DRIZORO® Construction Products

MAXRITE® -F

CE

FIBER-REINFORCED, MICROSILICA AND POLYMER-MODIFIED STRUCTURAL REPAIR MORTAR

DESCRIPTION

MAXRITE® ***-F*** is a one component thixotropic shrinkage-compensated mortar, with normal setting-time, made of special cements, selected aggregates, microsilica, polymers and reinforced with polypropylene fibers. It is specially designed for structural concrete repair, applied manually by troweling without the need for using any form work. Meets Class R4 according to European Standard EN-1504-3.

APPLICATION FIELDS

- Restoration of structural concrete elements, recovering original shape and function. EN 1504-9 standard, Principle 3 (CR) – Method 3.1 Applying mortar by hand, and Method 3.3. Spraying mortar in:
  - Repair of general structural concrete on vertical, horizontal or overhead surfaces, without form works.
  - Repair of lines and shapes in pre-fabricated concrete elements and structures damaged by mechanical impacts, corrosion of reinforcements, freeze/thaw cycles, etc.
  - Repair of pillars, lintels, raincaps and architectural concrete exposed permanently to extreme weather condition.
  - Repair of concrete affected by repeated loads.
  - Repair of horizontal concrete floors, ramps, slabs and screeds, in parking, garages, swimming pools, water retaining structures, etc…
- Restoration of passivity for rebars on concrete elements. EN 1504-9 standard, Principle 7 (RP) – Method 7.1 Increasing cover to reinforcement with mortar, and Method 7.2 Replacing contaminated concrete in:
  - Repair of concrete structures subject to carbonation process.
  - Increasing cover for concrete structures.

ADVANTAGES

- Excellent thixotropy, it allows application thickness up to 40 mm per layer.

- High adhesion on concrete and reinforcements, no special primers needed. Loads are transmitted onto the repaired structure.
- High mechanical strength and impact resistance. Long-lasting repairs.
- Waterproof and very good cohesion.
- Excellent workability and easy application, it only needs water for mixing.
- Shrinkage-compensated mortar with no risk of cracks.
- It does not contain chlorides or others corrosive agents for reinforcements.
- It is odourless and non-toxic, suitable for poor ventilated areas, water tanks, etc.

APPLICATION INSTRCUTIONS

Substrate preparation

Concrete to be repair must be structurally sound, firm, without cement laitance and as uniform as possible, and preferably with a slight roughness. Remove all damaged and loose concrete until getting sound concrete and, sawcut the edges perpendicularly to the surface to a minimum depth of 10 mm.

Expose all corroded reinforcement, removing all concrete until the edges of the bars are not affected by rust. Remove concrete all around the reinforcement for an efficient cleaning and to surround it with a minimum thickness of at least 1 cm of ***MAXRITE® -F*.**

Eliminate rust by wire brush, needle gun, sand or shot blasting, etc. For additional protection, an application of the oxide converter and protector ***MAXREST® PASSIVE*** (Technical Bulletin No. 12) can be used.

Surface must be clean and free of paints, coatings, efflorescence, loose particles, grease, oils, curing agents, form release agents, dust, gypsum plasters, organic growth or any other contaminants that may affect to adhesion of the product. For cleaning the substrate, use sand blasting or high-pressure water cleaning methods, not being desirable aggressive mechanical means.

Once substrate has been prepared, dampen thoroughly the entire surface to be repaired with clean water, avoiding the formation of puddles. Allow excess water to drain away, and then start the application once the surface acquires a matte appearance. If it is dry, proceed to saturate it with water again.

Mixing

MAXRITE®-F is mixed only with clean water, free from contaminants. A 25 kg bag of ***MAXRITE® - F*** requires about 3,5 to 4 litres (15 ± 1% by weigh). Pour the powder to a recipient with the water required and mix mechanically by low speed drill (400-600 rpm) equipped with disc ***MAXMIXER*** until achieving a smooth, lump-free and homogeneous mortar of dry consistency. In any case, these mixing ratios are only indicative and should be checked depending on the desired consistency and the existing weather conditions.

Application

For an optimum bonding prepare a slurry, mixing 5 parts of ***MAXRITE®- F*** with 1 part of water, mixing well until achieving a homogeneous consistency without any lumps. Apply the slurry using a ***MAXBRUSH*** type brush on the surface to be repaired and on the reinforcement bars, filling all voids and pores.

While the slurry is still fresh, start placing ***MAXRITE®-F*** with the consistency of repair mortar and apply layers between 5 mm and 40 mm thickness. Press with the trowel to prevent any air from being trapped. Scratch surface of each layer with the trowel to improve the adhesion of the following one, which can be placed after hardening and applying previously the slurry coat. Shape the last layer as desired before the final hardening occurs.

Once the repair area is finished it can be protected with cement-based coating ***MAXSEAL®*** (Technical Bulletin No. 01) or ***MAXSEAL® FLEX*** (Technical Bulletin No. 29), or acrylic-based coating ***MAXSHEEN®*** (Technical Bulletin No. 17) available in a wide range of colours.

Application conditions

Do not apply with substrate and ambient temperature below 5°C or if lower temperature is expected during the first 24 hours. Do not apply on frost surfaces. Protect against rainfall the first 24 hours.

