Technical description

TRIOFLAME 6800

Structural fire protection for steel structures: fire-retardant coating

MATERIAL DESCRIPTION:	A dry mortar mix based on an inorganic binder, exfoliated vermiculite, functional fillers, and special additives. The TRIOFLAME 6800-based coating is used in structural fire protection systems for steel structures.
COATING PURPOSE:	For structural fire protection of load-bearing and building envelope steel structures at industrial and civil facilities, including chemical and petrochemical complexes. The TRIOFLAME 6800-based coating is used in coating systems for the integrated fire and corrosion protection of steel structures in indoor environments and outdoors under shelters. It increases the fire resistance rating of steel structures from R15 to R240 (according to GOST 30247.0) under standard temperature conditions (cellulosic fire) and hydrocarbon fire conditions in accordance with GOST R EN 1363-2.
PHYSICAL CHARACTERISTICS:	
Color:	A gray, free-flowing powder with fibrous inclusions. The shade is not specified.
Theoretical consumption:	3.50 kg/m2 at a dry coating thickness (DCT) of 10 mm
Minimum /maximum recommended layer thickness:	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 hours; - application of the final protective and decorative layer (after full curing): 28 days
Full strength gain time at +(20–25) °C and relativehumidity not exceeding 65%::	28 days
Drying conditions:	- the ambient temperature must not fall below +5 °C, even for short periods; - protect the coating from rapid moisture evaporation at ambient temperatures above 35 °C, direct sunlight, or wind speeds exceeding 5 m/s;

- protect the coating from low temperatures by constructing a heated enclosure.

SURFACE PREPARATION: The material is applied to primed surfaces. The primer must be free of defects that could impair the protective properties or service life of the coating (bubbles, peeling, cracking, scratches, corrosion, etc.). The surface must be clean, dry, dust-free, and free of oil and grease.

APPLICATION:

Material preparation: 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 loading 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. Prepare the mortar as needed, ensuring it is used within its pot life.

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

Application method: Up to 3 hours

The mortar is applied mechanically using a plastering machine via the wet-mix shotcrete method. Manual application is also permitted for repair and restoration work. For mechanical application, standard mortar spray guns are used; the nozzle diameter is 3 mm, and the recommended distance from the nozzle to the protected surface is 40–60 cm. The applied layer thickness is controlled using a vernier caliper with a depth gauge or a needle probe with a ruler. It is recommended to dampen the previous layer with water before applying the next layer of mortar.

Equipment cleaning: Clean tap water

Coating reinforcement: For coatings with a DFT of 20 mm and above, SSAFP 10x10 mm reinforcing fiberglass mesh must be use , installed in the middle of the total coating thickness.

Environmental conditions for application: Application temperature range: +5 to +35 °C; relative air humidity: not exceeding 80%; strictly in the absence of precipitation.

RECOMMENDED SYSTEMS: In accordance with fire safety certificates of conformity with the requirements of TR EAEU 043/2017 and GOST R 53295.

Previous layer: Alkyd, acrylic, epoxy, and other primers approved by O3-Coatings LLC are recommended for the priming coat.

Subsequent layer: 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 layer of TRIOFLAME 6800.

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DRY COATING THICKNESS:

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

Group / fire protection efficiency	Given metal thickness, mm	Coating thickness, 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

STORAGE:

The guaranteed shelf life is 12 months from the date of manufacture. TRIOFLAME 6800 should be stored in dry, covered areas in its original packaging at temperatures between +5°C and +35°C, avoiding direct exposure to precipitation, moisture, and sub-zero temperatures.

PACKAGE:

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.

HEALTH PROTECTION AND TECHNOLOGY SECURITY:

Please refer to the Safety Data Sheet (SDS). The material is non-flammable and non-explosive. Once fully dried, the coating is harmless to humans.