

ISOLATEK® TYPE M-II

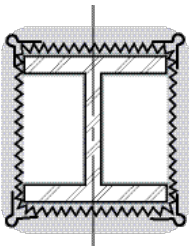
Industrial Spray-Applied Fire Resistive Material

ISOLATEK Type M-II is a single package, factory controlled Spray-Applied Fire Resistive Material (SFRM) based on vermiculite and portland cement, requiring only the addition of water as an activator. It is specifically developed for spray application to structural steel such as columns, beams, steel vessels and skirts in exterior environments and interior situations where higher levels of abrasion resistance and hardness are necessary.

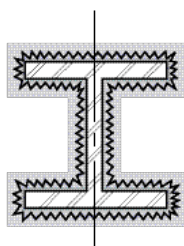
ISOLATEK Type TG has been developed for application by trowel in areas where spraying is impractical or not permitted.

Although ISOLATEK Type M-II is lightweight, thus significantly reducing dead load, it is also highly durable and resistant to cracking or spalling under mechanical impact. ISOLATEK Types M-II and TG may be used in either boxed or contour designs, (see illustrations) and the finish may be spray-textured or troweled smooth.

ISOLATEK Type M-II and ISOLATEK Type TG are classified by Underwriters Laboratories for up to 4 hours protection in accordance with the Rapid Rise Fire Test (UL 1709). This fire test was developed to provide a means to evaluate materials intended for use in those areas, such as petrochemical production facilities, which would develop temperatures at a more rapid rate than conventional structures. With UL 1709, the furnace temperature rises from ambient to 2000°F (1093°C) within five minutes. Only materials tested and classified in accordance with UL 1709 can be used where the risk of a hydrocarbon fire exists.



Typical boxed installation



Typical contour installation

Physical Performance Properties

| Characteristic | ASTM Method | Tested Performance* |
|------------------------------|------------------------------|---|
| Density | E605 | 44 - 48 pcf (704-768 kg/m ³) |
| Durometer Hardness (Shore D) | D2240 | 40 |
| Surface Burning | E84 (UL723, CAN/ULC-S102) | Flame Spread 0 Smoke Developed 0 |
| Combustibility | E136 (CAN4-S114) | Noncombustible |
| Cohesion/Adhesion | E736 | 16,462 psf (788 kPa) |
| Deflection | E759 | No Cracks or Delaminations |
| Bond Impact | E760 | No Cracks or Delaminations |
| Compressive Strength | E761 | 548 psi (3,778 kPa) |
| Air Erosion Resistance | E859 | 0.000 g/ft ² (0.000 g/m ²) |
| Corrosion Resistance | E937 | 0.00 g/mm ² weight loss Does Not Promote Corrosion of Steel |
| Thermal Conductivity | C177 | 1.32 BTU in/hr ft ² °F @ 75°F (R Value = 0.76 / inch) |
| Maximum Strain | D790 | 0.0024 in/in (0.06 mm/mm) |
| 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) | 16 Bd. Ft. / Bag |
| Thickness | Depends on desired rating and assembly being protected |
| pH Value | 12 - 12.5 |
| 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 |

UL 1709 Rapid Rise Fire Test Results Classified Under UL Design XR 704 on a W10x49 column.

| Rating, Hr. | Min Thickness, In.(mm) Contour Application | Min Thickness, In. (mm) Boxed Protection |
|-------------|---|---|
| 3/4 | 1 1/16" (17.5) | 1 1/16" (17.5) |
| 1 | 1 3/16" (20.7) | 1 3/16" (20.7) |
| 1-1/2 | 1-1/16" (27.0) | 1 5/16" (23.9) |
| 2 | 1-5/16" (33.4) | 1 5/16" (23.9) |
| 2-1/2 | 1-9/16" (39.7) | 1-3/16" (30.2) |
| 3 | 1-13/16" (46.0) | 1-7/16" (36.6) |
| 4 | 2-5/16" (58.8) | 2-1/4" (57.2) |

FEATURE AND BENEFITS

- Spray or Trowel Applied
- Lightweight formulation (approximately one-third the weight of concrete)
- Excellent physical performance characteristics
- Highly Durable
- Resistant to cracking and spalling under impact
- Ready to use with the addition of water
- UL Investigated for Exterior Use
- IBC/ICC Approved, (ICC ESR 1649)
- Proven material with over 25 years of service

APPLICATIONS

ISOLATEK Type M-II is recommended for use in roadway tunnels, refineries, petrochemical, nuclear and power facilities, clean room environments, pharmaceutical facilities, offshore platforms, factories and warehouses.

ISOLATEK Type M-II is not recommended for applications where in-service operating temperatures are in excess of 200° F (93° C).

TUNNELS

Concrete is the most commonly used structural lining in tunnels. While concrete is durable and its load-bearing capacity is unequalled, it is highly vulnerable to excessive spalling damage during a fire.

ISOLATEK Type M-II has been used successfully on numerous tunnels worldwide to increase structural stability to fire and lower risk of life and property loss.

UL DESIGNS

ASTM E119 (UL 263) - Cellulosic:

Columns - X764, X768

Roof Assembly- P721, P819

Roof Beam -S720, S723

Floor Assembly -D744, D781, D902

Floor Beam -N742, N760

UL 1709 - Rapid Temperature Rise:

Columns - XR704

LPG STORAGE TANKS

ISOLATEK Type M-II is a cost effective solution for LPG Storage Vessels and Process Structures. ISOLATEK Type M-II is approved through Factory Mutual (FM) and GASAFE. The Factory Mutual approved thickness is 1/2 inch (12.5 mm) applied over 3.4 lb./sq. yd. galvanized lath for a 2 hour fire rating.

TESTS AND APPROVALS

ISOLATEK Type M-II satisfies the requirements of the following:

- Underwriters Laboratories - Up to 4 hour fire protection in accordance with ASTM E119 (UL 263) and UL 1709
- UK - Up to 4 hour fire protection in accordance with BS 476, Parts 20-21: 1987 Appendix D
- Efectis Nederland BV - Tested to Rijkswaterstaat (RWS) Fire Test Curve
- Factory Mutual Approved - LP Gas Steel Storage Vessels and Process Structures with Hose Stream
- GASAFE - LPG Storage Vessels
- Liquid Nitrogen Immersion Test
- International Standard ISO 834
- Lloyds Register - Structural Steel Hydrocarbon Fire Protection System (Jet Fire Protection)
- Three Bar Overpressure Blast Explosion Testing with Subsequent UL 1709 Fire Test
- International Code Council (ICC) - ESR 1649

SPECIFICATIONS

ISOLATEK Type M-II satisfies the requirements of the following specifications:

- IBC - International Building Code (ICC ESR-1649)
- New York City - MEA
- NBC - National Building Code of Canada
- General Services Administration (GSA): AIA/SC/GSA:07811
- Department of the Navy NAVFACENGCOCOM Guide Specification NFGS 07810, Sprayed-On Fireproofing
- Veterans Administration (VA): H-08-1
- U.S. ARMY Corps of Engineers CEGS-07811

ISOLATEK INTERNATIONAL provides passive fire protection materials under the CAFCO® trade name throughout the Americas and the ISOLATEK® trade name worldwide.

ISOLATEK Technical and Sales Representatives are always available to lend assistance. Additional printed materials, including Material Safety Data Sheets, and other product literature, are available upon request. For more information about our ISOLATEK line of sprayed fire protection, thermal and acoustical treatments, Intumescent Coatings, thermal barriers and rigid boards or for the name of the Sales Representative in your area, please contact:

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For more detailed product information, visit our website at

www.isolatek.com or contact us at technical@isolatek.com



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