



Science.  
Applied to Life.™

3M™ Fire Protection Products  
Oil & Gas Applications

Plan for the worst.  
Protect with the best.

Trust and Confidence.  
Even under Fire.



# Helping protect lives and maintaining continuity of operations

LIFE SAFETY

The devastating effects of a refinery fire can result in lost production and worker injuries. In the event of a fire, 3M™ Fire Protection Products are designed to help mitigate fire spread, providing additional time to control the fire and to allow for a safe evacuation.

With over 40 years of fire protection experience, 3M has developed tested and listed systems for the protection of critical electrical and structural components. 3M Fire Protection Products provide you practical and proven applications for exceptional refinery infrastructure protection, including outstanding performance in high-intensity hydrocarbon pool and jet fires with advanced fire protection for your most critical assets.

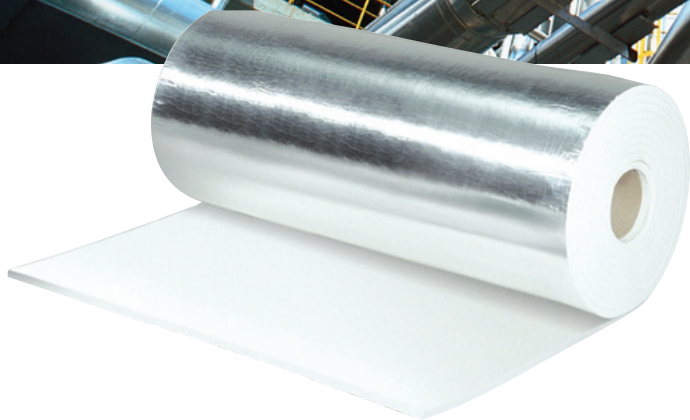
ASSET PROTECTION

CONTINUITY OF OPERATIONS

The solution is 3M™ Fire Protection Products.



# 3M™ Interam™ Endothermic Mat E-5A-4



Leaving cable trays and structural steel exposed to fire can lead to severe damage of a refinery's superstructure, thus compromising continuity of operations and life safety in the event of a fire. 3M™ Interam™ Endothermic Mat E-5A-4 (3M E-Mat) provides easy-to-install, full envelope fire protection for a broad range of critical components including structural steel, electrical raceways and vessel skirts. Its flexibility and space-saving design allows 3M E-Mat to fulfill installation requirements, even in space-constrained situations.

As our flagship product for fire protection in refineries, this flexible mat provides a uniform covering that, when exposed to high temperatures, releases chemically bound water. This chemically bound water cools the outer wrap material, significantly retarding heat transfer and keeping the integrity of the structural steel or electrical raceways intact.

- Up to 4-hour protection for structural steel and up to 3-hour electrical circuit protection<sup>1</sup>
- 3M E-Mat has been tested and listed to:
  - UL 1709 / ASTM E1529 hydrocarbon pool fire
  - ASTM E119 / UL 263 / ISO 834 cellulosic fire
  - ISO 22899-1 jet fire
  - NFPA 58, ANNEX H / NFPA 290 "torch test"
  - Lloyd's Register
  - DNV
  - Factory Mutual
  - Underwriters Laboratories (UL)
  - Intertek
- Flexible. Can easily be cut to size
- Install in new applications or directly over existing fire protection
- Outdoor durable<sup>2</sup>
- 0.4" thick x 24.5" wide x 20 ft. long roll (10mm x 62cm x 6.1m)
- API 2218<sup>3</sup> 6.3.5 recommended practice
- Passes UL environmental aging and exposure for humidity, salt spray, wet-freeze-dry, acid spray and solvent spray
- Manufactured in ISO 9001 facility
- Used in Canada, North Sea, U.S.A., Saudi Arabia, China and Russia, to name a few
- 3M E-Mat has also been tested for blast, radiation, seismic, acoustic and chemical analysis of leachable products
- Reaction to fire properties according to ASTM E662, ASTM E162, BSS 7239, EN ISO 11925, EN 13501-1, EN 13823:2010 and UL 723 / ASTM E84

