

# EMACO<sup>®</sup> R1

Cementitious trowel applied lightweight polymer modified repair mortar

## DESCRIPTION

**EMACO R1** is a non-structural, single component, polymer modified, repair and re-profiling mortar. **EMACO R1** is a ready-to-use material that contains special cements, well graded sands, carefully selected polymers to improve physical and application properties. When mixed with water, it forms a mortar with a wide range of applications. **EMACO R1** can easily be hand or trowel applied in thicknesses from 5 up to 100 mm.

## RECOMMENDED FOR

**EMACO R1** is used for the non-structural repair of concrete elements like balconies edges, building facades, parapet walls, precast panels, beam edges and stair nosings. **EMACO R1** is ideal for general, non-structural patch repairs where high build properties allowing up to 100 mm thickness in one layer are required. **EMACO R1** can be applied as a smoothing or levelling coat at only 5 mm thick on large vertical and overhead areas to achieve a more aesthetic finish e.g. prior to painting. **EMACO R1** can be applied inside and outside, on horizontal, vertical and overhead surfaces, in dry and wet environments.

## FEATURES AND BENEFITS

- **Formulated with shrinkage compensation systems to minimise crack tendency by controlling the Nanostructures in the matrix**
- **Smooth, creamy, non-slump mortar** - easy to create profiles and corners without formwork
- **High build capacity** - can be applied 80 - 100 mm in horizontal or vertical applications in one layer, or even 70 – 80 mm overhead
- **Multi-use-** reprofiling and patch repair mortar in one
- **Good strength development** - exceeding requirement of Class R1 of EN1504 part 3
- **Low modulus of elasticity**
- **Low chromate (Cr[VI] < 2 ppm )**
- **Chloride-free.**

## ESTIMATING DATA

One 20kg bag will yield approximately 16 litres of mortar.  
Approx. 1.6 kg of mixed product per m<sup>2</sup> and mm layer thickness (approx. 1.3 kg of dry powder per m<sup>2</sup> and mm layer thickness). This consumption is theoretical and depends on the roughness of the support, for which reason it should be adjusted in each particular job by means of "in situ" tests.

## PROPERTIES

PROPERTY	VALUES
Appearance	Grey powder
Grain size	Max 1.0mm
Layer thickness	Min. 5mm Max. 100mm (vertical & horizontal), 80mm (overhead)
Density	Approx. 1.5 g/cm <sup>3</sup>
Temperature for application (support and material)	Between +5°C and +35°C

## APPLICATION

**Surface preparation** - Concrete must be fully cured, clean and sound to ensure good adhesion. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete should be removed to obtain a keyed surface. Non-impact/vibrating cleaning methods, e.g. grit or high water pressure blasting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation. Cut the edges of the repair vertically to a minimum depth of 5 mm.

If reinforcing steel is visible, clean to a minimum grade of SA 2 according to ISO 8501-1 / ISO 12944-4. For extra protection, or when the steel is left exposed before repair work is completed, apply **EMACO NANOCRETE AP** active protection cement based primer (*see technical data sheet*).

**Priming** - The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying **EMACO R1**. The surface must be mat-damp, but without standing water. For improved build thicknesses or when working on large areas, apply bond or contact layer of the **EMACO R1** mortar. Alternatively a bonding coat of **EMACO NANOCRETE AP** can be applied. Always apply **EMACO R1** mortar wet-in-wet onto the bond or contact layer.

**Mixing** - It is strongly recommended that only full bags are mixed. Damaged or opened sacks should not be used. Mix **EMACO R1** with a suitable paddle attached to a powerful, slow speed electric drill for 3 minutes until a lumpfree, plastic consistency is achieved. Only use clean uncontaminated water. Mixing water needed: 3.8 to 4.0 litres per 20kg bag depending upon consistency required. (Use stiffer consistency for overhead and vertical patching application and softer more creamy consistency for use as a levelling coat at 5mm thick). Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency as required. NB: Never exceed the maximum water demand.

**Mortar application** - The minimum temperatures must be maintained during application and for at least 12 hours thereafter for optimum curing of the product. The surface must be mat-damp, but without standing water. **EMACO R1** can be hand or trowel applied. Apply mixed product directly to the prepared damp substrate, or wet on wet onto the primed surface. A thin scrape coat or contact layer before building up to the required thickness, wet on wet, will improve the wet adhesion and cohesion of the mortar.

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Apply to the desired layer thickness of 5 to max. 100 mm. Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen, typically after approximately 45 - 60 minutes at 20°C. In these environmental conditions, **EMACO R1** can be over-coated, after 7 days, with **MASTERSEAL** as required.  
 NB: At lower temperatures and/or higher humidity these times will be extended

## NOTE

- Do not add cement, sand or other substances that could affect the properties of the material.
- Never add water or fresh mortar to a mortar mix which has already begun to set.

## CURING

**EMACO R1** has been formulated to withstand too rapid water loss under normal conditions. In high temperatures with low humidity and windy conditions, repairs should be cured by application of a suitable BASF Construction Chemicals curing compound or cover with plastic sheeting in order to avoid plastic shrinkage cracking.

## CLEANING

While still wet clean with water. Once dry/cured the material can only be removed mechanically.

## PACKAGING

**EMACO R1** is available in 20kg bags.

## STORAGE

Store in cool and dry warehouse conditions. Shelf life in these conditions is 12 months in unopened original bags.

## PRECAUTIONS

Usual preventive measures for the handling of chemical products should be observed. Do not eat, smoke or drink while working and wash your hands when taking a break or when the job is completed. Avoid contact with eyes and prolonged contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Call a physician. In case of contact with skin, wash skin thoroughly.

The disposal of the product and its container should be carried out according to the legislation in force. Responsibility for this lies with the final owner of the product.

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the BASF Construction Chemicals **Material Safety Data Sheet (MSDS)** from our office or our website.

## TECHNICAL DATA

Compressive strength	AS 1478.2	
- after 7 days	Appendix A	≥ 20 MPa
- after 28 days	(Restrained)	≥ 25 MPa
Electrical resistivity	ASTM C305	14100 ohms @ 28 days
Elastic Modulus	AS 1012 pt 17	10 GPa
VOC Content: 6g/L Test method: SCAQMD 304-91		

Hardening times are measured at 21°C ± 2°C and 60% ± 10% relative humidity. Higher temperatures will reduce these times and lower temperatures will extend them. Technical data shown are statistical results and do not correspond to guaranteed minima. Tolerances are those described in appropriate performance standards

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## STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

## NOTE

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