# ALFAPOL COATINGS® FOR MARINE AND SHIPBUILDING FACILITIES

## ALFAPOL VK (m): INSTRUCTIONS FOR USE

FINE-DISPERSED SELF-COMPACTING DECK FLOOR CEMENT DRY MIXTURE
B35 F300 W12 PK5

## DESIGNATION AND SCOPE

**ALFAPOL VK (m)** dry mix is designed for laying fire-safe self-levelling thin-layer primary deck coatings on metal substrates (steel, aluminium, galvanized steel). It is designed for residential and office premises of sea and river vessels and for other floating structures.

**ALFAPOL VK (m)** can also be used as a levelling agent for laying wear-resistant floor coverings in industrial, warehouse, refrigeration and other premises.

It meets the fire safety specification when used as an underlayment or finishing layer of floors. It meets the International Code for Application of Fire Test Procedures 2010, (IMO Resolution MSC.307 (88)) and approved by the Russian Maritime Register of Shipping.

## FEATURES

Self-levelling mixture ALFAPOL VK (m) based on modified Portland cement, reinforced with reinforcing fibres, provides an option for making durable floor structures.

- Layer thickness 2 to 30 mm.
- For metal and mineral substrates
- High spreadability
- High water permeability and frost resistance
- Abrasion less than 0.7g/cm²
- Brand strength more than 45 MPa
- Vapour permeability
- Fire safety (NG Category). Meets fire safety requirements for ships, drilling rigs and onshore facilities
- It is used under any finishing and polymer coatings as a levelling layer
- It can be used as a final coat without coating on mineral substrates
- Mechanized or manual application.
- Green material
- Topcoats can be applied after 5 days

## REQUIREMENTS FOR THE SUBSTRATE

**Metal substrate:**

- The substrate shall be securely fixed to the supporting structures of the vessel and have no deformations and shifts
- No traces of corrosion shall be demonstrated
- Substrate temperature, minimal: +10°C

**Concrete substrate**:

- 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

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

## PREPARING THE SUBSTRATE

When using, it is necessary to follow SP 29.13330.2017 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. Substrate temperature shall be not less than + 10 °C, relative air humidity shall be 60% for the entire period of work. Any decrease in the temperature of the substrate and air in the room slows down setting of the ALFAPOL VK (m) mixture.

**Metal substrate**

It shall be subjected to abrasive processing (sanding or shot blasting) to remove traces of dirt and corrosion, and dedusted with an industrial vacuum cleaner. Install gaskets of damping materials with a thickness of at least 5 mm at junctions with walls, columns and other supporting structures, as well as in spots where utilities pass. Steel substrates shall be primed with **ALFAGRUNT IK** primer in one layer. Aluminium and galvanized substrates shall be first primed with ALFAPOL EP-1G epoxy primer sprinkled with quartz sand of fraction 0.1-0.4 mm. After the primer cured and the non-adherent quartz sand removed, the surface shall additionally be primed with ALFAGRUNT IK primer in one layer.

**Concrete substrate**

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

Remove any cement laitance, abrasive unstable, loose and peeling areas of the substrate, mill it and clean the substrate from dust with an industrial vacuum cleaner. 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 coating, fill up cracks and large potholes in the floor substrate (pre-treated, dedusted and primed) **with ALFAPOL VK (m)** mortar. Metal fragments protruding from the substrate must be cleaned of corrosion and treated with a metal primer.

Thoroughly prime the prepared surface with **ALFAGRUNT CONCENTRATE** primer 2-3 times. Each layer of the primer must be absorbed into the substrate and cured within 2-4 hours under normal conditions (temperature + 20 °C and 60% relative humidity). After the second 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 MORTAR

Before mixing, clean water and dry mixture must have a temperature of at least + 10 °C. Pour 4.5 l of pure water into a clean plastic container (30-100 l.), pour the contents of a 25 kg bag of dry mixture and mix with a mixer until ready. Maintain a process pause for 3 minutes to ripen the mixture and re-mix the mixture until completely homogeneous.

Do not use a concrete mixer to prepare the mixture, the mixer speed should be 400 - 600 rpm

## COATING PROCESS

The manufacturer recommends to carry out a test laying of the mixture (1 bag) to find the right amount of water in the mixture, to better match the existing substrate, priming, temperature, humidity and other conditions. In case of visible stratification of the mixture, it is recommended to reduce amount of water by 5-10%.

Pour the finished mixture onto the prepared substrate, level it with a squeegee, ensuring the required layer thickness and roll it with a needle roller. Length of the needle in the needle roller must be more than thickness of the layer to be laid.

