Ultra-Thin Thermal Insulation Fluid KORUND CLASSIC

KORUND is a film-forming coating, intended for thermal insulation of metal, plastic and other surfaces used at the temperatures -60°C to +200°C (to +260°C in short-term peak-load operation). **KORUND** is easily applied to any types of surfaces. For application, the surface temperature must be +7°C to +150°C. When using **KORUND** thermal insulation fluid, special care must be taken to ensure the following:

1. Do not let **KORUND** freeze

2. Always check the seal for integrity before opening the container

3. Avoid excessive agitation during preparation (please see it. 2 hereof)

4. Do not add extra water during preparation (please see it. 2 hereof).

1. Surface Preparation

Make sure that the surface to be insulated is free from dirt, rust, dust, old paint, flakes, etc. Take special care to ensure that the steel surface has no loose rust which will peel off the surface with the coating after **KORUND** is applied. Use a wire brush or grinding wheel to remove loose rust from the steel surface to a shine. Apply some rust solvent to the clean surface; let it soak for two hours, if necessary. New metal surfaces may require preservatives to be removed. The surface is ready when it is dry (no condensate allowed as well); free from flakes, oils and fatty components; has limited elasticity. If **KORUND** is planned to be used with ferrous metals operating at the temperatures up to +150°C, make sure that the surface is free from dust, grease or any fat; apply either **KORUND ANTICOR (preferred option)**, or prime the surface with VL-02 or VL-023 (one or two layers as specified in the primer manual). If you plan to use the coating with non-ferrous metals, the surface must be mechanically treated to remove the gloss, dust, grease or fat and primed with adhesive material VL-02 or VL-023 (one or two layers). If **KORUND** is planned for concrete, brick or similar surfaces, clean the loose spots, treat the cracks, remove the oil inclusions, clean the concrete from bleeding cement, repair the surface, including brickwork joints to cut down on material used and cavities deeper than 5 to 7 mm, with a cement plaster. The surface must be blast cleaned, or a wire brush or grinding wheel must be used to remove the surface gloss, flakes or break-loose pieces. When mechanical treatment is complete, use brushes or blowers for thorough dust cleaning. Then rinse the surface with water to remove any dirt, residual dust, etc. Let it dry completely, then apply the deep-penetration acrylic primer undercoat. For the fronts of buildings and structures made of vapour-permeable materials (concrete, brick, etc.), the **KORUND FACADE** configuration is a better choice.

2. Making the KORUND Insulation Coating

KORUND is ready for use; **add some distilled water and stir it if necessary** just before application to the prepared surface. Water must be added subject to the base material temperature, ambient temperature and humidity, intended application and other factors. For surface temperatures +7°C to +80°C, the proportion of water added to the material may be 5% or less when applied with a brush and 3% or less for airless spray application. For surface temperatures over +80 °C, it must be decreased first with several undercoats containing Korund diluted with 40 to 50% of distilled water according to the procedure described in it. 3 Application Procedure. For more details, please consult the local representative or manufacturer. Long-term storage may lead to segregation of the product. When a drill with a mixing bit or a mixer is used (please consult the local Korund representative for suitable equipment), the maximum allowable stirring rate will be 150 to 200 **rpm**. Exceeding this limit may destroy the microsphere and entail a dramatic drop in efficiency of heat insulating coat (or even its loss). Use vertical travel of the blade to submerge the thicker part into liquid, turn the drill on and start to rotate the blade mixing the lumps with the liquid. Continue mixing till the product becomes creamy. Approximate mixing time is 3 to 8 minutes when a mixer is used, or 7 to 10 minutes for manual stirring. If condensate or frost crust removal is required, the product must be added with minimum amount of water and applied with maximum interval between layers.

3. Application Procedure

Use a soft brush with long natural bristles or airless sprayer (for recommended types and manufacturers of airless sprayers and recommended settings, please consult your local representative). To apply the coating to small spots or hard-to-reach areas, a soft brush can be used. Surface areas larger than 100 sq. m can be coated with an airless sprayer with the working pressure of 60 to 80 bar or less (IMPORTANT!!! Some airless sprayers are not suited for Korund application!!! Please refer to the manufacturer or local Korund representative to seek advice on selecting, configuring and operating an airless sprayer. See also additional Airless Sprayer Application Procedure). Insulation coating can be applied at a surface temperature of +7ºC to +150ºC; avoid applying in humid weather as water will dilute the product and prevent it from drying up. For better adhesion to the surface, prime the prepared surface with a thinner solution of the product (having a milky consistency) diluted with 40 to 50% of distilled water. The drying time for one layer 0.4 to 0.5 mm thick will be at least 24 hours at ambient temperature over +7°C and humidity 80% or less maintained during the entire drying period, i.e. 24 hours. The next coat can only be applied when the previous one has been completely dried, i.e. after 24 hours at room temperature. Three passes of a sprayer or brush are sufficient to make a 0.4 to 0.5 mm-thick coat (optical density measurement). Do not apply a thicker coat; this will create a moisture-resistant film on its surface which will impair the evaporation process and result in the loss of heat-transfer properties and deformation of the coat. When applied at a surface temperature of +80°C to +150°C, the

product starts boiling and sets very quickly; therefore, it has to be diluted with water. It is recommended that the surface is primed with 40 to 50-percent aqueous solution of the product. IMPORTANT! If **KORUND** is applied at surface temperature over +80°C, the maximum coat thickness cannot exceed 0.5 mm during 24 hours. The hotter the surface is, the thinner the product must be. Apply the diluted product in short quick strokes to obtain a very thin coat. Let each of such coats dry for at least one hour. Keep laying such coats until the material stops boiling on the surface. Let it dry for 24 hours. Then proceed with the normal application system adding 3 to 5 percent of distilled water to make 0.5 mm-thick coats and waiting 24 hours between the coats. To measure the coat thickness of 0.5 mm, you may choose to use a comb-type wet film thickness gauge, or product consumption rate of 0.55 liters per square meter (approximate consumption when applied by brush to a flat surface), or optical density of the product (the base surface must not be seen through the coat). The consumption rate of the product may vary subject to the type of the surface and application technique. The total coating thickness and number of coats will be determined by the heat balance calculation or as recommended by the certified regional representatives of the manufacturer.

4. Safety Considerations for KORUND Handling

4.1 Personal Protection

The product is safe under normal conditions. Respirators are not required for handling the product in a well-ventilated area or outdoors. For poorly-ventilated areas, wear a standard respirator. For eye protection, use chemical splash goggles. Ensure easy access to eye wash stations. For skin protection, use chemical protective gloves and protective clothes. Wash protective clothes after each use.

4.2 Emergency Response

In case of eye contact, immediately rinse the eyes with running water for 15 minutes. If irritation persists, consult a doctor. In case of skin contact, clean the skin with water and soap. Wash the contaminated clothes after each use. In case of inhalation, move to fresh air. The product is non-flammable in liquid state. If the coated structures or buildings catch fire, use water, foam, dry chemicals or carbon dioxide to put out the fire. In case of spill, use any absorbing material like sand, soil, etc. to remove the spilled product.

5. KORUND Storage and Transportation Conditions

KORUND must be stored in a tightly closed container at a temperature of +5° to +30°C, air humidity of 80% or less, away from direct sunlight. The transportation package must ensure correct and safe orientation of the container. Any loss of container's integrity will entail damage to the product.

In case of failure to meet any application or storage requirement, the manufacturer will decline any liability for the quality of the coating.