

**ALFAPOL AMSh: INSTRUCTIONS FOR USE**

MAGNESIUM-SHUNGITE FLOOR LEVELING RADIO-SHIELDING ANTI-ELECTROSTATIC DRY MORTAR MIXTURE FOR INTERIOR WORK, FOR MANUAL AND MECHANICAL COATING  
V15 Pk3-Pk4

**DESIGNATION AND SCOPE**

Magnesia binder based protective radio-shielding antistatic floor screed. **ALFAPOL AMSh®** dry radio-shielding mixture is used to create a levelling floor layer and ceilings and to protect against excessive external influences of electromagnetic radiation (EMR) in the frequency range from 10 kHz to 34.5 GHz and electromagnetic fields (EMF) with a frequency of 50 Hz, which ensures safety of persons (working personnel) inside premises. Recommended thickness of the coating layer: 20 mm min.

Some examples of use:

-Protection of facilities and working personnel in the field exposed to electromagnetic radiation (server rooms, computer centres, premises of the army and security forces on duty, dispatching rooms and others);

-Protection of industrial premises with a large number of engineering means when solving problems of electromagnetic compatibility, prevent equipment malfunction.

- Protection of living quarters, wards of healthcare facilities to reduce a combined external impact of EMR and EMF, ensuring sanitary and hygienic electromagnetic safety, improving of patients' condition (data from reports):

- Report " Evaluation of effectiveness of treatment of cardiovascular patients in a hospital ward with magnesia-haydite coating "
- Report "State of psychophysiological functions of patients in the shungite ward "
- «Report on the effectiveness of treatment in a haydite ward" (Military Medical Academy named after S.M. Kirov of the Ministry of Defence of the Russian Federation)

**ALFAPOL AMSh®** radio-shielding flooring compound is recommended to be used in combination with **ALFAPOL Sht-1®** radio-shielding plaster.

**FEATURES**

- Two-component composition;
- The product is used as a radio-shielding screed for coatings;
- The product reduces the impact of electromagnetic fields with a frequency of 50 Hz and electromagnetic radiation in the frequency range from 10 kHz to 34.5 GHz by 2-60 times. Depending on thickness of the layer, the shielding efficiency ranges from 5 to 37.2 dB;
- EMP absorption is approximately 80% in the frequency range from 900 MHz to 2000 MHz;
- The product does not distort the Earth's magnetic field, which ensures a natural geomagnetic environment in homes and workplaces;
- The product absorbs electromagnetic radiation;
- The product does not accumulate static electricity;
- The product is shrink-proof;
- The product is used on sites with average intensity of exposure to liquids;
- The product is used for interior work;
- Fire safety (NG Category);
- The product is applied manually or mechanically;
- The product is green.

**GENERAL GUIDELINES**

When using, follow SP 29.13330.2011 of the updated edition of SNiP 2.03.13-88 Floors and SP 71.13330.2017 of the updated edition of SNiP 3.04.01-87 Insulation and Finishing Coatings, Section 4 Construction of Floors. Thickness of the coating shall be determined by the project.

The substrate shall ensure crack-free taking of all types of loads and force effects that may occur during operation.

The concrete substrate must have the following characteristics:

- Age of the concrete substrate, minimal: 1-3 months
- Age of the cement-sand screed, minimal: 28 days
- Compressive strength, minimal: 20 MPa
- Moisture in the substrate, maximal: 5%
- Substrate temperature, minimal: +10°C

Relative air humidity: 60% for the entire period of work. A decrease in the temperature of the substrate and the air, as well as an increase in the air humidity in the premise, slows down setting of the mixture.

The surface of the underlayment shall be clean, free of laitance, dust, oil, paint and other substances that reduce adhesion of the compound. Do not lay the floor coating on the top of a freshly laid cement floor or a frozen substrate.

**COMPOSITION OF THE SYSTEM**

Adhesive layer: **ALFAGRUNT CONCENTRATE®** Consumption: 0.15-0.2 l/m<sup>2</sup>

Ground loop: 40\*2mm copper strip

Brass (copper) mesh: 0.5-0.8mm wire, 2\*2mm mesh

Main layer: **ALFAPOL AMSh®**: Consumption per a layer of 10mm: 17kg/1m<sup>2</sup>

**PREPARING THE SUBSTRATE**

Thoroughly clean the surface of the substrate from substances that reduce adhesion: eliminate abrasive, unstable, loose areas. Mill and vacuum the substrate.