Curing

Provide a moist curing by fogging at least the first 24 hours, protecting with wet burlaps or rags covered with plastic sheeting, or using a quality curing agent such as ***MAXCURE®*** (Technical Bulletin No. 49). These curing procedures must be observed mainly with high temperature (>30ºC), low relative humidity (<50%) and/or windy days. Protect against freeze during curing-time.

Cleaning

Tools and equipments should be cleaned immediately with water after use. Once it sets, can only be removed by mechanical methods.

IMPORTANT INDICATIONS

- Do not add cement, aggregates or other non-specified compounds to ***MAXRITE® -F***.
- Do not use high speed mixers which may cause a violent mix. Do not over mix.
- Do not use ***MAXRITE®- F*** leftovers to prepare a new mix.
- Do not exceed the ratio of mixing water

recommended.

- To keep workability of fresh mortar, mix again briefly but do not add more water.
- If the slurry primer dries up, or the previous layer is completely set, apply a new slurry coat to continue the job.
- Do not exceed maximum thickness recommended per layer.
- Setting-time is measured at 20°C, higher temperature reduces setting-time and lower temperature delay setting-time.
- With low temperatures keep the product in a warm place and use clean warm water to accelerate the setting time.
- With hot temperatures keep the product in a cool place and use fresh clean water for the mix. Wet the different layers. Mix small batches of material and apply immediately.
- In contact with water or ground with sulphates, residual water or sea water, use the type ***MAXRITE® -F ANTISULFAT***.
- For any other application not specified in this technical bulletin consult our Technical Department.

CONSUMPTION

Estimated consumption of ***MAXRITE®- F*** is approximately 1,9 kg/m^2 per mm thickness. One 25 kg bag of ***MAXRITE®- F*** fills 13,1 litres approximately (0,52 l/kg of product).

Consumption depends on porosity, texture and substrate conditions, a preliminary test on-site will determine consumption exactly.

PACKAGING

MAXRITE® - F is supplied in 25 kg bags.

STORAGE

Twelve months in its unopened and undamaged original sealed packaging. Store in a cool, dry and covered place, protected from moisture, freezing and away from direct exposure to sunlight at temperatures above 5°C.

SAFETY AND HEALTH

MAXRITE®- F is non-toxic but it is an abrasive compound. Avoid eye and skin contact. Rubber gloves and safety goggles must be used during the application. In case of skin contact, wash affected areas with soap and water. In case of eye contact, rinse with clean water but do not rub. If irritation continues, seek medical attention.

Safety Data Sheet of ***MAXRITE®- F*** is available by request.

Disposal of the product and its empty packaging must be done by the final user and according to national regulations.

TECHNICAL DATA

CE Marking, EN 1504-3. • Description. Structural repair mortar for concrete structures in building and civil engineering works. Type PCC and Class R4. Principles / Methods. Concrete restoration by applying mortar by hand (Principle 3-CR/3.1) and by spraying mortar (Principle 3-CR/3.3). Structural strengthening by adding mortar (Principle 4-SS/4.4). Preserving or restoring passivity by increasing cover to reinforcement with mortar (Principle 7-RP/7.1), and by replacing contaminated concrete (Principle 7-RP/7.2).	
CE Marking, EN 1504-7. • Description: Mortar for protection against reinforcement corrosion in building and civil engineering works. Principles / Methods. Painting reinforcement with coatings containing active pigments (Principle 11-CA/11.1) and painting reinforcement with barrier coatings (Principle 11-CA/11.2).	
Product characteristics	
General appearance and colour	Grey powder
Maximum aggregate size, (mm)	2,0
Density for powder, (g/cm^3)	1,4 ± 0,1
Mixing water, (%, by weight)	15 ± 1
Application and curing conditions	
Minimum application temperature for substrate and ambient, (°C)	> 5
Setting time at 20°C and 50% R.H., - Initial, (h) - Final, (h)	 3-4 7-8
Cured product characteristics	
Density for cured and dry mortar, (g/cm^3)	2,0 ± 0,1
Requirement for repair products, EN 1504-3 (Class)	Class R4
Compressive strength at 28 days, EN 12190 (MPa)	≥ 45
Chloride ion content, EN 1015-17:2001 (%, by weight)	≤ 0,05
Adhesive bond on concrete at 28 days, EN 1542 (MPa)	≥ 2,0
Elasticity modulus, EN13412 (GPa)	≥ 20
Carbonation resistance, EN 13295, d_k (mm). Control concrete 4 mm	≤ 4,0
Thermal compatibility Part 1. Freeze-thaw, EN 13687-1 Part 2. Thunder shower, EN 13687-2 Part 4. Dry cycling, EN 13687-4	 ≥ 2,0 ≥ 2,0 ≥ 2,0
Capillary absorption, EN 13057. w (kg/m^2·h^{0,5})	≤ 0,5
Reaction to fire	A1
Thickness / Consumption*	
Maximum / Minimum thickness per layer, (mm)	5 / 40
Consumption (kg/m^2·mm thickness)	1,9 ± 0,1

* These figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly.

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. ***DRIZORO®, S.A.U.*** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.

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