

Material Safety Data Sheet (MSDS / SDS)

Calcium Aluminate Cement (CAC) - 40% Al₂O₃ Grade

SECTION 1: Identification

Product Name	Calcium Aluminate Cement (High-Alumina Cement), 40% Al ₂ O ₃ Grade
Synonyms	CAC, High-Alumina Cement, Calcium Aluminate Cement, Refractory Cement
CAS No.	Mixture - primary components Al ₂ O ₃ (1344-28-1) and CaO (1305-78-8)
Recommended Use	Hydraulic binder for refractory castables, rapid-hardening concrete and chemically-resistant construction applications
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India - 248001
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SECTION 2: Hazard(s) Identification

GHS Classification: Skin Irritation Category 2 (H315); Serious Eye Damage Category 1 (H318); Specific Target Organ Toxicity - Single Exposure, Respiratory Irritation Category 3 (H335)

Signal Word: Danger

Hazard Statements:

- H315 - Causes skin irritation
- H318 - Causes serious eye damage
- H335 - May cause respiratory irritation
- Note: some cement products may additionally carry H317 (may cause an allergic skin reaction) if hexavalent chromium (Cr VI) is present above the applicable threshold - confirm against the batch COA (see Section 15)

Precautionary Statements:

- P260 - Do not breathe dust

- P264 – Wash hands thoroughly after handling
- P271 – Use only outdoors or in a well-ventilated area
- P280 – Wear protective gloves/eye protection/face protection
- P302+P352 – IF ON SKIN: Wash with plenty of water
- 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/doctor
- P333+P313 – If skin irritation or a rash occurs, get medical advice/attention

SECTION 3: Composition / Information on Ingredients

Component	CAS No.	Concentration (w/w)
Calcium Aluminates (CaAl ₂ O ₄ , CaAl ₄ O ₇ and related phases)	–	≈ 80-85%
Free Lime (CaO)	1305-78-8	< 5%
Silica / Iron Oxide (residual)	–	< 10% (combined)

SECTION 4: First-Aid Measures

Eye Contact

Rinse immediately and continuously with plenty of water for at least 15-20 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Get immediate medical attention – cement dust can cause serious, sometimes delayed-onset eye damage, especially once wetted (forms an alkaline paste).

Skin Contact

Remove contaminated clothing. Wash affected area with plenty of water. Get medical attention if irritation, burning sensation, or a rash develops – wet cement in contact with skin (e.g. inside gloves or boots) can cause chemical burns that are not immediately painful.

Inhalation

Move to fresh air. Seek medical attention if coughing or respiratory discomfort persists.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. Give water to drink if conscious. Seek medical attention if a large quantity is

ingested or discomfort occurs.

SECTION 5: Fire-Fighting Measures

- Non-combustible, non-flammable inorganic material; does not itself burn or support combustion
- Suitable extinguishing media: use media appropriate to the surrounding fire
- No specific fire or explosion hazard associated with this product

SECTION 6: Accidental Release Measures

- Avoid generating dust during clean-up; use damp cleaning methods or HEPA-filtered vacuum where practical
- Avoid contact with moisture during clean-up where practical – wetting triggers the cement's exothermic hydration/hardening reaction
- Sweep or vacuum dry material into a suitable container for reuse or disposal
- Prevent entry into drains or waterways – can raise water pH
- Wear appropriate PPE (chemical goggles, gloves, dust mask) during clean-up

SECTION 7: Handling and Storage

- Avoid contact with eyes and skin; avoid generating and inhaling dust
- Wear chemical splash goggles (not just safety glasses) given the serious eye damage classification
- Store in a dry, covered area away from moisture – product is hygroscopic and will begin to hydrate/degrade if exposed to moisture
- Keep bags/containers tightly sealed when not in use
- Observe recommended shelf life (approx. 6-12 months in sealed packaging) – do not use significantly aged product without re-testing

