Grey powder and no odor
Vapor Pressure (mm Hg / 700F):	0 mm
Specific Gravity (H₂O=1):	3.10 – 3.15
Vapor Pressure:	N/A
Evaporation Rate:	N/A
Vapor Density:	N/A
pH:	12 – 13.5
Boiling Point	N/A
Solubility in Water:	Slightly (0.1-1.0%)

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions to Avoid (Stability):	Avoid moisture. Keep dry until used
Materials to Avoid:	None
Incompatibility:	None
Hazardous Decomposition/By-products:	None
Hazardous Polymerization:	Not relevant

11. TOXICOLOGICAL

Route of Entry: Inhalation, Skin and Ingestion

Health Hazard (Acute and chronic): Microfine cement is a nuisance dust and an irritant to skin, eyes and mucous membranes. Its principle health hazard occurs from the formation of alkaline calcium hydroxide (forming from the addition of water to Microfine cement), and this material is abrasive and can burn the skin. Dry cement will not cause alkaline burns. Some individuals appear to tolerate brief contact with wet

cement but others develop extensive skin burns. Repeated or prolonged skin exposure can cause dermatitis, including skin dryness, fissures, eczematous rashes and dystrophy of the nails. Extensive burns with dermal necrosis can occur. Allergic dermatitis may result from the presence of heavy metal such as chromium in the mixture.

Splashes into the eyes can cause corneal edema. Ingestion of the powder may cause burns in the esophagus and stomach. Chronic bronchitis may result from long term exposure. There are reports of x-ray changes without symptoms in cement workers exposed to Microfine cement. Other studies showing x-rays changes with pulmonary symptoms are noted in workers exposed primarily to the silica-containing products in Microfine cement.

Signs and Symptoms of Exposure: Inhalation symptoms include eye, nose and upper respiratory tract irritation, cough, expectoration, shortness of breath and wheezing. Within 12 to 48 hours after 1 to 6 hours exposures, first second and third degree burns may occur. There may be no obvious pain at the time of exposure. Allergic reactions and changes in x-rays are also sign of exposure.

Medical Conditions Aggravated By Exposure: Individuals with a sensitivity to hexachromium salts should avoid exposure. Individuals with chronic respiratory disorder or skin diseases should minimize exposure.

Listed as a Carcinogen/Potential Carcinogen

	<u>Yes</u>	<u>No</u>
In the National Toxicology Program (NTP) Report on Carcinogens	_____	x
In the International Agency for Research (IARC) Monographs	_____	x
By the Occupational Safety and Health Administration (OSHA)	_____	x

Explanation Carcinogenicity: Not relevant

12. ECOLOGICAL INFORMATION

For questions regarding Ecological Information refer to contact information in Section 1.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Disposal must be in accordance with applicable federal, state, and local laws and regulations (FPN). Material can be returned to container for later use, or it can be disposed of as a common non-hazardous material.

Packaging Disposal: Dispose of contaminated packaging with care. Empty containers may contain hazardous residues. Completely emptied packaging can be given for recycling

14. TRANSPORT INFORMATION

The product is not covered by the international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID) and therefore no classification is required.

15. REGULATORY INFORMATION

For Regulatory information refer to contact EnGro Corporation Limited

16. OTHER INFORMATION

Reference Sources:

1. Genium Publishing Corporation, MSDS No. 718, August, 1990 Hawley's Condensed Chemical Dictionary, 11th edition, 1987.
2. MSDS Serial Number: BTXYJ, 09 Nov' 90 California Microfine cement Co. US. COLTON.
3. In-house test reports of EnGro Central Laboratory

These SDS summaries at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since EnGro Corporation Limited cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use the product in the workplace.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company. Our responsibility for product as sold is subject to our standard term and conditions, a copy of which is sent to our customers and is also available upon request.

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Note: EnGro Corporation Limited does not certify the data on the SDS. The certified values for this material are given only as a reference from the EnGro Corporation Certificate of Analysis.