

# MasterRoc<sup>®</sup> MS 685

Lubricating Aid, VMA and Strength Enhancer for Concrete

## Material Description

**MasterRoc<sup>®</sup> MS 685** is a liquid admixture based on a suspension of amorphous silica.

These ultra-fine particles start working as soon as they are incorporated in the mix. The texture of the slurry is similar to cement paste and creates a stable microscopic mineral.

This texture provides improved cohesion, lessens porosity and increases “compactness” of the mix.

## Areas of Application

- Pump concrete / semi dry mixes
- Mixes exposed to high friction
- Concrete exposed to frequent wetting
- Concrete with fine architectural finish
- High performance concretes
- Sprayed concrete
- Injection mortars
- Self-compacting concrete
- Improved flexural strength

## Characteristics and Benefits

The amorphous silica starts working in a pozzolanic manner as soon as it is incorporated in the cement-based mix and therefore gives texture to the paste.

This enhanced texture improves the whole rheology of the concrete mix (or mortar) and prevents migration of the water, therefore:

- Improves cohesion
- Reduces pump pressures
- Reduces the tendency for a mix to segregate

- Reduces porosity
- Improves the overall quality of the concrete
- Corrects a lack of fine elements within a grading curve.
- Improves surface finish

## Packaging

1000 liter IBCs, in 205 liter drums and 25 liter containers

## Dosage

MasterRoc<sup>®</sup> MS 685 should be used at a dosage of between:

- By Volume - 0.25 to 2.0 liters per 100 kg of cement (binder)
- By Mass - 0.325 to 2.6 kg per 100 kg of cement (binder)

The dosage will vary according to the quantity of fines within a mix and the resultant rheology required for the application. Preliminary tests will help to find the optimum dosage.

## Recommendations

MasterRoc<sup>®</sup> MS 685 should be incorporated in the mixing water or added to the mix after the water has been dispersed. It should not be added to the dry materials.

## Technical Properties

Color	Opalescent
Odor	No smell or taste
Density (20° C)	1.3 g/cm <sup>3</sup>
Viscosity	< 15 cPS
Solid Content	40 %
pH-Value	9.4

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## Application Procedure

### Viscosity Modifier

Due to its ultra-fine particle size MasterRoc<sup>®</sup> MS 685 “completes” the grading curve within high flow and selfcompacting concretes. This greatly improves the support within high flow mixes and prevents segregation and bleeding. The inclusion of MasterRoc<sup>®</sup> MS 685 also improves the surface finish.

### Strength Enhancer

By optimizing the mix and incorporating MasterRoc<sup>®</sup> MS 685 along with a PCE based water reducer both the compressive and flexural strength can be improved. Normally, a concrete achieves a flexural strength that is 1/10th of its compressive strength whilst the optimized mix can achieve an improved ratio.

### Lubricating Aid

By the inclusion of MasterRoc<sup>®</sup> MS 685 in “extruded or slip-formed” precast concretes the surface friction is greatly reduced. Both, the force required to “initiate” travel and the force required to travel along the casting bed are typically reduced by 30%. This greater efficiency along with a reduction in the cement content, as the air-entrainer previously incorporated for lubrication is removed, shows significant reduction in the cost of extruded/slip-formed precast units.

## Storage and Shelf Life

MasterRoc<sup>®</sup> MS 685 should be stored in a place where temperature does not drop below +5°C. If product has frozen, thaw at +3°C and agitate until completely reconstituted. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.

For specific storage advice, consult Master Builders Solutions Construction Chemicals Technical Services Department.

Up to 18 months if stored according to manufacturer's instruction in unopened containers.

## Health and Safety

The use of gloves, eye protection and safety clothes are recommended. Any physical contact (e.g., skin or eyes) with the product should be avoided. If contact with skin occurs, wash thoroughly using soap and water. In case of eye contact, rinse thoroughly with an eyebath filled with water and seek medical advice. The cured product is harmless and inert.

Uncured products should not enter the local drainage system. Spillage must be collected using absorbent materials such as sawdust and/or sand and disposed of in accordance with local regulations.

For further information please refer to the Safety Data Sheet or contact your local Master Builders Solutions representative.

## Disclaimer

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

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