SECTION 8: Exposure Controls / Personal Protection

Occupational

General cementitious/nuisance dust reference: 10 mg/m³ total

Exposure Limits	dust / 5 mg/m ³ respirable fraction, 8-hr TWA – confirm current jurisdiction-specific limit
Engineering Controls	Local exhaust ventilation at dust-generating points (bag dumping, mixing, batching)
Eye/Face Protection	Chemical splash goggles required – this product causes serious eye damage
Hand Protection	Chemical-resistant gloves required; avoid prolonged contact with wet cement inside gloves/boots
Respiratory Protection	Dust mask (N95 or equivalent) recommended in dusty conditions

SECTION 9: Physical and Chemical Properties

Property	Unit	Value
Appearance	–	Grey to dark grey/black powder
Odour	–	Odourless
pH (Aqueous Paste)	–	11 – 12.5 (strongly alkaline once wetted)
Bulk Density	g/cm ³	1.0 – 1.3
Reaction with Water	–	Exothermic hydraulic reaction (hardens) – not a simple dissolution
Melting Point	°C	Not applicable at accessible temperatures (refractory-grade material, decomposes/reacts rather than melts)

SECTION 10: Stability and Reactivity

- Stable when kept dry

- Reacts exothermically with water (hydraulic hydration reaction) – this is the product's intended function, not a hazard under controlled use, but rapid/uncontrolled wetting of bulk material can generate significant heat
- Incompatible with strong acids – reacts, releasing heat
- Avoid prolonged exposure to atmospheric moisture during storage

SECTION 11: Toxicological Information

- Mechanical and mild chemical irritant to skin from alkalinity and abrasive particle nature
- Serious eye damage risk, particularly once cement dust combines with moisture (e.g. sweat, tears) to form an alkaline paste – damage can be delayed and initially painless
- Repeated or prolonged skin contact with wet cement/alkaline paste can cause irritant contact dermatitis; in sensitised individuals, allergic contact dermatitis (“cement dermatitis”) can occur if hexavalent chromium is present above the sensitisation threshold
- Not classified as carcinogenic, mutagenic, or toxic to reproduction based on available information for the cement itself
- Confirm crystalline silica content via the batch COA if used in silica-regulated applications – content is generally low/trace in CAC compared to some other refractory raw materials, but should be verified

SECTION 12: Ecological Information

- Alkaline material – can raise water pH if released to waterways in bulk, which may be harmful to aquatic organisms via pH shock rather than direct chemical toxicity
- Not classified as acutely hazardous to aquatic organisms under standard GHS criteria
- Not expected to bioaccumulate

SECTION 13: Disposal Considerations

- Dispose of product and packaging in accordance with local, state and national regulations
- Avoid release to waterways due to pH impact
- Not typically classified as hazardous waste under standard criteria; confirm local requirements before disposal

SECTION 14: Transport Information

UN Number	Not applicable – not classified as Dangerous Goods
Proper Shipping Name	Not regulated for transport (IMDG / ADR / IATA / RID)
Transport Hazard Class	Not classified
Packing Group	Not applicable
Environmental Hazards	Avoid bulk release to aquatic environment – alkaline

SECTION 15: Regulatory Information

- Widely listed on major chemical inventories (TSCA, REACH, ECL, etc.) as an existing/registered substance
- EU REACH Annex XVII restricts hexavalent chromium (Cr VI) in cement placed on the EU market to below 2 ppm (as a proportion of total dry weight) – buyers supplying into the EU should confirm the batch Cr(VI) content and reducing-agent status via the COA
- Buyers/importers should confirm labelling and inventory requirements applicable to their specific jurisdiction and end-use

SECTION 16: Other Information

Revision Date: 18 July 2026

This SDS has been compiled based on general industry data and knowledge for Calcium Aluminate Cement products of this type as commercially supplied. It is intended as a general handling and safety guide and does not replace a batch-specific SDS from the manufacturing mill, which should be obtained and reviewed for each shipment where regulatory submission is required, particularly regarding confirmed hexavalent chromium content for EU-market shipments.

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