

# MasterCast<sup>®</sup> 140 (Formerly known as Rheomix 140)

Multi- use, water resistant latex admixture for cementitious mortar

## DESCRIPTION OF PRODUCT

**MasterCast 140** is a styrene-butadiene, copolymer latex specifically designed for use with cement compositions. It is used in mortar and concretes as an admixture to increase resistance to water penetration, improve abrasion resistance and durability. It is used with cement as a reliable water-resistant bonding agent.

## ADVANTAGES

- Excellent adhesion
- Proven performance
- Earlier hardening
- Prevents bleeding
- Lower water-cement ratio
- Increased durability and toughness
- Water - resistant
- Good abrasion resistance
- Resistance to chemicals and mineral oil
- Greatly reduced shrinkage
- Similar thermal expansion and modulus properties to concrete (unlike resin mortars and primers)
- Non-toxic

## COMPOSITION

A styrene – butadiene, copolymer latex Additive.

## TYPICAL APPLICATIONS

**MasterCast 140** is an imperious flexible multi function admixture for cementitious mortars, that can be used in repairing spalled concrete, bonding new concrete to old, bedding tiles, fixing or re-fixing slip bricks, and non-dusting floors. It is an underlay for special finishes, mild chemical and effluent-resistant floors. It is excelled for its chemical resistance to alkalis, dilute acids, milk, sewage effluent, mineral oil, it is use for basements, lift pits, insp tanks, and swimming pools waterproofing

## ACTION

**MasterCast 140** enhances the performance of cement based slurries and mortars without detracting from their inherent strength and properties.

As ordinary mortar dries out, voids are left which make it permeable and weaker.

The particles of the Rheomix 140 bind to form continuous films and strands; these stitch the opposite sides of the voids together and block up the spaces, thus increasing strength and resistance to water penetration.

## PACKAGING

**MasterCast 140** is available in 25ltr and 210ltr containers.

## DOSAGE RATE

For all normal use, the standard dose of 5ltr of

**MasterCast 140** per 50kg cement is adequate. For extreme conditions and/or when adhesion, waterproofing, water vapour resistance or chemical resistance are critical, the dosage should be increased to 10ltr of **MasterCast 140** per 50kg cement, use of wet aggregate may result in excessive workability

## PROPERTIES

Unless otherwise stated, typical properties are based on a 3:1 sand/cement mix in which 5ltr of **MasterCast 140** per 50kg of Type I OPC cement has been incorporated.

variation in cement used and workability can give increased strengths.

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## STANDARDS

Appearance:	High viscosity white liquid
Compressive strength (dependent on quality of sand used):	35N/mm <sup>2</sup>
Tensile strength:	5.8N/mm <sup>2</sup>
Flexural strength:	11N/mm <sup>2</sup>
Freeze thaw resistance:	Excellent
Adhesion:	Excellent to concrete, brick, steel, glass, marble, ceramics, etc.
Coefficient of thermal expansion:	-20 to + 20°C: 12.8 x 10 <sup>-6</sup> +20 to + 60°C: 12.9 x 10 <sup>-6</sup>
Shrinkage during cure:	0.01%
Resistance to water under pressure – 30m head:	Excellent- No water penetration.
Water vapour permeability:	Reduced by 96%
Pot life of mixed mortar:	Approx. 3 hours at 35°C
indicated strengths are typical; variation in cement used and workability can give increased strengths	
Toxicity:	MasterCast140 modified mixes are non-toxic after cure, and can be safely used in conjunction with potable water

Approved by Water Research Council for use with potable water.

## DIRECTIONS FOR USE

### SURFACE PREPARATION

Surfaces to which **MasterCast 140** is to be applied should be clean, sound and free of deleterious substances.

Remove all laitance, oil, grease, mould oil or curing compound from concrete surfaces using wire brush, scabber or other equipment as appropriate. Ensure that reinforcing steel is clean and free from grease or oil; remove scale and rust. When repairing spalled or damaged concrete, ensure that the concrete has been cut back to sound material.

## BONDING SLURRY:

Wet down absorbent surfaces, such as concrete, brick, stone, etc., ensuring that they are saturated but free of surface water. Prepare a bonding slurry of 1½ to 2 parts cement to 1 part **MasterCast 140**, mixed to a lump-free, creamy, consistency. Using a stiff brush, work the bonding slurry well into the damp surface, ensuring that no pinholes are visible. Do not apply bonding slurry at a thickness in excess of 2mm.

If a second coat is necessary, it must be applied after the first coat is touch dry. The second coat must be applied at right angles to the first to ensure complete coverage. Medicin (Approximately 20ltr of **MasterCast 140** mixed with 50kg of OPC Type I cement will give a creamy slurry, which will cover 20 square metres of substrate dependent on surface texture and thickness applied.)

## MATERIALS FOR MASTERCASE 140 MODIFIED MIXES SAND:

Sand should be sharp washed, well graded and free from excessive fines.

For general use, select a BS 882 C&M (previously Zone 2) sand. For rendering, select a sand complying with BS 1199 Table1.

