

Ultrafin 16

Ultrafin 16 (UF 16)



APPLICATIONS

Ultrafin 16 is a micro cement with excellent penetration characteristics ideal for extremely demanding injections. It has been extremely finely ground to a specific particle size distribution, that makes it ideal to meet the requirements for demanding injection applications. The unique combination of the special grinding process and the specially selected clinker produce a cement with an excellent penetration capacity in rock and soil.

Ultrafin 16 is a sulphate resistant, chromate reduced and low alkaline injection cement.

INJECTION CHARACTERISTICS

Ultrafin 16 makes it possible to manufacture injection grout with extremely good flowing properties even at low water content ratios. Test results show excellent stability, flow and filtering characteristics at temperatures of 20°C and 8°C.

STANDARDS AND INSPECTION

Ultrafin 16 complies (with the exception of setting time) with the requirements in SS-EN 197-1, part 1: *Composition, Specifications and Conformity Criteria for Common Cements*.

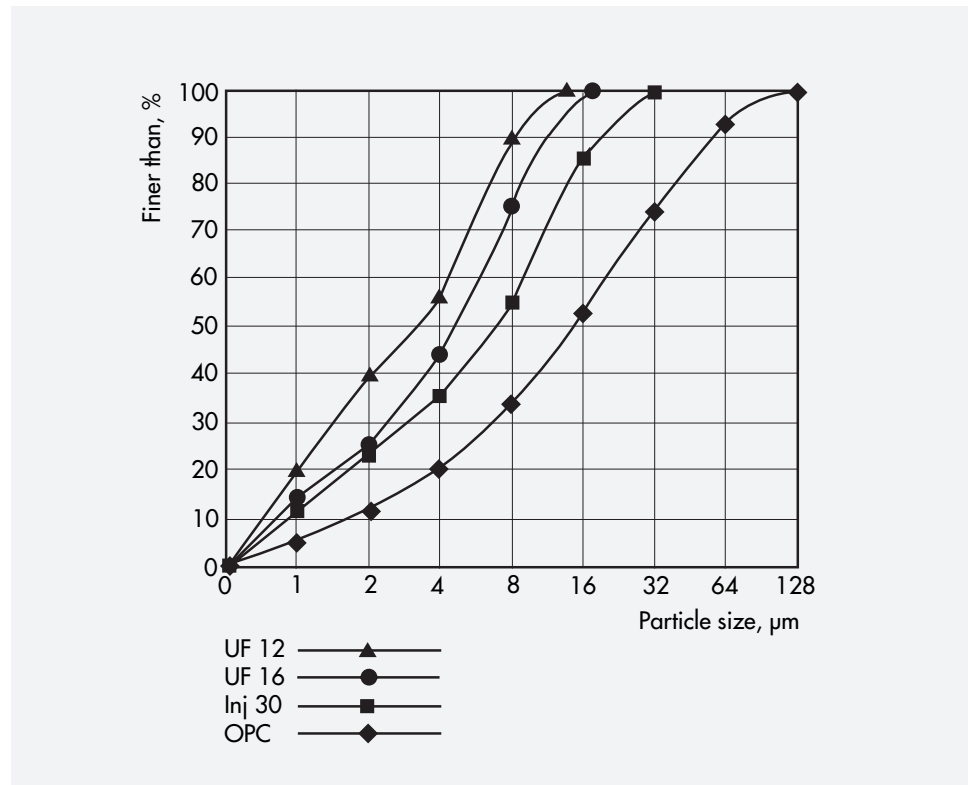
Designation in accordance with SS-EN 197-1, SS 13 42 03 and SS 13 42 04: CEM I 52.5 R LA SR.

QUALITY AND ENVIRONMENTAL MANAGEMENT SYSTEM

Production and sales are covered by Cementa's quality system in accordance with SS-EN ISO 9002. The system indicates quality supervisors, routines for in-house inspection, and documentation routines. The buyer is fully entitled to make sure that the seller implements quality routines in accordance with the system. Cementa is also environmentally certified in accordance with SS-EN ISO 14001 and continuously works for the environmental improvement of products and production. Both systems are certified by DNV, Det Norske Veritas. The certificate for the quality system is No. 2001-SKM-AQ-1623 and for the environmental management system is No. 2001-SKM-AE-480.

MANUFACTURING

Ultrafin 16 is manufactured at Cementa's Degerhamn plant. Ultrafin 16 is based on the same clinkers as Anlæggingscement. The grinding is done in mills specially developed for Ultrafin cement.



Example of particle size distribution.

PACKING AND DISTRIBUTION

Ultrafin 16 is supplied in 20 kg sacks and in big bags. The 20 kg sacks are supplied in unit loads of 40 sacks on pallets completely enclosed in plastic. Ultrafin 16 is packed and supplied direct from the plant in Degerhamn.

STORAGE

Ultrafin 16 is a finely ground product. Its high reactivity makes it more sensitive than normal cement. Storage in environments with damp air or direct contact with ground moisture damages the cement very quickly (within days or weeks). The reduction of chromate means that it successively loses its effect and Ultrafin 16 should therefore not be stored for longer than six months.

SETTING TIME AND BET SPECIFIC SURFACE AREA

	Setting time, guideline value (min)	BET specific surface, area guideline value (m ² /kg)
Ultrafin 16	70	1 600

The specific surface area of Ultrafin 16 is determined using the BET method (nitrogen absorption). The product has a very high specific surface area and difficult to determine using the traditional Blaine method.

PARTICLE SIZE DISTRIBUTION

Ultrafin 16 has a particle size distribution where 95 percent of the material is less than 16 µm. The particle size distribution is indicated in the above figure.

SULPHATE RESISTANCE

Ultrafin 16 complies with the low C₃A content (< 3.5 percent by weight) requirement for sulphate resistant cement in accordance with SS 13 42 04. Ultrafin 16 normally has a tricalcium aluminate (C₃A) content of 2 percent.

ALKALI-SILICA REACTIONS

Ultrafin 16 complies with the requirement for low-alkaline content in accordance with SS 13 42 03 (≤ 0.6 percent by weight calculated as equivalent to Na₂O). The cement therefore does not contribute to the concrete damaging reactions with alkali reactive aggregate. Ultrafin 16 normally has an alkali content of approx. 0.5 percent.

CHROMATES

Portland cement normally includes small quantities of chrome compounds of both the sparingly soluble and soluble types. The latter are considered to be able to contribute to hypersensitivity to chrome and cause eczema in persons already allergic. Since 1983, therefore, Cementa has produced cement with a

reduced chromate content. Nevertheless, persons with a developed hypersensitivity to chrome should avoid all contact with cement.

PHYSICAL PROPERTIES

Compact density	approx. 3 100–3 200 kg/m ³
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Bulk density	800–1 500 kg/m ³
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CHEMICAL PROPERTIES

The chemical composition of the different types of cement manufactured by CEMENTA in Degerhamn is basically the same, but can vary in detail. A type analysis is obtainable upon request.

MgO	max. 5.0 percent by weight
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SO ₃	max. 3.5 percent by weight
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Chlorides, calculated as Cl	max. 0.1 percent by weight
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HEALTH RISKS

Cement should be stored out of reach of children. It is dangerous if consumed. If cement gets into the eyes it can lead to serious eye injuries. Moist cement forms calcium hydroxide which is an irritant to the skin. For detailed information and safety instructions, please see the *Material Safety Data Sheet*.

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