BRONYA

SUPERFINE HEAT INSULATION

Application Guidelines
BRONYA UNIVERSAL NF Superfine Heat Insulation

BRONYA UNIVERSAL NF is a film-forming coating material for heat insulation of metal, plastic and other surfaces with operating temperature ranges from -60 °C to +140 °C. **BRONYA UNIVERSAL NF** can be easily applied on all types of surface. Insulating works can be carried out on surfaces with temperatures from +7ºC to +120ºC. When using **BRONYA UNIVERSAL NF** liquid heat insulation, pay special attention to the following conditions

1. No freezing of **BRONYA UNIVERSAL NF** heat insulation is allowed
2. Prior to opening a package make sure the seals are intact
3. Avoid excessive agitation during preparation (refer to section 2 below)
4. Avoid excessive water dilution during preparation (refer to section 2 below)

1. Surface preparation

Remove dirt, rust, dust, old paint, loose elements etc. from the surface to be insulated. Pay particular attention to removal of fungus-like loose rust that will detach from metal together with the coat once BRONYA insulation is applied. Use wire brushes or sand disks to remove rust from metal surface; keep working on the loose rust until the metal shines.

Treat the rust-free surface with rust solvent and hold for 2 hours as required. New metal surfaces can require removal of preserving agents. The prepared surface must be dry (and without condensate) and free from loose, oily or greasy matter, and should not be excessively plastic and glossy. If **BRONYA UNIVERSAL NF** is to be used on ferrous metal surfaces with operating temperature up to +120ºC, the surface must undergo preliminary dust removal and degreasing; either cover the surface with **BRONYA ANTIRUST** (more preferable) or treat with primer VL-02 or VL-023 (1-2 coats as specified in the Primer Instructions).

If the coating is to be laid on nonferrous metal surface, use mechanical means to remove gloss, dust, degrease, treat with adhesive primer VL-020 or VL-023 (1-2 coats). If **BRONYA UNIVERSAL NF** insulation is to be applied on the elements of concrete, brick, wooden and other similar surfaces, it is required to remove loose matters and oily inclusions, treat the cracks, clean the concrete from laitance, repair the concrete surface and brickwork joints with concrete and trowelling compounds to reduce the material consumption and pockets deeper than 5-7 mm. Treat the surface using sand blasting equipment, metal brush or sand disks to remove surface lustre as well as peeling-off and loose elements of the constructions. After the mechanical treatment of the surface is completed, use brushes or air blowers for thorough de-dusting. Then flush with water to remove dirt, dust residues, etc. When the surface is totally dry, apply acrylic deeppenetration primer. **BRONYA FACADE** modification shall be applied on some areas of building and structure enclosures made from vapor-permeable materials (concrete, brick, etc.).

2. Material preparation

BRONYA UNIVERSAL NF is ready for use, prior to application to the pre-prepared surface, stir up and add some distilled water as required. The amount of water also depends on the temperature of the base surface, ambient temperature and humidity, subsequent operation and other factors. When the material is laid on the surface with temperature range from +7°C to +80°C, the amount of water added to the material should not exceed 5% if applied by brush and 3% if applied mechanically (by airless sprayer). When the material is laid on the surface with temperature above +80°C, apply several prime layers of **BRONYA UNIVERSAL NF** insulating material diluted with the 20- 50% of distilled water as shown in section 3 “Application of insulating coating” to reduce the temperature. For detailed recommendations please consult the local representative office or the manufacturer*. For extended storage periods in containers splitting into fractions is possible. If a drill with paddle bit or a mixer is used (please consult your local Bronya representative regarding the type of equipment to be used), the maximum permissible agitating rate is 150 rpm. Excessive agitating rate will cause microsphere destruction and dramatic deterioration (or loss) of heat insulation efficiency. Use vertical travel of the paddle to immerse the stiffened part into liquid, switch on the drill and start slow rotation of the paddle to mix the solid lumps with the liquid. Keep mixing until the product becomes a homogeneous viscous mass. Approximate time of mixing with the mixer is 3-8 minutes, for manual mixing is 7-10 minutes. If condensate or frost crust removal is required, the material shall be applied with minimum amount of water added and with maximum interlayer drying interval.

