

# SECAR® 71

## 1 Description

SECAR® 71 is a versatile hydraulic binder with an alumina content of approximately 70%, which is designed to be used at temperatures in excess of 1400 °C.

SECAR® 71, a pure cement manufactured by the sintering process, contains only calcium aluminates. The high calcium aluminate content provides characteristics ideally suited for refractory applications where rapid hardening combined with excellent mechanical resistance and high temperature performance are required.

SECAR® 71 does not contain any additives. It shows outstanding additive compatibility and tolerance to dosage rates in all types of deflocculated systems ensuring flexibility for optimized formulations. Its use is recommended for high technology refractories such as low cement, ultra low cement, self flow castables and wet shotcrete products.

The rheological properties of SECAR® 71 are well adapted for all types of placing methods, particularly for casting and gunning.

The chemistry of SECAR® 71 is particularly suited to conditions where purity is essential i.e. carbon monoxide and hydrogen atmospheres.

SECAR® 71 is produced and controlled within a quality management system that is certified according to ISO 9001.

## 2 Specifications

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

The usual range represents typical values of our production.

## Chemical composition

### Main constituents (%)

	Usual range	Specification
Al <sub>2</sub> O <sub>3</sub>	68.7 - 70.5	> 68.5
CaO	28.5 - 30.5	< 31.0
SiO <sub>2</sub>	0.2 - 0.6	< 0.8
Fe <sub>2</sub> O <sub>3</sub>	0.1 - 0.3	< 0.4
MgO	< 0.5	-
TiO <sub>2</sub>	< 0.4	-
SO <sub>3</sub>	< 0.3	-
K <sub>2</sub> O+Na <sub>2</sub> O	< 0.5	-

♦ Determined according to the standard EN 196-2: Methods of testing cement - Chemical analysis of cement.

## Fineness

	Usual range	Specification
Blaine specific surface (cm <sup>2</sup> /g)	3800 - 4400	> 3500
Reject at 90 microns (%)	-	< 5

♦ Determined according to the standard EN 196-6 : Methods of testing cement - Determination of fineness.

## Workability

The workability of SECAR® 71 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
Flow after 30 min (%)	> 60

♦ Composition and preparation of the sand mortar is determined by standard EN 196-1: cement 450g, sand 1350g, water 225g (W/C = 0.5).

♦ Tested after 30 minutes with 25 shocks in a conical ASTM mould, d<sub>1</sub> (diameter of base) = 100mm. % of flow = d<sub>2</sub> (mm) - d<sub>1</sub> (mm).

## Setting time

	Usual range	Specification
Initial set (min)	190 - 240	> 165
Final set (min)	200 - 260	< 300

- Composition and preparation of the sand mortar is determined by standard EN 196-1: cement 450g, sand 1350g, water 225g (W/C = 0.5).
- Setting time measurement according to NF P15-431: Vicat apparatus standard EN 196-3 but using a 1000 g test weight; temperature 20°C; samples immersed in water or cured at > 90% relative humidity.
- Final setting time measured in accordance with NF P 15-330: the Vicat needle no longer penetrates the mortar.

## Mechanical resistance

Compressive strength (MPa)		
Age	Usual range	Specification
6 h	15 - 30	> 10
24 h	40 - 55	> 30

- Composition and preparation of the sand mortar according to EN 196-1: cement 450g, sand 1350g, water 225g (W/C = 0.5).
- Test conditions according to EN 196-1; test prisms 40 x 40 x 160 mm; temperature 20°C; prisms cured for 24 hours at > 90% relative humidity, followed by immersion in water.

## 3 Additional information

This information is given for guidance only.

### Mineralogical composition

- Principal phase\*: CA, CA<sub>2</sub>
- Secondary phase\*: C<sub>12</sub>A<sub>7</sub>, A $\alpha$

\* C=CaO, A=Al<sub>2</sub>O<sub>3</sub>

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## Other physical characteristics

- Pyrometric cone equivalent: 1590 - 1620°C
- Bulk density: 900 kg/m<sup>3</sup>
- Density: 2.90 - 3.05 g/cm<sup>3</sup>

## 4 Storage and shelf life

As with all hydraulic binders, SECAR® 71 must be stored in dry conditions, off the ground. In this case, it will retain its properties for at least 6 months. In many instances, experience has demonstrated that properties are retained for more than one year.