

PRODUCT DESCRIPTION

ISOLATEK Type M-II is a single package, factory controlled Spray-Applied Fire Resistive Material (SFRM) recommended for use in petrochemical facilities, refineries, nuclear/power plants, and tunnels.

ISOLATEK Type M-II can be spray textured or troweled smooth and requires only the addition of water as an activator. Tested and developed for fire protection of external structural steel components such as tanks, support legs and saddles, piperacks, vessel skirts, sphere legs or interior situations where higher levels of abrasion resistance are necessary.

ISOLATEK Type TG is specifically developed only for trowel application for areas where spraying is impractical or not permitted.

PRODUCT ADVANTAGES

- Proven material with over 30 years of in-place performance in hydrocarbon environments
- Tested to the latest industry fire standards (hydrocarbon and jet fire) including exposure to gas explosion and liquid nitrogen
- Vermiculite aggregate provides excellent thermal resistance
- Formulated for durability offering long-term weather, abrasion, and erosion resistance, including high level impact protection
- Reduced thicknesses deliver required ratings with less material
- Lightweight vs. concrete, lowering construction costs with savings in transportation and installation

FIRE TEST PERFORMANCE

ISOLATEK Type M-II has been extensively tested for fire endurance in accordance with industry specific protocols.

- ANSI/UL1709 Rapid Rise Fire Test of Protection Materials for Structural Steel – UL Designs XR704, XR729, XR730
- ANSI/UL1709 Rapid Rise Fire Test (following Gas Explosion Test)
- ANSI/UL1709 Rapid Rise Fire Test (following Liquid Nitrogen Immersion Test)
- BS476, Parts 20-21: 1987 Appendix D-Hydrocarbon Heating Conditions
- Gas Explosion Test (3 Bar Overpressure)
- ISO 22899-1:2007(E) Determination of the Resistance to Jet Fires of Passive Fire Protection Materials
- ISO 22899-1:2007(E) Determination of the Resistance to Jet Fires (following Gas Explosion Test)
- NFPA 58, Annex H Procedure for Torch Fire and Hose Stream Testing of Thermal Insulating Systems for LP-Gas Containers
- Factory Mutual (FM) Fire Protective Coating for LP-Gas Steel Storage Vessels and Process Structures (Class 4971)
- GEIS GASAFE Program – LPG Storage Vessels
- Rijkswaterstaat (RWS) Curve
- Increased Time/Temperature Curve – HCinc

SPECIFICATION AND STANDARDS COMPLIANCE

American Petroleum Institute (API) Section 2510, 2510A, 2218

Physical Performance

| Characteristic | ASTM Method | Tested Performance* |
|------------------------------|-------------|---------------------------------------------------|
| Density | E605 | 704-768 kg/m ³ (44-48 pcf) |
| Durometer Hardness (Shore D) | D2240 | 40 |
| Surface Burning | E84 | Flame Spread 0 Smoke Developed 0 |
| Combustibility | E136 | Noncombustible |
| Cohesion/Adhesion | E736 | 774 kPa (16,154 psf) |
| Deflection | E759 | No Cracks or Delaminations |
| Bond Impact | E760 | No Cracks or Delaminations |
| Compressive Strength | E761 | 3,793 kPa (550 psi) |
| Air Erosion Resistance | E859 | 0.000 g/m ² (0.000 g/ft ²) |
| Corrosion Resistance | E937 | Does Not Promote Corrosion of Steel |
| Thermal Conductivity | C518 | 0.167 W/m•K |
| Maximum Strain | D790 | 0.06 mm/mm (0.0024 in/in) |
| Fungal Resistance | G21 | Passed |

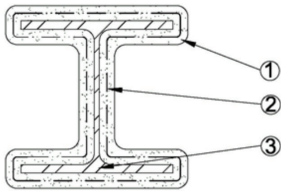
* Values represent independent laboratory tests under controlled conditions. Test reports available upon request.

Technical Data

| | |
|--------------------------------------------------|--------------------------------------------------------|
| Color | Off-White |
| Theoretical Coverage (gross) | 66 m ² /tonne @ 25mm thick** |
| Thickness | Depends on desired rating and assembly being protected |
| VOC Compliance | 0.0 g/L (EPA Method 24) |
| Outgassing Analysis, ATD GC-MS (50°C @ 30 mins.) | <12 ppmw (ug/g) |
| Storage | Dry, Covered, Off-Ground |
| Shelf Life | 24 months |

** Applied density of 720 kg/m³

Design No. XR730
BYBU.XR730
Fire-resistance Ratings - ANSI/UL 1709



1. **Spray-Applied Fire-Resistive Materials*** — See table below for appropriate thickness. Prepared by mixing with water according to instructions on each bag of mixture and spraying in one or more coats, as necessary, to the column surfaces, which must be clean and free of dirt, loose scale and oil. Application to follow the column profile. Min avg. density of 704 kg/m³ (44 pcf), with min ind. value of 640 kg/m³ (40 pcf) for Type M-II. Min avg. density of 704 kg/m³ (44 pcf), with min ind. value of 672 kg/m³ (42 pcf) for Type TG. For method of density determination, see Design Information Section, Sprayed Material.
2. **Reinforced Mesh** — No. 20 SWG galv steel wire twisted to form 1 or 2 in. hexagons. Mesh attached with steel helical pins or straight pins with washers 16 in. on center to the center of the column flanges and webs prior to application of Spray - Applied Fire Resistive Material. Mesh wrapped around the column and embedded at approximate mid-depth in Spray - Applied Fire Resistive Materials with a min. 3 inch overlap at vertical and horizontal joints. When Type TG is used, mesh shall not be installed until approximate mid-depth has been applied.
3. **Steel Column** — Min size of column W 10 x 49.

| UL Design XR730 | |
|-----------------|------------------------|
| Rating, Hr. | Min Thickness, (mm) |
| | Contour Application |
| 3/4 | (17.5) |
| 1 | (20.7) |
| 1-1/2 | (27.0) |
| 2 | (32.5) |
| 2-1/2 | (36.8) |
| 3 | (41.2) |
| 4 | (50.0) |



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