



HP-100

Powder form Accelerating Admixture

General Characteristics:

All calcium aluminate cements possess the general properties of good refractoriness and high early strength when used alone as the principal hydraulic binder. The latter property is often used in combination with other minerals such as calcium sulfate and/or Portland cement to produce high early strengths and/or shrinkage compensation through the formation of ettringite.

Composed mainly of calcium aluminates, **HP-100** can be used as the primary binder or in combination with other reactive minerals. These combinations comprise the binder in many construction products such as self-leveling floor products, fast setting patch materials, non shrink grouts and tile installation products.

HP-100 additions to Portland cement will accelerate the initial set from hours to minutes depending on the type and mill of manufactured Portland cement.

HP-100 is a refractory cement that can be used as the primary binder in mortars and concretes exposed to high temperatures. Due to a significant iron oxide content, **HP-100** should not be used in applications where reducing atmospheres are present.

HP-100 is recommended for applications requiring rapid hardening properties, resistance to abrasion and mechanical shock, resistance to chemical attack and exposure to intermediate temperatures.

Calcium aluminate cements do not release Calcium Hydroxide as a hydration product when used as the sole hydraulic compound in a formulation. This imparts good refractoriness, chemical resistance and eliminates the major cause of efflorescence.

As a binder, **HP-100** reacts with most organic and mineral additives to achieve exceptional flow with high early compressive strength.

HP-100 is a very dark gray color. Colorimetry data is available on request.

HP-100 does not contain any additives.

HP-100 does not contain crystalline silica.

Specifications:

HP-100 produced and distributed in North America adheres to the following specifications:

Chemical constituents (% by XRF chemistry)

Al ₂ O ₃	CaO	SiO ₂	Fe ₂ O ₃
≥ 37.0	≤ 39.8	≤ 6.0	≤ 18.5

- Blaine fineness: 3600-4400 cm² /g (ASTM C204)

Physical Properties (using EN-196 sand mortar)

Flow at 15 min: ≥ 30% (ASTM C1437)

Vicat Initial Set: ≥ 120 min.

Vicat Final Set: ≤ 240 min

Modified ASTM C191 - Needle weight is 1000g, needle diameter is 1.16 mm, samples immersed in water.

Compressive strength (ASTM C349)

6 hr ≥ 2900 psi (20.0 MPa)

24 hr ≥ 4900 psi (33.8 MPa)

For detailed test procedures, please contact a Kenal Chemical Technical or Quality Manager.

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Additional Physical Properties:

- Bulk density: 1.16 – 1.37 g/cm³ (72.4 – 85.5 lb/ft³)
- Specific gravity: approx. 3.24
- Residue at 90 microns (+170 mesh): < 8%
- Pyrometric cone equivalent – ASTM C24 on neat cement paste: 8–9 (≈ 2320° F or 1271° C)
- Heat of hydration
 - 6h 340 kJ/kg
 - 24h 445 kJ/kg
 - 5d 445 kJ/kg

Minor constituents (% by XRF Chemistry)

TiO₂	MgO	SiO₂	K₂O+Na₂O
< 4.0	< 1.5	< 0.4	< 0.4

- Principal mineralogical phase:
calcium aluminate CA
- Secondary phases:
C₁₂A₇, C₂S, Ferrites, C₄AF
C = CaO A = Al₂O₃ S = SiO₂ F = Fe₂O₃

Packaging & Shelf Life

HP-100 is available palletized in 94 lb bags or 3000 lb. super sacks. It is also available in bulk semi-tanker or rail car.

HP-100 packaging is designed to protect it from humidity. However, as with all hydraulic binders, it is recommended that **HP-100** not be placed outdoors or in direct contact with the ground. When correctly stored in dry conditions, the properties of **HP-100** will remain within specification limit for at least 6 months. In most cases, its properties will be retained for over a year

Technical Support

Kenal Chemical offers full technical support package to specifiers, contractors and end users, as well as technical assistance on site and after sales consultations.

Ensure the container is available for the medical attendant to examine for any relevant instructions and content details. Reseal all containers after use and ensure product is stored as instructed on the safety section of the labelling.

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