

ALFAPOL ShT-1: INSTRUCTIONS FOR USE

DRY MIXTURE FOR INTERIOR WORK, MAGNESIAL PLASTERING RADIO-SHIELDING ANTISTATIC MIXTURE FOR MANUAL AND MECHANIZED APPLICATION
V3.5 Pk1-Pk2

DESIGNATION AND SCOPE

ALFAPOL ShT-1® radio-shielding dry mixture is used to create a levelling layer of walls 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.

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)

It is recommended to use ALFAPOL ShT -1® radio-shielding plaster in combination with radio-shielding flooring mixture ALFAPOL AMSh®.

FEATURES

- The product reduces the impact of electric 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;
- Fire safety (NG Category);
- The product is applied manually or mechanically;
- The product is used for interior work;
- The product is green.

GENERAL GUIDELINES

When working, it is necessary to follow SP 71.13330.2017 updated edition of SNiP 3.04.01-87 "Insulation and finishing coatings". 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 substrate must have the following characteristics:

- Age of the concrete substrate, minimal: 1-3 months
- Age of the plastered surface, minimal: 28 days
- Grade of enclosing structures of cellular concrete, minimal: D500
- Moisture in the substrate, maximal: 5%

- Substrate temperature: 10 °C to 25 °C

Relative humidity in the premise for the entire period of work: 60%. 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.

COMPOSITION OF THE SYSTEM

Adhesive layer: ALFAGRUNT CONCENTRATE® Consumption: 0.15-0.2 l/m²

Ground loop: 40*2mm copper strip

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

Main layer: ALFAPOL ShT®: Consumption per a layer of 10mm: 14kg/1m²

PREPARING THE SUBSTRATE

Thoroughly clean the substrate from dust and substances that reduce adhesion of the plaster. Irregularities and imperfections in the surface with a depth of more than 20 mm should be eliminated with ALFAPOL ShT-1® plaster mix not less than 3 days before applying the screening plaster. Prime the prepared surface with ALFAGRUNT CONCENTRATE in two or three coats. 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 second priming (on a completely dry primer), test absorbency of the substrate by spraying 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.

Make a ground loop to ensure a screening factor of at least 60 dB (hard screening).

1. Using self-tapping screws, attach a copper strip of 40*2 mm along the entire perimeter of the premise, along the walls, at a distance of 200 mm from the floor.
2. Attach a brass (copper) mesh with a mesh of 2 * 2mm to the walls, providing an overlap of the mesh of 50-100 mm.
3. Solder the mesh joints with a step of 100-150mm and attach them additionally to the walls in staggered rows with brass self-tapping screws with a step of 300*300mm.
4. Connect the mesh to the ground loop strip by soldering or with brass self-tapping screws, 300 mm pitch.

PREPARING THE MIXTURE

The mortar is prepared from two factory components: ALFAPOL ShT-1® dry mix and (BISHOFIT) aqueous grouting solution. All components must have a temperature of at least + 10 °C.

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

COATING PROCESS

We recommend to carry out a test laying of the plaster mixture (1 bag) to find the right amount of the grouting agent, to better match the existing substrate, priming, temperature, humidity and other conditions. In case of visible stratification of the mixture, we recommend to reduce amount of the grouting mixture by 5-10%. Apply the plaster mortar to the prepared surface using a plaster pump, trowel or spatula in three steps:

1. Splashing. Throw the plaster mortar onto the wall or ceiling with a trowel in a continuous layer.
2. Apply the prime coating after the splashes have hardened (approximately after 12-24 hours) and levelled using a floating rule. After 15-20 minutes, thoroughly rub the prime coating with a plastic or wooden float until you get a flat and smooth surface, without using water.
3. Finish coat (which can be replaced with a putty layer) shall be applied in a thin layer of 3-5mm and carefully rubbed to get a smooth, even surface.

The prepared part of the plaster mortar should be used within 20 minutes at 20 °C and 60% relative humidity. The screed guide should be removed from the plaster before it completely hardened. The resulting voids should be sealed with ALFAPOL ShT-1 plaster mix.

After you finished the work, rinse the tool with water. You should work at night or in the morning at temperatures above 25 °C.

CONDITIONS FOR STRENGTHENING

The mortar should harden in dry conditions with little ventilation and no drafts. Wetting the plaster with water is not allowed during smoothing and hardening. You should dry the premise using a fan heater no earlier than 72 hours after applying the plaster. The material gains 30-50% of the grade strength after 3 days. Operation of the coating is possible without restrictions after 28 days.

SUBSEQUENT COATING

You can apply any putty and finishing coatings following Instructions for these coatings. The work can be performed no earlier than 7 days after applying the last plaster layer, controlling the moisture content of the substrate. Repair the plaster during operation as specified in this Instruction.

SAFETY

When working, follow the standard dust protection procedures (use a respirator). If magnesia solution, grout or dry mix gets in your eyes, rinse them with plenty of clean water. Seek medical attention if required.

IMPORTANT NOTE: All specifications in the Instructions for Use are based on laboratory test results. In specific conditions, the data obtained during the measurements may differ due to influence of the factors that the manufacturer has no control over.

TU 5745-001-82166262-2001. PATENT FOR INVENTION No. 2233255. THE PRODUCT IS NOT SUBJECT TO MANDATORY CERTIFICATION. THE PRODUCT IS NOT IN THE LIST OF PRODUCTS SUBJECT TO MANDATORY FIRE SAFETY CERTIFICATION. THE COMPANY CAN MAKE CORRECTIONS.

STORAGE AND TRANSPORTATION

ALFAPOL ShT-1® dry mix is supplied complete with the BISHOFIT grouting agent.

The guaranteed shelf life of the dry mix is 6 months after the date of manufacture if the product is stored in original, undamaged packaging in a dry place on pallets at temperatures + 5 °C to + 30 °C. Avoid wetting the material.

The product can be shipped by all types of vehicles that can ensure protecting the bags from getting wet.

RESPONSIBILITY

Information and recommendations for preparation and application of ALFAPOL ShT-1® 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 ShT-1® 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: 10-20 mm
Material consumption per a layer of 10mm: 14kg/1m²
Solution usability time: 20 minutes
Application temperature: + 10° C to + 25 °C
Specific volumetric electrical resistance, GOST 12.4.124-83: 10⁴ Ohm-m
Specific surface electrical resistance, GOST 12.4.124-83: 10⁴ Ohm
Radiation safety standard (NRB-99/2009): Class 1
Corrosion resistance, GOST 27677-88: gasoline, min. oil
Flammability category, GOST 30244-94: Non-flammable (NG)
Compressive strength at the age of 28 days, minimal: 5 MPa
Flexural tensile strength, 28 days, minimal: 5 MPa
Concrete adhesion strength, minimal: 1 MPa
Water vapour permeability, mg/m²*h*Pa: 0.024
Thermal conductivity: 0.96 W/m°C
Fraction, maximal: 2 mm
Store after the date of manufacture: 6 months