

# MasterFlow<sup>®</sup> 190

## Shrinkage compensated fluid grout for cables and anchors

### DESCRIPTION

**MasterFlow 190** is a shrinkage compensated pre-bagged powder requiring only the addition of water to produce a fluid and high ultimate strength grout with extended workability retention even at high temperatures.

### APPLICATIONS

- Post-tensioned structures
  - Cable duct grouting
  - Cable anchoring
- Underground structures
  - Rock bolts
  - Cable anchors
  - Grouted Fore-poling
- Geotechnical
  - Slope stabilisation
  - Retaining wall tie backs

### ADVANTAGES

- High early and ultimate strength ensures the permanence and safety of these critical installations.
- Good workability retention ensures complete encapsulation of tendons even when grouting long ducts in high ambient temperatures.
- The stable rheology, shrinkage compensation and low water content ensure excellent corrosion protection of steel tendons.
- High bond to steel increases the pull out failure load.

### PACKAGING

**MasterFlow 190** is packed 25kg bags.

### ESTIMATING DATA

25kg of **MasterFlow 190** mixed with 8.625 litres of water will yield approximately 16.50 litres.

### TYPICAL PROPERTIES\*

Typical Properties to BS EN 447: 1997 (0.345 water / powder ratio)		
<b>Fluidity</b> BS EN 445: 1997 3.2 Flow Cone	Immediately after Mixing	30 Minutes after Mixing
Efflux time	20 seconds	24 seconds
<b>Bleed</b> BS EN 445: 1997 3.3	<2% by volume @ 3 hours	
<b>Volume Change</b> BS EN 445: 1997 3.4	0 to +5% after 24 hours	
<b>Compressive Strength</b> BS EN 445: 1997 3.5	50N/mm <sup>2</sup> at 28 days	

### APPLICATION

#### Mixing:

##### Hot Conditions

Use chilled water and store the bags in a cool place to keep the mixed grout temperature below 25°C where possible, however the maximum grout temperature should not exceed 32°C.

##### Cold Conditions

Use warm water and store the bags in a warm place to ensure the mixed grout temperature is above 5°C at all times.

##### Small Applications

**MasterFlow 190** may be mixed using a drill and paddle, however trials to assess the efficiency of such mixing equipment should be conducted.

Mixing procedure may vary depending on the mixing equipment but as a starting point add 80% of the water to the empty mixing vessel and then add the **MasterFlow 190** powder while mixing and continue mixing for 1 minute. Add the remaining water whilst mixing and continue mixing for a further 3 minutes.

**Note:** Maximum water content should not exceed 8.75 litres per bag.

# MasterFlow<sup>®</sup> 190

## Large Applications

For larger quantities use a high shear colloidal type mixer (1400rpm) and slow speed agitator and pump. Add the full mixing water to the mixer and add the powder in a controlled manner to prevent lump formation. Continue mixing for approximately 3 minutes after adding all the powder, mixing for longer may lead to a marked increase in temperature and premature setting of the product. Upon completion of mixing the grout should be transferred to the agitator vessel, but should pass over a 2mm sieve on route, where it should not remain for more than 30 minutes.

## Mixing Watchpoints

- Do not use excess water.
- Do not use hardened or lumpy grout caused by torn or water damaged bags.
- Do not mix by hand
- Discard any grout that has been left in excess of 30 minutes

Please contact your local BASF Technical Representative for further information.

## Placement:

In most applications **MasterFlow 190** should be pumped with a diaphragm, piston or progressive cavity type pump. The chosen pump should provide a continuous flow of grout. The pump should be fitted with a pressure limiting device capable of limiting pressure below 2 MPa, hoses and connections should be checked at such pressures prior to starting.

In certain applications it may be necessary to cool and pre-soak the duct / hole, care should be taken to blow out such fluid prior to starting grouting.

Typically inlets for grouting shall be at the lowest point and outlets at the highest. The consistency of the grout at the outlet should be checked prior to stopping grouting operations. Refer to BASF Technical Representatives for specific installation advice.

## STORAGE & SHELF LIFE

**MasterFlow 190** has a shelf life of 6 months when stored in a cool dry environment.

## PRECAUTION

**MasterFlow 190** is not toxic, but as with other materials containing Portland cement it has an alkaline nature and thus can be irritating to skin and eyes. Wear simple dust masks and gloves when handling. Keep out of reach of children. Wash off splashes of grout with clean water. If irritation persists, seek medical advice.

## NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

## QUALITY AND CARE

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

\* Properties listed are based on laboratory controlled tests.

® = Registered trademark of the BASF-Group in many countries.

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## STATEMENT OF RESPONSIBILITY

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## NOTE

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