Install gaskets of damping materials with a thickness of at least 5 mm at junctions with walls and columns, as well as in spots where utilities pass.

3 - 4 hours before laying the floor mortar coat, fill up cracks and large potholes in the floor substrate (pre-treated, dedusted and primed) with **ALFAPOL AMSh®**. Metal fragments protruding from the substrate must be cleaned of corrosion and treated with a metal primer. To ensure a shielding factor of at least 60 dB, attach a ground loop made of a copper strip (40x2 mm) around the floor perimeter. Next, solder the mesh to the copper strip, attach to the floor a brass (copper) mesh with a cell of 2x2 mm with brass self-tapping screws, with a pitch of 300x300mm in staggered rows, providing an overlap of the mesh of 50-100 mm. Solder the mesh joint with a pitch of 100-150 mm. In this case, thickness of the AMSh layer applied over the mesh must be at least 40 mm.

Thoroughly prime the prepared surface with **ALFAGRUNT CONCENTRATE** primer 1-2 times. Each layer of the primer must be absorbed into the substrate and cured within 2-4 hours under normal conditions (substrate temperature + 20 °C and 60% relative air humidity).

After the first priming (on a completely dry primer), test absorbency of the substrate by pouring a small amount of water in several places. If water is not absorbed into the substrate for about half an hour, the priming is considered complete.

**PREPARING THE MIXTURE**

The material consists of two factory components and water:

- **ALFAPOL AMSh®** dry mix in 25 kg bags
- **BISHOFIT** grout in barrels or cans

Preparation of the grouting solution.

Mix the grouting agent (**BISHOFIT**) with clean water in a large plastic container. The exact mixing ratio is indicated in the stamp on the side of the bag of **ALFAPOL Sht-1®** dry mix. Make control of the density of the grout solution using a hydrometer (it shall be in the range of 1.18-1.19 kg/l at a solution temperature of 20 °C).

## Preparation of the mortar

Pour the grout mortar into a mortar mixer in the amount indicated in the stamp on the bag of the dry mixture, pour a dry mixture and mix until you get a homogeneous mixture. You can mix the mixture in the building basin manually using an electric mixer. Make a technological pause for 3 minutes to get the solution mature. Stir the mixture again until you get a completely homogeneous mortar. When mixing by hand, use a low-speed construction mixer (400-600 rpm). Do not use any concrete mixers to prepare the mixture.

! Before mixing, all components (grout solution and dry mixture) must have a temperature of at least +10 °C.

## COATING PROCESS

We recommend to carry out a test laying of the grout mixture (1 bag) to find the right amount of liquid in the mixture, to better match the existing substrate, priming, temperature, humidity and other conditions.

Lay the mortar in strips along the pre-installed guides of the required height. Width of the laid strips depends on specific conditions: dimensions of the premise, length of the floating rule or screeding rail. Put the mortar on the prepared substrate and level it with a floating rule or screeding rail, make a flat surface without grooves and voids. Remove the guides from the mortar before it completely hardened, fill the voids with a fresh mortar. After the material is ready (after pressing with a hand with medium force, small indentations remain on the surface), smooth it with a concrete finishing machine ("helicopter") or manually, without using water. During smoothing, timely clean up an influx of fresh mortar on a previously laid strip at joints of the strips. The coating must be cured in dry conditions. Expansion joints and shrinkage joints that exist in the base must be reproduced in the coating. In the absence of joints in the concrete substrate, make some joints in the coating with increments of no more than 6x6 linear meters.

The joints must be made in a time interval of 24 to 48 hours after the ALFAPOL AMSh® screed is laid.

The joints can be tight filled with polyurethane sealant at least 7 days after the screed is laid, after the joints have been preliminary cleaned and dedusted.

To avoid setting, do not keep the mortar mixture in a container more than 20 minutes. The mortar mass begins hardening in 30-40 minutes at an air temperature of 20 °C and a relative humidity of 60%.