To ensure self-levelling of the mixture and withholding of industrial loads by the coating, the minimal thickness of the coating layer should be more than 6 mm. After pouring the next portions of the mixture, the joints and the entire surface of the fresh cast shall immediately be smoothed out with a squeegee and rolled with a needle roller to remove any air bubbles. To avoid sagging, the mixture shall be poured in a continuous way without process breaks. In spots where accelerated setting of the mortar mixture is possible (near-wall areas, areas of heated floors, areas close to hot equipment and heating appliances), microcraters and hairline cracks may appear, without breaking adhesion to the substrate. Expansion joints and shrinkage joints that exist in the substrate must be reproduced in the finished **ALFAPOL VK (m)** coating. In the absence of joints

in the substrate, it is necessary to make saws in the **ALFAPOL VK (m)** coating with an interval of approximately 6*6m. The joints must be made in a time interval of 24 to 48 hours after the moment the floor coating **ALFAPOL VK (m)** poured. Fill the joints tightly with polyurethane sealant, having them pre-cleaned and dedusted for 7 to 15 days.

**Consumption of the dry mix** is 17.5 kg per 1m² of surface with a layer thickness of 10 mm.

It is not recommended to keep the mortar mixture in a mixing container more than 20 minutes to avoid setting. The mortar mass begins thickening in 30-40 minutes at an air temperature of 20 °C and a relative humidity of 60%.

At the end of the shelf life of the product (subject to storage conditions), we recommend you carry out a test mixing of the dry mixture with an amount of water reduced by 5-10%. In the absence of stratification and acceptable fluidity of the mixture, the product is suitable for further use as intended.

## CONDITIONS FOR STRENGTHENING

Technological passage on the coating is possible in 10-12 hours at an air temperature of 20 °C and a relative humidity of 60%. During work and in the first hours of curing of the coating, avoid drafts and local overheating of individual sections of the floor (including heating of individual sections of the floor with sunlight through windows, stained-glass windows, or heating devices). The coating should be protected from drying out in hot seasons.

The material gains 30-50% of the grade strength after 3 days, the material gains 50-80% of the grade strength after 7 days.

Operation of the coating is possible without restrictions after 28 days.

Wet cleaning of the floor is allowed no earlier than 7 days after the product laid.

The floors are allowed to be washed and disinfected many times.

## SUBSEQUENT COATING

Making of ceramic tile cladding can be carried out after five days, laying of linoleum and vinyl tiles can be carried out after seven days, application of polymer coatings, as well as painting (impregnation) should be performed guided by Instructions for these coatings, but not earlier than 12-15 days after the floor is poured, controlling the humidity of the cement industrial floor. The laitance formed on the surface shall be removed mechanically before applying any roll and polymer coatings.

## SAFETY

Follow the standard dust protection procedures (use a respirator) when working. The cement mortar has an alkaline reaction and should be washed off from the skin with water. If the cement mortar or dry mix contacts with your eyes, rinse it with plenty of clean water and seek medical attention, if required.

## PACKAGING AND STORAGE

The dry mix **ALFAPOL VK (m)** is supplied in 25 kg paper bags.

The product shall be stored in a dry place on pallets no longer than 6 months.

## RESPONSIBILITY

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. Recommendations that are not confirmed in writing cannot be deemed as a basis for unconditional liability of the material manufacturer.

## SPECIFICATION

**Mixing water quantity per 25kg bag:** 4.5 l
**Solution usability time:** 20 min
**Application temperature:** + 10° C to + 25 °C
**Single layer thickness:** 2 to 30 mm
**Material consumption per a layer of 1mm:** 1.75 kg/1m²
**Option for technological passage:** 10-12 hours
**Application of tiled facings - after 5 days, linoleums - after 7 days; polymer coatings (under normal conditions), not earlier than: 12-15 days**

**Compressive strength at the age of 28 days, minimal:** 45 MPa
**Flexural tensile strength, 28 days, minimal:** 7 MPa
**Concrete adhesion strength, minimal:** 1.2 MPa
**Frost resistance, brand:** F300
**Water permeability, brand:** W12
**Mortar mobility grade, minimal:** Рк5
**Abrasion, maximal:** 0.7 g/cm²
**Thermal conductivity:** 0.96 W/m°C
**Radiation safety standard (NRB-99/2009):** Class 1
**Hardened coating density:** 2100±100 kg/m³
**Flammability category, GOST 30244-94:** NG
**Fraction, maximal:** 0.63 mm
**Store after the date of manufacture:** 6 months

TU 5745-011-82166262-2012. CERTIFICATE OF CONFORMITY No. ROSS RU.HB56.H02122. MEETS THE REQUIREMENTS OF THE INTERNATIONAL CODE FOR APPLICATION OF PROCEDURES FOR TESTING FOR FIRE RESISTANCE, 2010 (IMO RESOLUTION MSC.307 (88)), TECHNICAL REGULATION ON SAFETY OF SEA TRANSPORT FACILITIES.