

1. DESCRIPTION

B-REPARA GROUT EXPANSIVO R4 is a dry mortar made from mixed binders, carefully selected siliceous and calcareous aggregates and synthetic resins intended for sealing works, suitable for application in industrial floor repair, reconstruction and/or structural reinforcement (increasing the cross-sections of concrete structures), fixing and precision anchoring.

B-REPARA GROUT EXPANSIVO R4 has high values of mechanical characteristics including fast-acting resistance, protects metal parts against corrosion due to alkaline pH, has excellent adhesion to materials such as concrete, mortar and steel.

For situations with large thicknesses this mortar is suitable for manual application by pouring.

2. FIELD OF USE

Due to its granularity and fluidity, the **B-REPARA GROUT EXPANSIVO R4** is suitable for:

- precision anchoring of metallic elements (reinforcements, bolts, cables, etc.);
- sealing of precast concrete elements;
- levelling of surfaces and machine foundations;
- filling by pouring;
- filling cracks and cavities within concrete;
- repairing delaminated and damaged concrete in buildings, bridges, infrastructures and superstructures;
- structural reinforcement - increasing the load capacity of concrete structures;
- preservation and/or passive restoration - increasing the covering capacity by adding mortar or concrete, or by replacing contaminated or carbonated concrete;
- concrete floor repair.

Due to its fluidity, **B-REPARA GROUT EXPANSIVO R4** should be applied in areas with confined surfaces.

This product is EC certified according to the requirements of the following standards:

- ☐ NP EN 1504-3 is classified as Class R4 for structural concrete repair: according to principles 3, 4 and 7 defined in NP EN 1504-9;
- ☐ NP EN 1504-6 for the anchoring of steel reinforcement: in accordance with principle 4 defined in NP EN 1504-9.

For the use of **B-REPARA GROUT EXPANSIVO R4** in other areas of application, we recommend that you consult our Technical Services beforehand.

3. PRODUCT CHARACTERISTICS

Technical Requirement/Characteristics	Amount	Standard
Granulometry	$\leq 3.5 \text{ mm}$	EN 1015-1
Mixing water	$14.0 \pm 1.0 \%$	EN 1015-3

Density	2000 ± 100 kg/m ³		EN 1015-10
Theoretical consumption	20 kg/m ² /cm		-
Reaction to fire	A1		EN 13501-1
Technical Requirement/Characteristics	Amount	Required by NP EN 1504-3	Standard
	Class R4 (Principles 3, 4 and 7, Methods 3.2, 4.2, 4.4, 7.1 and 7.2)		
Compressive strength	≥ 25 MPa (24hours) ≥ 50 MPa (7days) ≥ 60 MPa (28days)	≥ 45 MPa (28 days)	EN 12190
Flexing Resistance	≥ 5.0 MPa	No requirement	EN 12190
Layer thickness	10 mm minimum / 300 mm maximum	-	-
Chloride Content	Check	≤ 0.05 %	EN 1015-17
Adherence	> 3.0 MPa	≥ 2.0 MPa	EN 1542
Retraction / Expansion prevented	> 3.5 MPa	≥ 2.0 MPa	EN 12617-4
Resistance to carbonation	Check	$d_k \leq \text{control concrete (MC(0.45))}$	EN 13295
Elasticity	> 20 GPa	≥ 20 GPa	EN 13412
Technical Requirement/Characteristics	Amount	Required by NP EN 1504-6	Standard
	Principle 4, Method 4.2		
Initial resistance	Check	≤ 0.6 mm	EN 1881
Chloride Content	Check	≤ 0.05 %	EN 1015-17

4. APPLICATION**a) Preparation of surfaces**

Surfaces must be free of dust, sand, releasing agents, crumbling or unstable materials, efflorescence, as well as any type of material that affects the normal conditions of adherence. All fragments of bolts, nails and other visible metal elements should be removed, as well as cement slurries, oils, grease, varnish, among others.

In cases where structures are reinforced, the reinforcement should be carefully treated, removing all materials that could reduce adhesion or cause corrosion, such as rust, calamine, chips, mortar or concrete residues, dust and other loose particles or deteriorating materials.