## CEMENT:

**MasterCast 140** is compatible with all types of OPC, SRC Types II and V. For use with other cements, contact BASF's Technical Services Department for advice.

## WATER:

The strong plasticising action of **MasterCast 140** greatly reduces the w/c ratio for any given workability.

Mixing should preferably be carried out in an efficient concrete mixer – where available a pan type mixer, such as a Creteangle, is recommended. Hand mixing is only permissible when the total weight of the mix is less than 25kg.

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Charge the mixer with the required quantity of sand and cement and pre-mix for approximately 1 minute. Add the **MasterCast 140** and mix for 2 minutes only, to avoid excessive air-entrapment.

Finally, without delay, add the water slowly until the required consistency is achieved. Owing to the strong plasticising properties of **MasterCast 140**, rapid thinning can occur - avoid adding excessive water!

## GUIDE TO APPLICATION

### RENDERING TO VERTICAL SURFACES

Apply the bonding slurry to the prepared surface; and then apply the **MasterCast 140** render into the wet bonding slurry.

Apply **MasterCast 140** modified mortars in coats at a maximum thickness of 6mm per coat. Greater thickness can lead to slumping. Several coats can be applied in fairly rapid succession, usually within 15 to 30 minutes of the previous coat.

Close the surface using a wooden float or steel trowel.

Another method is to let the first coat of render dry overnight and apply another slurry coat before applying the second coat of render.

### Screeds and toppings, applied to horizontal surfaces:

Screeds, patches, etc., based on **MasterCast 140** modified cements, can be laid to any thickness from 60mm down to 6mm minimum.

After mixing, the **MasterCast 140** modified mix should be placed over the still wet bonding slurry, well compacted and struck off to level. It may then be trowelled to the required finish, using a wooden float or steel trowel.

**Note:** Whenever screeds are being laid over existing concrete surfaces, it is important that expansion joints in the sub-floor are carried through the **MasterCast 140** modified mix. This can be done.

## CURING

Correct curing of **MasterCast 140** modified mixes is important.

Moisture cure for 24 hours and then allow to dry out slowly. (Note that initial curing is necessary to provide good curing conditions for the hydration of the Portland cement, then the latex mortar must be allowed to dry out to permit the latex particles to join together to form the continuous films and strands.)

## WATCHPOINTS

1. Never apply **MasterCast 140** modified mixes or concrete to a bonding slurry that has been allowed to dry out.
2. Always use fresh, cool cement and sharp, clean, well-graded aggregate, free of excessive fines.
3. Keep mixing time to a minimum – see recommendations.
4. Until the user becomes familiar with its workability, the appearance of a **MasterCast 140** modified mix is deceptive; when of correct consistency, it may appear to be too dry. However, it will be found that it can be compacted and trowelled satisfactorily. Avoid using excessive water.
5. Trowelling should proceed with the work. Do not over-trowel and avoid re-trowelling. Protect from too rapid drying out prior to trowelling.

## EQUIPMENT CARE

All tools should be cleaned with water immediately after use. If delayed, use of soap and coarse wire wool may help. Solvents such as white spirit can be used to remove partially hardened mortar.

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## COMPATIBILITY

**MasterCast 140** is specifically designed for use with portland cements. It is also compatible with sulphate resisting cement, type II and V. Lime (more than 10% cement weight), air-entraining agents and masonry cements must not be used in conjunction with **MasterCast 140**.

The recommended levels should not be exceeded. Gross over dosage at an acceptable workability is not likely, but will result in an increase of the polymer properties to the detriment of the compressive strength

## EFFECTS OF OVER DOSAGE

The recommended levels should not be exceeded. Gross over dosage at an acceptable workability is not likely, but will result in an increase of the polymer properties to the detriment of the compressive strength.

## SPECIFICATION CLAUSE

All cementitious mixes stated shall be modified with **MasterCast 140**, styrene butadiene, copolymer latex, manufactured by BASF, or similar approved, to the following specification:

Composition:	A milky, white styrene butadiene copolymer latex, specifically made for use with Portland cement
pH:	Approx. 10.5
Specific gravity:	Approx. 1.01
Mean particle size:	0.17 micron

The material shall be used in bonding slurries at the rate of approximately 1 volume of **MasterCast 140** to 1½ to 2 volumes of OPC cement and in cementitious mixes at the rate of 5 or 10ltr per 50kg cement, as recommended in the manufacturer's literature.

## STORAGE

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 BASF's Technical Services Department.

## SHELF LIFE

Up to 12 months if stored in unopened containers according to manufacturer's instructions.

## SAFETY PRECAUTIONS

Avoid contact with eyes and prolonged contact with skin. During application, always wear gloves and appropriate clothing to minimise contact. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Should skin contact occur, wash immediately with soap and water. Seek the advice of a physician should symptoms persist.

## QUALITY STATEMENT

All products manufactured by BASF Egypt, or imported from BASF affiliate companies worldwide, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2008, ISO 14001:2004 & OHSAS 18001:2007 standards.

\* Properties listed are based on laboratory controlled tests.

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