3. Coating application

Use of soft brush with long natural bristles or airless sprayer is recommended (please ask your local representative about the recommended models of the airless sprayers and adjustment tips). One can use soft brush to lay the coating on small surfaces or areas of irregular shape.

Surface areas up to 100 m2 can be coated with an airless sprayer having maximum operating pressure of 60-80 bar **(IMPORTANT! Not all airless sprayers can be used for application of Bronya insulation!!!)**. Please consult your local **BRONYA UNIVERSAL NF** representative or the manufacturer regarding the selection, adjustment and operation of the airless sprayers. Also see additional Operation Sheet for operation of the airless sprayers. Insulation coating can be laid on the surface with temperature from +7ºC to +120ºC and maximum relative humidity of 80%. To achieve better bond with the surface to be coated, it is recommended to apply a primer coat on the prepared surface; for primer, use liquid composition of material (liquid as milk), dissolve the material with 20- 50% of distilled water. Complete drying of one coating layer with 0.4-0.5 mm thickness takes 24 hours minimum at ambient temperature of higher than +7 °C and maximum humidity of 80% over the entire drying period, which is to say 24 hours. The next layer can be applied only after complete drying of the previous layer, i.e. in 24 hours at given conditions. To form a coat approx. 0.4-0.5 mm thick (optical thickness) three passes of sprayer or brush are required. Laying of material with thicker coats is not allowed, since this results in development of damp-proof film on its surface; the film will prevent complete evaporation of moisture, and this will lead to loss of thermo-physical properties and coating deformation. When applied on the surface with temperature ranging from +80°C to +140C, the material starts boiling and stiffens very quickly; therefore, the material should be diluted with water. It is recommended that 20- 50% water solution of the material be applied on the surface as a primer coat.

IMPORTANT! When **BRONYA UNIVERSAL NF** insulation is applied on the surface with temperature above 80°C, the maximum layer thickness shall not exceed 0.5 mm within 24 hours. The hotter the surface to be coated is, the more diluted the material should be. Apply the diluted material with quick and short strokes to obtain a very thin coat. The drying time of every such coat is 1 hour minimum. Keep laying such coats until the material being applied stops boiling on the surface. However the coat thickness shall not be greater than 0.5 mm. After that, let the coating dry for 24 hours. Subsequently, the material is applied following the traditional procedure – adding 3% to 5% of the distilled water, in layers of 0.5 mm thickness and interlayer drying time of 24 hours. To determine coat thickness of 0.5 mm, one can use a thickness gauge (“wet film thickness” gauge), material consumption rate 0.55 l per 1 m2 (approximate consumption of the material when applied by brush on the even surface) or the value of material optical thickness (the underlay must not show through the material). The material consumption rate depends on the surface type and method of application. Thermotechnical calculation or recommendations of

certified regional manufacturer's agencies shall be used to determine the total coat thickness and the number of coats.

Properties of the insulating material become noncombustible in 7 days after the last coat has been applied.

4. Handling safety precautions

4.1 Personal safety

The product is non-hazardous under normal conditions. No respirators are required for work in a well-ventilated rooms or outdoors. Use standard respirators in non-ventilated rooms. Protect eyes with chemical safety goggles. Ensure access to the running water for eyes washing. Use chemical protective gloves and protective clothes to protect skin.

4.2 Emergency situations

In case of eyes contact, immediately wash the eyes with running water for 15 minutes. If irritation persists, consult the doctor. In case of skin contact, wash the skin with soap and water. Wash contaminated clothes prior to re-use. In case of inhaling, provide access to open air. The product is nonflammable in liquid state. In case of inflammation of structures or buildings with coating applied, use water, foam, dry chemicals or carbon dioxide for firefighting. Use any absorbent material like sand, soil, etc. to remove spills of the product or flush with plenty of water.

5. Storage and transportation conditions

Keep BRONYA materials in tightly closed packages at +5 °C to +30 °C and maximum humidity of 80%. Keep away from direct sunlight.
The materials are transported using any mode of transport at temperature greater than +5 °C away from direct sunlight.
The materials to be transported shall be packaged in such a way to ensure proper positioning of the containers and package integrity.
It is not recommended to stack more than 3 buckets on top of one another in 20 liter package or 5 buckets in 10 liter package without additional packaging during transportation! Loss of package integrity results in material damage.

In case of noncompliance with the application and storage instructions, the manufacturer shall not be liable for the quality of coating.