



Dengfeng Smelting Materials produces high-purity calcium aluminate cement with Al_2O_3 content levels of 50%, 60%, 70%, and 80%. It is free from any organic additives, allowing for complete design flexibility and eliminating potential chemical incompatibility. This product is widely used in the refractory industry.

The 50% content calcium aluminate cement (CA50) is available in three types:

1. Aluminate Cement For Refractories Ca50 Series
 - CA50-II(G6), CA50-III(G7), CA50(N), CA50-IV(G9), CA50 (Fused)
2. Chemical Building Materials Calcium Aluminate Cement Series:
 - CA50-J6, CA50-J7, CA50-J9, CA50-JN, CA50-J Fused
3. Special Aluminate Cement For Cast Pipes (PI-ZY)

CA50 is a well-established product series. Our process allows us to produce CA50 cement in five different strength ranges, providing opportunities for developing products with consistent and predictable characteristics. The CA50 series calcium aluminate cement has main mineral phases of calcium aluminate (CA) and dicalcium aluminate (CA₂), which is an essential binder in the production of high, medium, and low-grade monolithic refractories. Due to its excellent physical and chemical properties, it is widely used in metallurgy, building materials, petrochemical, power plants, boilers, and other industrial furnace industries.

The chemical building materials calcium aluminate cement series has more stringent control over various parameters to achieve better product performance. The combination of calcium aluminate cement and Portland cement can utilize the early strength characteristics of the calcium aluminate cement while retaining the later strength and durability of Portland cement. The reaction of calcium aluminate cement with Portland cement and gypsum can rapidly form calcium sulfoaluminate, which, through appropriate proportions, can form quick-hardening, shrinkage-compensating, and other properties. Combined with various chemical additives, this cement is widely used in the preparation of various commercial mortars, such as tile adhesives, thin-set adhesives, self-leveling floor materials, sealants, waterproofing materials, fast-setting mortars, repair mortars, bonding mortars, and pouring mortars.

Special Aluminate Cement For Cast Pipes(PI-ZY) is a product developed by Dengfeng Smelting Materials specifically for centrifugal casting of sewage pipes with steam curing processes. The mortar made with this cement has excellent resistance to sewage corrosion, high flowability, and long-lasting flow time. It meets the requirements for good workability and non-clogging during the centrifugal forming process of pipes. Additionally, its broad gray-to-sand ratio adaptability offers possibilities for enhancing efficiency for users.

The Pure Calcium Aluminate Cement Series with 60%, 70%, and 80% Al_2O_3 content includes three types:

1. CA65P, CA68
2. NA71, CA70, CA75
3. CA80

In the refractory industry, pure calcium aluminate cement is primarily used as a binder for preparing refractory castables with temperatures ranging from 1500 ° C to 1800 ° C, and even exceeding 1800 ° C, especially for low-cement and ultra-low cement castables.

Aluminate Cement For Refractories Ca50 Series

50% Al₂O₃ Cement - Product Data

	CA50-II(G6)	CA50-III(G7)	CA50(N)	CA50-IV(G9)	CA50(FUSED)
Refractoriness(°C)	1420-1460	1420-1460	1420-1460	1420-1460	1420-1460
Al ₂ O ₃ (%)	≥50	≥50	≥50	≥51	≥51
CaO (%)	≥33.0	≥33.0	≥34.0	≥33.5	≤38
SiO ₂ (%)	≤9.0	≤9.0	≤7.0	≤6.5	≤6.0
Fe ₂ O ₃ (%)	≤3.0	≤3.0	≤2.5	≤2.5	≤2.5
Alkali content (%)	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5
325 mesh sieve (%)	< 20	< 20	< 10	< 8	< 12
Specific Surface of Cement-Blaine Method (m ² /kg)	≥300	≥300	≥350	≥400	≥400
Initial Setting Time (min)	≥30	≥30	≥30	≥90	≥120
Final setting time(min)	≤360	≤360	≤360	≤360	≤480
6-8h Flexural (MPa)	-	-	≥4.0	-	≥4.5
24h Flexural (MPa)	≥6.5	≥7.5	≥7.5	≥8.5	≥10.0
72h Flexural (MPa)	≥7.5	≥8.5	≥8.5	≥9.5	≥11.0
6-8h Compressive (MPa)	-	-	≥30.0	-	≥35.0
24h Compressive (MPa)	≥50.0	≥60.0	≥60.0	≥70.0	≥75.0
72h Compressive (MPa)	≥60.0	≥70.0	≥70.0	≥80.0	≥80.0

