Application Guide

Product Description:
See the technical description of the product TRIOFLAME 6800

TRIOFLAME 6800

Structural fire protection for steel structures: fire-retardant coating

CONTENT:

The instructions provide guidance on surface preparation; material preparation for application; application process and equipment used; storage conditions; safety precautions; environmental protection.

SURFACE PREPARATION:

The material is applied to primed surfaces. Alkyd, acrylic, epoxy, and other primers are recommended as primers in coating systems, according to fire safety certificates of conformity with the requirements of EAEU TR 043/2017 and GOST R 53295.

The primer surface must be free of defects that could reduce the protective properties and service life of the coating (bubbles, exfoliationes, cracks, scratches, corrosion spots, etc.), clean, dry, free of oil and grease contamination, and dust-free. All damaged areas of the primer coating must be repaired , restoring the thickness specified in the project (certificate). The recommended dry coating thickness (DCT) for alkyd primers (e.g., GF-021) is 50 µm, and for epoxy primers (e.g., TRIOCOR MASTIC 4500) is (80–100) µm.

REINFORCEMENT COATINGS:

In the composition of the coating with a DCT of 20 mm and above, a reinforcing glass mesh SSAFP 10x10 mm is used, installed in the middle of the total thickness of the coating

EQUIPMENT:

The mortar mixture is applied mechanically using a plastering machine, using the wet shotcrete method. Manual application is also permitted during repair and restoration work. For mechanical application, standard mortar spray guns are used: a nozzle diameter of 3 mm, and the recommended distance from the nozzle to the surface being protected is 40–60 cm. For the preparation of the mortar mix use a paddle mixer (concrete mixer) with rubberized blades or synthetic paddles to prevent the mortar from buildup on the mixer walls.

APPLICATION AND DRYING CONDITIONS:

Apply at temperatures between +5 °C to +35 °C, relative humidity up to 80%, ensuring there is no precipitation.

Application is not permitted if the ambient temperature is +4 °C and expected to fall.

If the application and drying of the freshly applied coating occur at low temperatures, the following measures must be taken:

- Install windbreaks around the perimeter of the application area to protect against cold winds;
- Use heat guns, ensuring adequate ventilation to remove evaporated moisture. Do not direct the heat flow directly onto the coating surface.

During the drying of the freshly applied coating in high-temperature conditions (air temperature above 35° C, direct sunlight, or wind speeds exceeding 5 m/s), the surface must be protected using one of the following methods:

- Install screens to shield the structure from direct sunlight and wind;
- Cover the structure and the applied coating with polyethylene sheeting;

- Enclose the coated structure in wet burlap, ensuring it is periodically remoistened to prevent drying.

PREPARATION MATERIAL TO BE APPLIED:

TRIOFLAME 6800 is a dry mortar mix based on an inorganic binder, exfoliated vermiculite, functional fillers, and special additives. It is packaged in multilayer paper bags with a polyethylene liner (compliant with GOST 10354) or polypropylene bags with a polyethylene liner, with net weights of 5 kg, 10 kg, 12.5 kg , 15 kg, and 20 kg. Packaging in metal or plastic containers is also permitted.

Use only tap water to prepare the mortar; the use of process water is prohibited. Equipment used for mortar preparation must be clean and dry.

Mixing TRIOFLAME 6800 dry mix with water is performed at a weight ratio of 1:(1.6–1.7) (dry mix to water) to achieve the required consistency.

After opening the bag, pour the dry mix into the unit's hopper and add the required amount of tap water while stirring.

Mix the mortar for 10 minutes, then let it stand for 15 minutes. Stir again for another 10 minutes before use . Prepare only the amount of mortar required for immediate use, ensuring it is applied within its pot life.

Pot life of the mortar at +(20–25) °C and 65% relative humidity: up to 3 hours.

For continuous application, subsequent batches of mortar may be prepared without pre-cleaning the equipment. When dosing , water should be added in a way that washes down any mortar residue from the walls and blades.

If the equipment is left idle for an extended period (more than 1 hour), the mixer and its components must be rinsed with tap water to remove any remaining mortar.

The applied layer thickness is controlled using a vernier caliper with a depth gauge, a needle probe with a ruler, or a thickness gauge such as the 'Konstanta K5' (or an equivalent device with a measurement error not exceeding ±1 mm).

APPLICATION OF MATERIAL:

The mortar is applied to the protected surface by spray-coating in layers.

