

## Thixotropic compound for rapid Repair of defects concrete and reinforced Concrete Structures (for RCS). Application thickness from 3 to 40 mm

Material according to **DIN EN 1504** "Materials and systems for the protection and repair of concrete structures" - Part 3: Structural and non-structural repair" and **GOST R 56378-2015** "Materials and systems for protection and repair of concrete structures. The requirements for repair mixtures and adhesive joints of the contact zone during the restoration of structures" meets the requirements of the class of repair mixture R3.

### Description

**Admixs R3 RCS** - a dry mix of light gray color.

Composition: Portland cement, mineral aggregate, reinforcing fiber and modifying additives.

When mixing the dry mixture with water, a thixotropic, non-shrinking, fast-hardening, fine-grained mortar mixture is formed, with high adhesion to the substrate.

### Features

- Quick set of early strength.
- High resistance to aggressive environments, sea and fresh water, sewage and sewage.
- Does not contain solvents or other substances that are hazardous to health.

### Application area

For surface-restoration works:

- repair and finishing of concrete and reinforced concrete structures, the compressive strength of which is not less than 15 MPa;
- repair of inactive cracks with opening up to 1 mm (class of concrete B20-B40).

Material according to **GOST 32016-2012** "Materials and systems for the protection and repair of concrete structures. General requirements" is applicable to the following principles and methods of repairing concrete structures:

- №2 moisture content control - coating method;
- №3 restoration of concrete - manual application of a mortar mixture.

### Packing and Storage

Paper bag with a polyethylene insert weighing 25 kg.

Bags should be stored on pallets, in covered premises, at temperatures from -30°C to + 50°C and humidity not more than 70%. Protect from moisture. The pallets with bags should be covered with a thick film for the entire storage period.

The material is transported by all modes of transport in covered vehicles, in accordance with the rules of transportation of goods operating on this mode of transport.

Shelf life in undamaged bag - 12 months.

### Technical data

#### Dry mixture

Fraction of aggregate	max 0,63 mm
For the preparation of 1 m <sup>3</sup> of the solution mixture, a dry mixture	1650 kg

#### Mortar mixture

Water consumption for mixing 1 kg of dry mixture	0,14-0,15 l
Viability, not more than	10 min
Mark by mobility	Pk2
Water retention ability	98 %
Thickness of application	3-40
Application temperature	from +5°C to +40°C

#### After hardening

Compressive strength:	
- 3 hours	min 10 MPa
- 24 hours	min 25 MPa
- 28 days	min 33 MPa
Strength of adhesion to concrete:	
- 7 days	min 1,2 MPa
- 28 days	min 1,8 MPa
Bending tensile strength:	
- 7 days	min 4,0 MPa
- 28 days	min 8,0 MPa
Waterproof brand	min W8
Mark for frost resistance	min F300
Elastic modulus	26 GPa
Capillary water absorption	0,18 кг/(m <sup>2</sup> h <sup>0,5</sup> )
Water vapor permeability	0,09 мг/(m·h·Pa)
Operation in corrosive environments	4 < pH < 14
Contact with drinking water	yes

#### Resistance to aggressive media and minimum thickness for different service lives

For the **Admixs R3 RCS**, the operational environment of **GOST 31384-2008** "Protection of concrete and reinforced concrete structures from corrosion. General technical requirements" manifest themselves as follows:

Not-aggressive	Weak-aggressive	Mid-aggressive	Strong-aggressive
XO, XC1, XF1	XC2, XC3, XC4, XD1, XS1, XF2, XA1	XD2, XS2, XF3, XA2	XF4, XS3, XD3, XA3
For operation for at least 30 years. Minimum thickness of application.			
3 mm	10 mm	25 mm	40 mm With protection
For operation not less than 50 years. Minimum thickness of application.			
3 mm	15 mm	30 mm	40 mm With protection

### Security measures

When working with **Admixs R3 RCS**, it is necessary to use personal protective equipment to protect against ingress of the mixture in the respiratory tract, eyes and skin. In case of contact with the dry mixture in the eyes, rinse them with plenty of water and consult a doctor, providing information about the material.

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### 1 Preparatory operations

#### Surface preparation

- Weakened and fragile areas of concrete and reinforced concrete surfaces should be removed mechanically to a solid foundation. The substrate must be clean, strong, capable of carrying the load.
- The minimum surface roughness to be repaired should be at least 1 mm.
- Glossy-smooth surfaces are not allowed.
- The surface must be rinsed with water using a water jet, recommended pressure is at least 300 bar.
- If it is not possible to use the water jet apparatus, clean the surface thoroughly with a metal brush and rinse with low pressure water.