The CA50 series alumina cement primarily consists of the mineral phases calcium aluminate (CA) and dicalcium aluminate (CA₂). It is an essential binder in the production of high, medium, and low-grade monolithic refractories. Due to its excellent physical and chemical properties, CA50 series cement is widely used in various industries such as metallurgy, building materials, petrochemicals, power plants, boilers, and other industrial furnaces.

CA50-II(G6)、CA50-III(G7)

- Formulation of water-rich cement castables, low cement cast-able, lightweight refractory castables, refractory spray materials, etc.
- Preparation of temporary, fast-build, emergency repair, and supporting concrete. Also prepares mortar for sewage pipe inner wall coatings.

CA50(N)

- The CA mineral phase content is high, with higher early strength.
- Formulation of quick-hardening high-strength refractory castables, low-cement refractory castables, alkali-resistant refractory castables, etc.
- Quick production of high-strength refractory precast blocks, etc.
- Formulation of temporary rapid construction, emergency repair, support concrete, etc.

CA50-IV(G9)

- It has a stable CA to CA₂ ratio, lower impurity (SiO₂, Fe₂O₃, R₂O) content, and exhibits higher age strength and good workability.
- Formulation of medium and low cement castables, such as fluidized bed boiler lining, cement kiln preheater, kiln door cover, cooler lining, alumina fluidized roasting furnace lining, heating furnace, homogeneous furnace lining, etc.

CA50(FUSED)

- The CA mineral phase content is extremely high, has excellent workability, ultra-high early strength, stable performance, and is resistant to biogenic acid corrosion.
- Formulation of quick-setting high strength refractory castables, etc.
- Formulation of water-rich cement castables, etc.

The cement production process at Dengfeng Smelting Materials is designed to achieve maximum consistency. Through precise and stringent control, we can accurately ensure the refractory quality and performance of the cement. This approach significantly reduces response times and enhances production flexibility, allowing us to deliver superior service.

Cement Testing and Quality Control

Dengfeng Smelting Materials' aluminate cement is engineered to actively meet customer requirements. Key qualities of high-performance cement include setting consistency, flowability, strength, particle size distribution, and precise chemical composition. Our quality control system is meticulously designed to ensure consistent product quality, enhancing the reliability and performance of customers' applications.

Our cement undergoes rigorous testing to meet standards, including flowability, setting time, and strength assessments based on the Chinese GB201/T2015 standard with standardized sand. Tests include specific surface area, initial and final setting times, flexural and compressive strength. Chemical composition is verified through X-ray fluorescence spectroscopy (XRF).

Packaging Options

- Bulk bags
- Small bags

Shelf Life and Storage

To ensure longevity, all Dengfeng Smelting aluminate cements should be stored in original, sealed packaging under dry conditions. Experience shows that even after prolonged storage, performance remains unaffected if the product is kept in optimal conditions. However, direct sunlight may degrade plastic packaging over time, necessitating additional protection to avoid UV exposure. Shrink-wrap should remain intact until use, as removing it may reduce the cement's shelf life.



This brochure provides general guidance on the basic properties and characteristics of various Dengfeng Smelting Materials products (hereinafter referred to as "Product Information") for potential customers. Dengfeng Smelting Materials makes no guarantee or warranty as to the accuracy or completeness of the Product Information in this brochure.

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