Theoretical consumption: 3.50 kg/m2 at a dry coating thickness (DCT) of 10 mm.

First layer DCT: up to 2 mm.

Subsequent layers DCT: 10–20 mm.

Minimum recoat interval at + (20–25) °C and relative humidity not exceeding 65%:

- first layer (up to 2 mm DCT): 48 hours;
- subsequent layers (10–20 mm DCT): 24 h;
- application of the final protective and decorative layer (after full uring of the coating): 28 days.

It is recommended to dampen the previous layer with water before applying the next layer of the mortar.

For layer- by- layer application, it is recommended to level each layer after it begins to set, using appropriate plastering tools (a straightedge for plane control and removing excess, spatulas, or a trowel). The first layer (up to 2 mm thick) does not require leveling after application.

Immediately after applying the final coat, level the surface using standard plastering tools. Avoid excessive mechanical impact during leveling to prevent delamination, deformation, or surface damage. After leveling , smooth the coating to achieve an even finish. It is necessary to keep both the tools and the coating surface constantly moistened. Final smoothing is recommended 4–6 hours after application and leveling.

To provide the fully cured and hardened coating (after 28 days) with a decorative and aesthetic finish, a final surface treatment is recommended using professional plastering tools (trowel and float) to achieve a smooth surface.

To enhance protective and decorative properties, finishing perchlorovinyl, vinyl chloride copolymer, alkyd, polyurethane, and epoxy coatings, as well as chlorosulfonated polyethylene-based materials approved by O3- Coatings LLC, may be applied to a fully cured and prepared (leveled, clean, dry, and dust-free) layer of TRIOFLAME 6800.

Curing time before applying the finishing coat / full strength gain time at +(20–25) °C and relative humidity not exceeding 65%: 28 days..

The thickness of the TRIOFLAME 6800-based fire-retardant coating is determined by fire test results, design documentation, and regulatory requirements. Dry film thickness and consumption values required to ensure fire resistance ratings under standard temperature conditions (according to GOST 30247.0):

Group / fire-retardant efficiency	The given thickness of the metal, mm	Thickness coating, mm	Theoretical material consumption, kg/m2
7 / 15 min	3.4	10	3.50
6 / 30 min	3.4	10	3.50
5 / 45 min	3.4	10	3.50
4 / 60 min	3.4	13	4.55
3 / 90 min	3.4	17	5.95
2 / 120 min	3.4	25	8.75
1 / 150 min	3.4	33	11.55
- / 180 min	3.4	41	14.35
- / 240 min	3.4	49	17.15

COATING QUALITY CONTROL: Coating quality control is performed based on the following characteristics:

- Appearance: The surface must be smooth, even and free of cracks or damage; slight roughness is permitted.
- Coating thickness: Must comply with the values specified in the design documentation.

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TRANSPORTATION AND STORAGE CONDITIONS:

TRIOFLAME 6800 is transported in its original packaging in accordance with the transport regulations applicable to the specific mode of transport.

Precautions must be taken to prevent mechanical damage to the packaging, direct exposure to precipitation, and freezing.

TRIOFLAME 6800 is stored in covered, dry areas in its original packaging at temperatures from +5 to + 35°C, avoiding direct exposure to precipitation, moisture, and freezing.

Shelf life: 12 months from the date of manufacture in the original unopened packaging.

OCCUPATIONAL PROTECTION, SAFETY PRACTICES AT WORK:

TRIOFLAME 6800 is non-flammable and non-explosive.

All work involving the manufacture, testing, and application of the material must be carried out with general and local supply ventilation in operation, in accordance with GOST 12.4.021. Ventilation must ensure that the concentration of harmful substances in the working area does not exceed the maximum permissible concentrations (MPC) as required by GOST 12.1. 005 and SanPiN 1.2.3685.

Personnel involved in the production, testing, and application of the material must be provided with personal protective equipment:

- respiratory protection: a respirator with a P2 filter according to GOST 12.4.246;
- skin protection: Pm-class protective clothing according to GOST 12.4.103;
- hand protection: Pm-class gloves according to GOST 12.4.103;
- foot protection: Pm-class footwear according to GOST 12.4.103.

All work related to the preparation and application of the material must be performed by personnel who have been trained and certified for these types of work in accordance with current requirements, regulations, and instructions.

ENVIRONMENTAL PROTECTION:

The fire-protective coating does not have a harmful effect on the environment during operation.

Environmental protection measures: in accordance with GOST R 58577.

Waste disposal: in accordance with GOST 30773.