#### Surface wetting

- Before applying **Admiks R3 RCS**, the surface to be repaired must be thoroughly impregnated with water.
- Surface must be wet, but not wet.

### 2 Preparation of mortar mixture

Preparation of the solution is made by mixing the dry mixture with pure tap water.

- Calculate the required amount of dry mixture, based on the fact that to fill 1 m<sup>3</sup> of volume, 1650 kg of dry mixture.
- Calculate the required amount of water according to Table 1, for the preparation of a given solution volume.

Table 1

Water, l	Dry mixture, kg
0,14-0,15	1,0
3,5-3,75	25 (bag)

- Pour the minimum amount of water into the mixing bowl.
- Switch on the mixer and, continuously mixing, gradually add a measured amount of dry mixture.
- After the whole measured dry mix has been filled, stirring should be continued for 3 minutes, until the lumps disappear and the mixture becomes homogeneous.
- If necessary, slightly increase the mobility of the mortar, it is necessary, with constant mixing, to add water in very small portions, until the required consistency.
- For small mixtures, you can use a low-speed mixer, no more than 300-400 rpm, with a spiral nozzle.
- It is not recommended to mix **Admiks R3 RCS** material with gravity mixers, or manually.

#### Attention!

- The amount of water for batching may differ slightly from the calculated.
- In hot and dry weather, a little more water may be required, and in cold and wet weather, less water.
- The exact dosage of water is selected by trial mixing in the workplace.
- Do not add water or a dry mixture to the solution to change the mobility of the solution after 5 minutes after the final mixing.

### 3 Carrying out of works

**Admiks R3 RCS** material is allowed to be used at an air temperature of +5°C to +40°C. The air temperature at which work is carried out affects the speed at which the strength is obtained, the viability and mobility of the mixture. The optimum application temperature is from +10°C to +25°C.

#### Recommendations for work at a temperature of +5°C to +10°C

At temperatures from +5°C to +10°C the strength increases more slowly. For operation at low temperatures:

- for mixing, use water heated to +30°C;
- it is desirable to prepare the solution in a warm room;
- moisten the surface with hot water.

#### Recommendations for work at a temperature above +25°C

At temperatures above +25°C, the time for using the prepared mixture decreases, the mobility of the solution falls rapidly, and after application, the solution dries out intensely, which is unacceptable for a normal curing process. To reduce the effect of high temperature:

- store the dry mix in a cool place;
- use cold water for mixing;
- immediately before application of the mortar, the surface to be repaired must be cooled by rinsing it with cold water;
- work done during the cool hours of the day;
- freshly applied solution to protect against drying and excessive heating;
- Refurbished surface to cool for 3 days, by abundant irrigation with cold water 3-4 times a day.

#### Application

Ready mortar mixture applied to the moistened surface, while sealing, manually using a trowel or spatula.

It is possible to apply a layer with thickness from 3 to 40 mm. It is not recommended to apply a layer less than 3 mm thick.

#### Application of the second and subsequent layers

- The second and subsequent layers can be applied after about 30 minutes, depending on the temperature and humidity of the air, after applying the previous layer.
- For a long break between application of the layers, for more than 1 day, the surface must be cleaned with a metal brush and moistened with plenty of water.

#### Forming and grouting surfaces

- The grout of the last layer can be made using a synthetic spongy float after the setting starts to set.
- The moment of setting is determined by pressing the finger on the applied solution - there should be a barely noticeable dent on the surface.

#### Work control

In the production of work:

- quality of preparation of the surface being repaired;
- air temperature;
- temperature of water and dry mixture;
- accurate dosing;
- mixing time and solution use time.

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**4 Protection during hardening**

To ensure the normal hardening of the composition:

- Moisten the applied compound for a minimum of 1 day, without letting the surface dry out;
- protect from direct sunlight, wind, rain, frost;
- protect against mechanical damage.

**5 Quality control of work performed**

Quality control of the performed work is carried out by an external inspection after 1 day after the work.

The surface should be uniformly dense, without visible cracks and peeling, uniform in color. By volume, there should be no stratification of material and flaking from the substrate. When tapping, the sound should be equally ringing throughout the surface. There should be no deaf or "puffy" sound. If a defect is found, this section must be removed and repaired.

**6 Further surface treatment**

Finishing materials on a mineral basis should be applied no earlier than 3 days.

Compositions of organic origin should be applied no earlier than 7 days after application of **Admiks R3 RCS**.

**Manufacturer**

**SIA "ADMIX"**

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