## CONDITIONS FOR STRENGTHENING

Technological passage is possible in 8-10 hours at an air temperature of 20 °C and a relative humidity of 60%.

In first hours of curing of the coat, avoid drafts and local overheating of individual sections of the floor (including heating of individual sections of the with sunlight through windows).

No wetting of the coat is allowed during hardening.

The material gains 50-80% of the grade strength after 3 days, the material gains 80-90% of the grade strength after 7 days.

## SUBSEQUENT COATING

Making the finishing coatings (polymer adhesive-based), application of polymer coatings, as well as painting (impregnation) should be carried out as specified in Instructions for these coatings, but not earlier than 5-7 days after the magnesia screed is laid, controlling the moisture content (less than 5%). The magnesia laitance formed on the surface shall be removed mechanically before applying any coatings.

## SAFETY

Follow the standard dust protection procedures (use a respirator) when working. Wash the bischofite grout off open areas of the body with water. If the bischofite grout or dry mix contacts with your eyes, rinse it with plenty of clean water seek medical attention, if required

## PACKAGING, STORAGE AND TRANSPORTATION

ALFAPOL AMSh® dry mix is supplied in 25 kg bags.

The grout (natural bischofite) is supplied in barrels or cans of various sizes.

Store ALFAPOL AMSh® dry mixture in the sealed original package in a dry room on pallets at temperatures below + 5 °C, without humidification of the product.

The warranty shelf life of the dry mix is 6 months after the date of manufacture under normal conditions. The product can be shipped by all types of vehicles that can ensure protecting the dry mixture from getting wet.

## RESPONSIBILITY

Information and recommendations for preparation and application of ALFAPOL AMSh® mortar are given based on the current knowledge and experience of using the material, provided it is stored correctly. Conditions of a real site, differences between materials of the substrates, temperature and humidity conditions of the work are such that any guarantee regarding commercial profit, as well as liability arising from any legal relationship, cannot be provided either based on these instructions, or on any written recommendation or other reference information. The persons who will use this material have to test it for suitability for a particular purpose and application. When working with ALFAPOL AMSh® dry mix, use the latest version of the Instructions for use of the material, which is presented on the LLC ALFAPOL official website available by the QR code printed on the package (bag) of the dry mix.

The manufacturer is not responsible for improper use of the product, for not following the technological procedure when working with the product, as well as for its use for the purposes different from intended one. In the case of doubts about correctness of use of the product, please, test it individually (ref. this instruction on test laying) or contact ALFAPOL, LLC manufacturer for consultation. ALFAPOL company reserves the right to make changes in features of the materials produced.

## SPECIFICATION

Single layer thickness:

Without mesh 15-40 mm

With mesh 40-50 mm

Material consumption per a layer of 10 mm: 17 kg per 1 m<sup>2</sup>

Solution usability time: 40 minutes

Application temperature: +10 °C to +25 °C

Option for technological passage: 8-10 hours

Application of finish coats at normal conditions, not earlier: 5-7 days

Compressive strength at the age of 28 days, minimal: 20 MPa

Flexural tensile strength, 28 days, minimal: 6 MPa

Concrete adhesion strength, minimal: 1 MPa

Thermal conductivity: 0.96 W/m °C

Specific volumetric electrical resistance as specified in GOST 12.4.124-83, 10<sup>4</sup> ohm-m

Specific surface electrical resistance as specified in GOST 12.4.124-83, 10<sup>4</sup> ohm

Corrosion resistance, GOST 27677-88: gasoline, min. oil

Radiation safety standard (NRB-99/2009): Class 1

Flammability category, GOST 30244-94: Non-flammable (NG)

Fraction, maximal: 3mm

Store after the date of manufacture: 6 months

TU 5745-002-56234968-2005. PATENT FOR INVENTION No. 2233255 CERTIFICATE OF CONFORMITY No. ROSS RU.AD38.H00167. THE PRODUCT IS NOT SUBJECT TO MANDATORY CERTIFICATION. THE PRODUCT IS NOT IN THE LIST OF PRODUCTS SUBJECT TO MANDATORY FIRE SAFETY CERTIFICATION. THE COMPANE CAN MAKE CORRECT THE INSTRUCTIONS APPLIED ON BAGS IN THE TYPOGRAPHIC METHOD.