

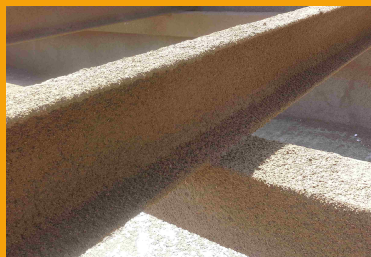
**If you want to evaluate the possibilities of fireproof mixture “Verguard”,
or to compare our solution with your project - just call us by phone
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Verguard

As we know the fires cause significant damage to the enterprise and people. Therefore it is very important to protect metal to maintain the integrity of the structure to contain and destroy the fire.

Passive fire resistance of metal structures is the most efficient and cost-efficient method.



Passive fire protection (PFP) must meet the following criteria:

- PFP must meet the required conditions of protection by limiting the temperature of the structure below the loss of bearing properties for a specified period of fire resistance.
- PFP must not deteriorate dramatically after a specified time period.
- PFP must remain at a designated place and must be protective in a fire.
- PFP must not cause corrosion and must be resistant to environmental conditions.

During a fire PFP must not:

- be harmful after heating
- explode
- be toxic.
- PFP should be easily applied to a variety of environmental conditions without damage. PFP material must be durable and easily repaired.

VERGUARD Fire-retardant mixture fulfills all the requirements above and designed on the materials that are safe for human health. Placeholder for the flame-retardant mixture is expanded vermiculite.

VERGUARD Fire-retardant mixture was successfully tested during applying on metal and wood in the laboratory MOE (Almaty), it has a certificate of conformity (LLP TEX), has permission to use the territory of the Republic of Kazakhstan (Astana letter CPS).

According to test results in accordance with ST RK 615-2001 retardant effectiveness in fire retardant composition for steel is:

1. Dry layer thickness coverage 60 (±10%) MM-retardant performance- 240 min
2. Dry layer thickness coverage 25 (±10%)mm- retardant performance- 180 min
3. Dry layer thickness coverage 18 (±10%)mm- retardant performance- 150 min
4. Dry layer thickness coverage 14 (±10%)mm- retardant performance- 120 min
5. Dry layer thickness coverage 10 (±10%)mm- retardant performance- 90 min
6. Dry layer thickness coverage 7 (±10%)mm- retardant performance- 60 min
7. Dry layer thickness coverage 5 (±10%)mm- retardant performance- 45 min
8. Dry layer thickness coverage 3 (±10%)mm- retardant performance- 30 min

Even after prolonged thermal treatment retardant mixture does not lose its adhesion and firmly on the surface of metal.

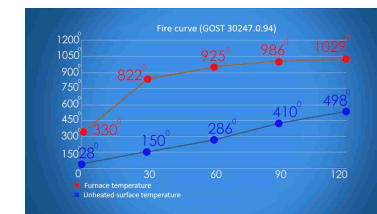
As retardant mixture is made on the basis of expanded vermiculite, which is an excellent thermal insulator, it protects the metal from ambient temperature fluctuations (-

40 to

50 C), the thermal conductivity of the mixture (NIISTROMPROJECT Almaty).

VERGUARD Fire-retardant mixture is ready to use compound that is prepared to deliver with clean water. After mixing with water there is high quality mass that is applied to the structure to be protected.

Packaging-polypropylene laminated bags with the manufacturer's logo of 50dts3 (15kg)
Time of suitability- 4 hours. Drying time -24 hours.



Application conditions.

Steel structures should be free from rust, old paint, oil and other contaminants before applying the fire retardant mixture.

The surface of steel structures can be cleaned with:

- Metal structure before applying flame retardant must be free of rust, scale, old paint, oil and other contaminants. Metal surface can be cleaned
- Mechanized tools (grinding-machine, wire brushes, cutters)
- Sand-water cleaning (a mixture of quartz sand and water corrosion inhibitors). After processing metal structure needs to be dried.
- Chemical process: phosphoric or phosphoric acid.

After the cleaning the surface of the metal structure must be primed. Priming could be produced after drying the surface, with an air temperature of at least +5 °C and humidity not more than 80%. Priming must be carried out by finished primer for metal arches GF or PF. Finished primer diluted to a viscosity appropriate diluent and apply on metal surface by spray, brush, roller. When completely dry on the surface, apply the primer flame retardant. Flame retardant is prepared immediately before use by mixing the dry ingredients with water. Mobility (viscosity) of the mixture must be adjusted by water after a test application. There is recommended Hopper sprayer with interchangeable nozzles during applying the composition. Nozzle diameter of 6-8 mm. Air Pressure 6-8 at. Layer in 25 mm; 60 mm apply for 3; passes with intermediate drying in natural conditions for 1-2 days. There is permitted to apply makeup for metal at temperatures of at least +5 °C and humidity not more than 80%. It is forbidden to carry out work during precipitation. Treated surfaces must not be subjected to mechanical stress. In case of damage to the layer you want to restore. In the case of protection of steel structures, located in the open air, the flame retardant to the top cover weatherproof paints.

Conditions and terms.

VERGUARD Flame retardant should be stored in sealed bags. The bags should be protected from moisture and direct sunlight. Guarantee storage period flame retardant is 1 year from date of issue.

Warranty period for the fire protection coating with proper preparation and application of at least 75 years.

Verguard retardant mixture flow (bulk density of 300 kg m³)

The rate of application per 1 m²

- 1 group 240 min. -60 mm.-19.1 kg
- 2 group 180min.-25mm.-7.9 kg
- 3 group 150 min.-18 mm.-5.5 kg
- 4 group 120 min.-14 mm.-4.3 kg
- 5 group 90 min.-10 mm.-3.3 kg
- 6 group 60 min.-7 mm.-2.5 kg
- 7 group 45 min.-5 mm.-1.5 kg
- 8 group 30 min.-3 mm.-0.9 kg

Given the low cost of production and ease of application of the profitability of the flame-retardant mixture is very high.