

**Ciment Fondu®** is a Calcium Aluminate specialty binder.

Calcium Aluminates power key reference functions which are ideally suited to drymix mortars for the construction industry : fast set, rapid hardening, early strengths, quick & self-drying, controlled dimensional stability, non-efflorescence.

**Ciment Fondu®** is an accelerator of Portland cement in formulated products, and is particularly recommended for mixes where speed and high performance are required.

**Ciment Fondu®** does not release free lime during hydration. In concretes and mortars of low porosity, this key property yields a good resistance to acid attack and eliminates the major cause of efflorescence.

**Ciment Fondu®** is commonly used either alone or in combination with other hydraulic binders, fillers and polymers in many high-range formulated building products. These include drymix mortars for floor preparation e.g. self-levelling compounds and screeds; tile adhesives and grouts; rapid repair or assembly of materials e.g. non-shrink grouts.

## Specifications

The specification limits are determined with an Acceptable Quality Level (AQL) of 2.5% as defined in the sampling standard ISO 3951.

The specification limits define the absolute limits of product conformity applicable for individual values.

The usual range represents typical values of production. This information is given for guidance only.

The properties of **Ciment Fondu®** produced in Europe are conform to the requirements defined in the standard EN 14647: Calcium aluminate cement.

Beyond the minimal requirements of the standard EN 14647, the French production benefits from controls and complementary requirements such as defined in the reference frame NF 002.

Chemical Composition (%)	Usual Range	Specification limit
Al <sub>2</sub> O <sub>3</sub>	37.5 - 41.0	> 37,0
CaO	35.5 - 39.0	< 41,0
SiO <sub>2</sub>	3,5 - 5,5	< 6,0
Fe <sub>2</sub> O <sub>3</sub>	13,0 - 17,5	< 18,5
TiO <sub>2</sub>	-	< 4,0
MgO	-	< 1,5

Other constituents (%)	Specification limit
S- as ions	≤ 0,10
Cl- as ions	≤ 0,10
Na <sub>2</sub> O + 0,658 K <sub>2</sub> O, equivalent of alkali	≤ 0,4
SO <sub>3</sub>	≤ 0,5

• The chemical characteristics of **Ciment Fondu®** have been determined according to EN 196-2: Method of testing cement – Part 2: Chemical analysis of cement

**Notice:** the characteristics listed are indicative only and shall be understood as example. IMERYS does not warrant the accuracy, fitness for purpose or update of any information disclosed herein. The purchaser is solely responsible for the verification of the suitability of indicated products for his specific purposes and needs. Any warranties of any kind on the suitability and fitness of the products are excluded.

## Specifications

### Mineralogical composition

X-ray diffraction analysis :

Main phase<sup>(\*)</sup> : CA

Secondary phases<sup>(\*)</sup>: C<sub>12</sub>A<sub>7</sub>, C<sub>2</sub>AS, C<sub>2</sub>S, C<sub>4</sub>AF

(\*) C=CaO, A= Al<sub>2</sub>O<sub>3</sub>, S=SiO<sub>2</sub>, T=TiO<sub>2</sub>, F=Fe<sub>2</sub>O<sub>3</sub>, \$=SO<sub>4</sub>

Fineness	Usual Range	Specification limit
Blaine specific surface area (cm <sup>2</sup> /g)	2850 - 3450	> 2700

• Determined according to EN 196-6 : Methods of testing cement – Part 6: Determination of fineness

### Workability

The workability of **Ciment Fondu®** has been determined by measuring the flow properties using the ASTM C230 flow table. The test is carried out using a standard siliceous sand mortar.

	Specification limit
Flow after 15 min, %	> 30

Preparation of the sand mortar according to the standard EN 196-1 except: 1350g standard sand, 500g cement, 225g water, (W/C = 0,45). Tested at 20°C by 25 shocks in an ASTM cone mould, d1 (diameter of base) = 100 mm. % of flow = d2 (mm) - d1 (mm).

Neat paste setting time	Usual Range	Specification limit
Initial set (min)	180 - 300	> 90

Carried out according to EN 196-3: Methods of testing cement - Part 3: Determination of setting times and soundness  
Vicat test equipment using 300 g weight ; temperature 20°C ; at > 50% relative humidity.

Mortar setting time	Usual Range	Specification limit
Initial set (min)	130 - 210	> 120
Final set (min)	140 - 220	< 240

• Composition of the sand mortar according to the standard EN 14647, 1350g standard sand, 500g cement, 200g water.  
Preparation of the mortar according to EN 196-1.  
• Setting time measurements according to EN 196-3: Vicat apparatus but using a 1000 g test weight ; Temperature 20°C ; samples immersed in water or at >50% relative humidity.

### Mechanical strength

Compressive strength (MPa)		
Age	Usual Range	Specification limit
6h	35 - 50	> 30
24h	60 - 80	> 50
28 days	80 - 95	> 60

• Composition of the sand mortar according to the standard EN 14647, 1350g standard sand, 500g calcium aluminate cement, 200g water (W/C = 0,4).  
• Preparation and testing of the mortar according to EN 196-1: Test prisms 40 x 40 x 160 mm ; temperature 20°C ; prisms cured for 6 hours at > 90% relative humidity, followed by immersion in water.

### Additional information

This information is given for guidance only.

### Other physical characteristics

Bulk density : 900 - 1300 kg/m<sup>3</sup>

Specific gravity : 3.2 - 3.3 g/cm<sup>3</sup>

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## Storage and Shelf life

For optimal performance, **Ciment Fondu®** should be stored in dry conditions and not in direct contact with the ground.

When stored in these conditions, performance is guaranteed for a minimum of 6 months – while experience shows that properties can be maintained for more than one year.

In the case of bags : the shelf life in unopened original paper bags is 6 months.

Specific packaging offers additional protection, and increases shelf life to 12 months; this will be noted directly on the bag.

## Certification

**Ciment Fondu®** is produced and controlled within a quality management system that is certified according to ISO 9001.

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