Generally, it is not necessary to apply a bonding primer to the concrete, as long as the base is well prepared and sufficiently rough. In this situation, the surface should be saturated with water, and the application of the repair mortar must begin when it is darkened and damp but without visible water.

When formwork is used, it must be of adequate strength and must be treated with release agents and properly sealed to avoid material loss.

b) Mortar Preparation–

B-REPARA GROUT EXPANSIVO R4 should be mixed in a clean container with the appropriate amount of water (≈ 3.3 to 3.8 litres for each 25 kg bag) in order to obtain a homogeneous paste without lumps.

The mortar can be mixed using a low speed electric drill (up to 600 rpm) for a minimum period of 3 minutes, or in a concrete mixer for a minimum period of 5 minutes.

c) Application

After mixing, **B-REPARA GROUT EXPANSIVO R4** is applied by pouring immediately after mixing, in order to take advantage of its fluidity. Excessively long distances between mixing and the application on site must be avoided, in order to prevent separation as a result of the transportation of the product.

In order to make the most of the expansive properties of **B-REPARA GROUT EXPANSIVO R4** it is advisable to apply the product on site as soon as possible. The product should be applied within 10 minutes of mixing.

B-REPARA GROUT EXPANSIVO R4 allows applications of thicknesses between 10 mm and 300 mm per layer, making it possible to apply a total thickness of 600 mm.

When filling under slabs (thinner thicknesses), a hole must be provided for the mortar to enter and another one for the exit, to facilitate the expulsion of air and ensure that the entire volume is perfectly filled. Filling should be facilitated by mechanically agitating the mixture.

d) Restrictions

B-REPARA GROUT EXPANSIVO R4 must not be applied at ambient temperatures or lower than 5° C and higher than 30° C. Its setting time is 28 days.

Protect the material in its fresh and setting stages from adverse atmospheric conditions, such as heat, solar radiation, rain or intense wind, ice, among others, using appropriate methods.

e) Complementary advice

- For filling the minimum diameter should be 10 mm;
- The water in the mix must be free of any impurities (clay, organic material), preferably being of drinking quality.
- No grout should be applied that has started the process of setting. Do not add water to the mortar after it has been mixed;
- Do not add any other products to the mortar, **B-REPARA GROUT EXPANSIVO R4** should be applied as instructed in its original packaging.

5. PACKAGING AND VALIDITY

Packaging

Plastic pallets of 60 x 25kg paper bags.

Expiry

12 months, provided the original packaging conditions remain unchanged and in storage conditions protected from extreme temperatures and damp.

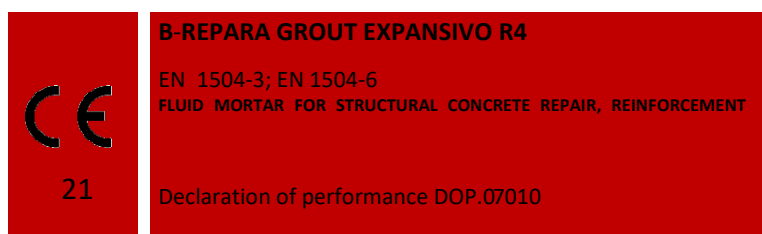
6. ASSOCIATED PRODUCTS

- **B-REPARA** range products

7. HYGIENE AND SAFETY

(DOES NOT PRECLUDE THE PRODUCT SAFETY DATA SHEET)

- Irritant to the eyes, respiratory system and skin
- May cause sensitivity in contact with the skin
- Do not inhale the dust;
- Avoid contact with the skin and eyes;
- In case of contact with the eyes, rinse immediately with plenty of water and seek medical advice;
- Wear suitable protective clothing and gloves
- Keep out of the reach of children.



Since the conditions of application of our products are out of our control we cannot be held responsible for their incorrect use. It is the customer's responsibility to verify the suitability of the product for its intended purpose. In any case our liability is limited to the value of the goods provided by us. The information contained in this factsheet may be changed without notice. In case of doubt, and should you require further clarification, we recommend you contact our technical services.

The product characteristics presented in section 3 of this Technical Datasheet refer to results obtained in laboratory tests under controlled conditions. Results obtained outside these conditions may be different.

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