Application Instructions

**GENERAL INSTRUCTIONS FOR STORAGE, TRANSPORTATION AND APPLICATION OF ISOLLAT LIQUID CERAMIC COATING**

1. **Storage and transportation**

Store and transport liquid ceramic coatings Isollat-01, Isollat-02, Isollat-03, Isollat-04 in a cool (but not cold) place, in tightly closed (sealed) containers, at ambient air temperature of **+5°С minimum.**

DO NOT store or transport Isollat-03 at temperatures exceeding +20° С.

Isollat-M shall be stored at above-zero temperatures. Transportation of Isollat-M is allowable at below-zero temperatures.

2. **Preparation of Isollat coatings for application**

Before use or after a break in application, stir Isollat liquid ceramic coating thoroughly.

It is recommended to stir Isollat coatings at stirring head rotation speed of 100 – 150 RPM maximum (stirring at higher RPM may cause mechanical destruction of the hollow ceramic spheres and, as a result, damage to the product). Vary the blade angle while lowering the blade to the bottom of the bucket and raising it again.

Continue vertical movements of the blade while making rotational movements along the inner radius of the bucket.

Stir the product to obtain a homogeneous mass with consistency equivalent to that of normal sour cream.

**Caution:** ***It is not recommended to dilute Isollat with water, because this may cause undesirable changes in the product. However, if the coating becomes too thick or clotty, or a thick crust appears on its surface (because of incorrect or too long storage), add water in small portions (50 to 120 ml per 19 liters of the product) while stirring it thoroughly to obtain viscosity equivalent to that of sour cream.***

During painting operations involving Isollat-M at below-zero temperatures (down to minus 15° С) it is recommended to use the material, which was stored in a warm place at a temperature of +10°С minimum, and stir the material before starting work. Apply Isollat-M during 1 or 2 hours from 1 bucket, to avoid excessive viscosity and hardening.

If the material has hardened, warm it up in a warm place and stir thoroughly; then continue the painting operations.

3. **Surface preparation**

· ***Metal surface***

Remove old peeled-off coating and dirt from the surface to be coated (this operation shall be done mechanically, using metal brushes, doctor blade, roller cutters or scrapers), and degrease the surface using gasoline.

If the surface displays large areas of deep-seated rust, cover the surface with phosphating compound SF-1 or equivalent to remove corrosion (SF-1 layer thickness should be 0.01 – 0.05 mm); after the application of the phosphating compound, it is recommended to coat the surface with organo-silicon varnish (layer thickness 0.01 – 0.05 mm).

**Caution:** ***If Isollat coating is to be applied to a metal surface, temperature of the surface shall be***+***120°Сmaximum and +6°С minimum, and shall be equal to or higher than the ambient air temperature.***

During operations at below-zero temperatures using Isollat-M (down to minus 15° С), the surface to be coated shall be dry and free of ice. Preparation procedures shall be carried out at above-zero temperatures.

· **Brick surface**

To ensure good adhesion of the coating, clean the brick surface from salt efflorescence and old loose painting using a spatula and a stiff wire brush; then treat the surface with antiseptic agent (biocide) of appropriate type (for mineral surfaces).

· **Limestone/plastered surfaces**

For better results, prior to painting fresh plaster, apply a layer of deep-penetrating acrylic primer (this is essentially important for soft, crumbling plastered surfaces). “Old” plaster, if necessary, should be coated with colorless acrylic primer to fill in pores and cavities. The smooth surface will require a lesser quantity of Isollat, and the Isollat layer will have more uniform color. Sometimes, in conditions of hot dry climate, prior to applying the coating to a plastered surface without primer, it is necessary to wet the surface with water: this will prevent Isollat from excessively fast drying-up.

· **Chalky surfaces**

Before applying Isollat coating to a chalky surface, wash the surface with a solution of ammonia or soda (1 liter of 25% ammonia per 10 liters of water). Then apply colorless acrylic primer. The surface is ready for painting.

· **Concrete surfaces**

Clean the surface from dust and dirt (use a brush), mould (use 1:3 lime chloride solution in water), and oil (use bluestone solution).

· **Wooden surfaces**

Wood tends to be moisture-absorbing, flammable, and apt to bio-deterioration. Therefore, use a primer with fire-retardant and/or biocide additives.

**4.** **Application of Isollat Coating**

There are several methods to apply Isollat coating to the surface:

· ***Application using a painting brush***

Prior to the first application of Isollat coating, wet the brush with water and shake off excess water. During further procedures, wet the brush only when it becomes dry. It is recommended to wet the brush only for convenient application of the coating, so that the coating is even and smooth and do not roll up on the hot surface, because the coating is rather dense.

· ***Application using airless high-pressure spray gun***(type ST MAX Graco-495, ST MAX Graco-595, Ultra Max Graco-695, Uitra Max Graco-795, Graco Mark-V, Graco 1095) at operating pressure of 40 to 100 bar. Select the lowest possible operating pressure in the spray gun in order to prevent damage to the spheres during application.

After the work, wash the brushes or spray guns with water thoroughly.

The number of Isollat layers varies from 2 to 6 depending on the objective. Thickness of 1 layer is 0.3 to 0.5 mm.

**NOTE: *Actual thickness of each layer and the number of layers depend on the selected method of application, technical parameters of equipment being used, finish of the surface being coated, and skills of the specialists.***

Time required for thorough drying of coatings Isollat-01, Isollat-02, Isollat-03, and Isollat-04 at a temperature of +20°С minimum varies depending on air humidity:

At relative humidity of 50% or lower, complete drying takes 6 hours

At relative humidity of over 50%, complete drying takes 12 hours.

At ambient temperature of over +40°C, time for the drying-up of 1 layer may be reduced to 2 hours.

Time for complete hardening of 1 layer of Isollat-M at below-zero temperature is 10-11 hours.

Isollat-04 after drying shall be heated at 200°С for 2 hours; then the second layer and subsequent layers are applied until thickness of 1.5 mm is reached.

Time between applications (for complete drying and evaporation of vapors) shall be at least 30 minutes at +200° С. After application of all layers, the coating shall be heated for 48 hours at +200° С; then, the temperature of the coated surface may be raised to the required operating value.

Isollat-04 is typically used in combination with other materials.

**5. Safety Precautions**

When applying Isollat-04, wear protective breathing apparatus. Wear chemical protective goggles to protect eyes. Wear chemical protective gloves and clothes to protect skin.