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## INSTRUCTIONS FOR THE PROCESSING OF SELF FLOWING CASTABLES





# FLOBET

*The FLOBET dry refractory castables have been designed for the production of monolithic lining and refractory prefabricated parts. The quality of refractory product made of these mixtures and thus its durability in operation is highly effected by the quality of the mixtures processing, their location, treatment and setting into operation. Therefore refractory castable mixtures shall be processed very carefully.*

*Self-flowing castable FLOBET belongs to deflocculated cement castables. The majority of the production is formed by the low cement castables (LCC) or ultra low cement castables (ULCC).*

### Preparation of refractory castable mixture

Delivered castable dry mix FLOBET contains all compounds with the exception of water. Mixture is poured from bag into the prepared mixer and after one minute of mixing in dry condition specified quantity of water is added and the mixture is stirred for further 6 minutes. The prepared mixture of deflocculated castable seems to be drier compared to usual dense castable because it shows more extensive thixotropic flow during vibrations.

-  Put always the content of the whole bag into the mixer. Long preparation and handling can cause the separation of some components in the bag.
-  Charge water shall have quality of potable water. Industrial water is not allowed.
-  The mixer and used tools shall be clean, rests of Portland cement and lime shall be removed.
-  Mixers with forced run of paddles are used; intensive mixers with high-speed swirl elements are recommended. It is not allowed to use common free-fall concrete mixers or to mix the castable mixture manually.

### Charge water

The content of charge water effects the properties decisively, esp. strength as well as density and porosity. Required parameters are obtained by keeping the correct quantity of water, which is specified on bag label.

## Mixture processing

Mixture processing means the location of the mixture on a certain spot (boarding, forms, moulds) and its consolidation. The form shall be firm (especially during vibrations) and easy-to-disassemble. The boarding should not suck water off from the wet mixture surface.

Consolidation is carried out by self-flowing effect. If only complicated formwork or thick anchor net is used then help by rodding is recommended. SFC castable forms due to thixotropic flow quite smooth surface, which do not need any finishing with a float or a trowel.

The mixtures of deflocculated castables shall be processed within 30 minutes after adding of water in temperature about 20°C. The rising temperature decreases the period of processing (start of setting).

## Castable curing

The fresh placed consolidated castable shall be protected against excessive heat, frost, shocks and vibrations. Shocks and vibrations are not allowed during the period of setting.

While setting the castable need not be sprinkled but it is advised to protect the product against excessive drying for the period of 3 days, e.g. by covering with a foil.

Keep the temperature in the range from 15 to 20°C during setting and hardening.

## Removal of forms

Forms can be removed immediately after castable setting, obviously after 24 hours. Complicated structures after 35 - 40 hours. Smaller pre-manufactured pieces can be removed after 4 - 6 hours in compliance with the conditions. This period depends above all on the temperature of used materials and ambient temperature of the environment where the castable sets.

## Drying and putting into operation

Hard-set castable includes a part of charge water in chemically combined and uncombined (free) form. The content of uncombined water varies according to the quantity of water evaporated during storage. Both combined and free water shall be removed during the first heating and putting the lining into operation. Drying and the first heating shall be slow which allows water to disappear. Fast heating could cause the cracking of castable and decrease of its strength.

The speed of heating, drying and tempering of refractory monolithic lining is a difficult task depending on many factors as the mass of the lining, evaporated surface, speed of vapour exhaustion, compactness of used castable, etc. The designer usually specifies drying curves of the lining in new aggregates, during repeated procedures (repairs) it is carried out according to experience.

In the case of lack of experience with drying please contact our specialists or specialized companies.