



STRUCTURAL R4-CLASS, RAPID-SETTING, SHRINKAGE COMPENSATED, THIXOTROPIC, FIBER-REINFORCED, MORTAR, APPLIED IN A SINGLE LAYER FROM 3 TO 40 MM THICK, FOR REPAIRING AND SMOOTHING CONCRETE.



PRODUCT DESCRIPTION

Flat R4 is a one-component, thixotropic mortar with very low emission of volatile organic compounds made from special hydraulic binders, fine selected aggregates, synthetic poly acrylonitrile fibers, synthetic polymers and special admixtures. After mixing with water, the product forms a mortar with good workability. It is applied by trowel in a single layer from 3 to 40 mm thick to repair and smooth over concrete. Flat R4 hardens without shrinking and is characterized by its excellent adhesion to concrete substrates. After hardening, Flat R4 has the following characteristics:

- Excellent bond strength to both old concrete
- High dimensional stability and, therefore, low risk of cracking
- Thermal compatibility to freeze/thaw cycles
- Low permeability to water.

SUITABLE SUBSTRATES

- Concrete
- Cement Mortar.

FIELD OF APPLICATION

- Rapid repair work on deteriorated concrete beams, pillars, buffer walls, cornices, edges of balconies and structural members and elements that require the use of mortar with high mechanical performance characteristics.
- Quickly smoothing over surface defects in cast concrete, such as deep gravel clusters, spacer holes, second pours, etc. before painting the surface.
- Repairs and structural strengthening of concrete.
- Repairing precast concrete members and elements.
- Repairs to concrete damaged by rusty reinforcing bars due to carbonation.

LIMITATIONS

- Do not apply on smooth substrates: roughen surfaces beforehand.
- Do not apply on dry substrates.
- Do not add cement or admixtures.
- Do not add water to the mix to make it more workable once it starts to set.
- Do not leave bags exposed to the sun before use.
- Do not use if the temperature is lower than +5°C.
- Do not use if the bag is damaged or if it has been opened previously.
- Do not use for fixing elements accurately in place.

APPLICATION PROCEDURE

A) Preparation of the substrate

- Remove all deteriorated and loose concrete to form a solid, rough and strong substrate. Any areas previously repaired and which are not perfectly bonded must also be removed.
- Remove all dust, rust, cement laitance, grease, oil and paint from the concrete and reinforcement rods by sandblasting or hydro-sandblasting.
- Treat reinforcement rods with Ferropri-mer 1K or 2K, according to the procedure given in the Technical Data Sheet of product.
- Saturate the substrate with water.
- Before carrying out repairs, wait until excess water has evaporated.

B) Preparing the product

Pour approximately 5.5 liters of clean water into a container and slowly add a 25 kg bag of Flat R4 while mixing. Carefully mix the blend for several minutes then remove any powder which has stuck to the sides and bottom of the container. Add more water to obtain the consistency required without exceeding the recommended amount, approximately 6-6.5 liters. Mix again for several minutes to form a well-blended, plastic consistency, lump-free mixture. Flat R4 remains workable for around 15 minutes at +10°C to +25°C.

C) Applying the product

Apply a layer of mortar from 3 to 40 mm thick with a trowel or putty knife; no formwork is required. As soon as the mortar starts to set, tamp the surface with a sponge float. The waiting time required before carrying out this operation depends on surrounding weather conditions. To paint and protect the surface, apply a coat of an elastomeric product or an acrylic product.

COVERAGE / CONSUMPTION

The consumption is approximately 1.5kg/m² at 1 mm thickness.

PACKAGING

Flat R4 is supplied in:
– 25 kg paper bags.

SHELF LIFE-STORAGE

Original sealed bags of this product are guaranteed to be of first quality for 12 months if stored off of the ground in a dry area. High humidity will reduce the shelf life of the bagged product.

SAFETY INSTRUCTION

Flat R4 is irritant; it contains cement that when in contact with sweat or other body fluid causes irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention. It is recommended to use protective gloves and goggles. For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet. **PRODUCT FOR PROFESSIONAL USE.**

TECHNICAL DATA

Product identity	
Class according to EN 1504-3	R4
Type	PCC
Consistency	powder
Color	grey
Maximum diameter of aggregate (EN 1015-1) (mm)	0.4
Bulk density (g/cm ³)	1.200
Dry solids content (%)	100
Ion chloride content (%)	≤ 0.05
Application data (at +23°C and 50% R.H.)	
Colour of mix	grey
Mixing ratio	26-28%
Consistency of mix	thixotropic – trowellable
Density of mix (kg/m ³)	2,000
pH of mix	12
Application temperature	+5 to +35°C
Pot life of mix	approx. 15 minutes
Waiting time before finishing with float	approx. 30 minutes
Setting time	approx. 30 minutes
Final performances	
Compressive strength (MPa)	50
Flexural strength (MPa)	9
Compressive modulus of elasticity (GPa)	25
Bond strength on concrete (substrate type MC 0.40) according to EN 1766 (MPa)	≥ 2
Thermal compatibility measured as bond strength according to EN 1542 (MPa)	≥ 2
Capillary absorption (kg/m ² ·h)	≤ 0.4
Impermeability expressed as coefficient of permeability to free water (kg/m ² ·h)	W < 0.1 Class III
Permeability to water vapour – equivalent air thickness S - (m)	S < 5 Class I
Reaction to fire	A1

WARNING

Danger. Contains Portland Cement: Chromium VI < 2 ppm within the validity period of the product. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H335 May cause respiratory irritation. P261 Avoid breathing dust. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302 + P352 IF IN CONTACT WITH YOUR SKIN: Wash with plenty of water/... P305 + P351 + P338 IF IN CONTACT WITH YOUR EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/doctor/...



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