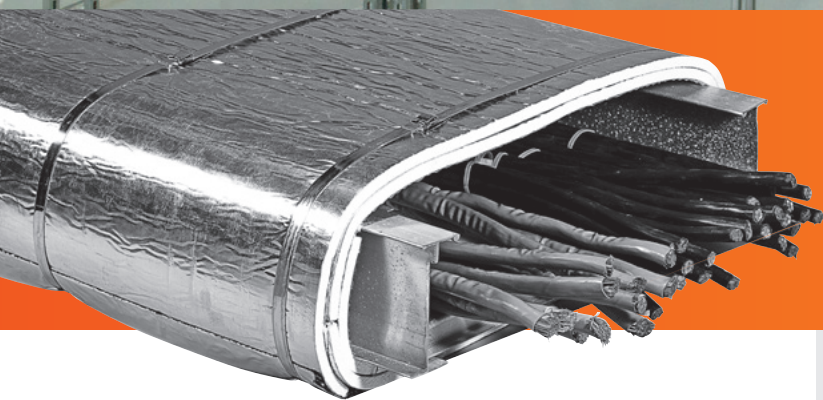
<sup>1</sup> See system details for layering requirements

<sup>2</sup> Passes the environmental exposure requirements of UL 1709 without the use of additional cladding or coverings

<sup>3</sup> American Petroleum Institute, "Fireproofing Practices in Petroleum and Petrochemical Processing Plants"



# Protect your electrical and control systems



When a fire occurs, the electrical systems that deliver critical power and control signals must remain operational in order to facilitate a safe and orderly plant shutdown and evacuation. 3M™ Interam™ Endothermic Mat E-5A-4 is significantly more flexible and conformable than rigid panel systems, making it easier to install on complex shapes common in electrical systems. It also passes the most severe hydrocarbon and jet fires which many of the spray-on cable coatings do not.



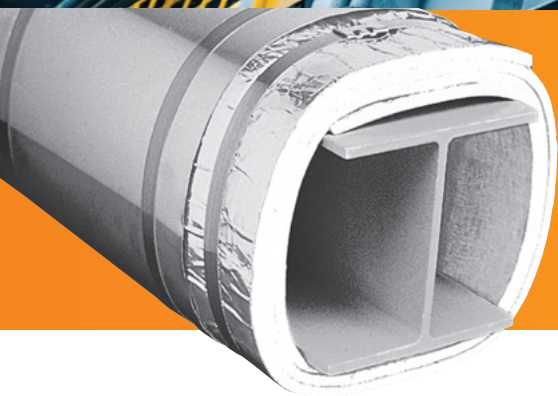
3M™ Interam™ Endothermic Mat E-5A-4 is designed to provide cable trays and conduits with full envelope protection in the event of a fire.

- Ideal for cable raceways, conduit, junction boxes and other electrical control systems
- Helps maintain circuit integrity from intense hydrocarbon pool fires per UL 1709 (ASTM E1529), jet fires per ISO 22899-1, as well as cellulosic fires per ASTM E119 (UL 263)<sup>1</sup>
- Low ampacity derating of cables tested to IEEE P848
- Re-enterable for cable alterations, maintenance and inspections

<sup>1</sup>See system details



# A safer, simpler way to protect structural steel



Traditionally, structural steel has been protected with messy, sprayed-on materials or encased in concrete. 3M™ Interam™ Endothermic Mat E-5A-4 (3M E-Mat) can significantly reduce the installation time for fireproofing structural steel versus cementitious trowel or spray-on applications. Whether used for retrofit or new construction, the mat's flexibility allows it to be installed easily and maintained with virtually no disruption to operations. For retrofit applications, 3M E-Mat may be applied over damaged fireproofing as a patch.

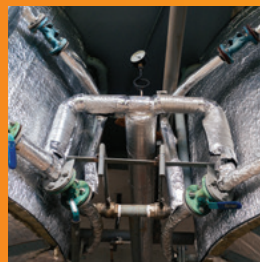


Installing multiple layers of 3M™ Interam™ Endothermic Mat E-5A-4 flexible wrap allows you to tailor the desired amount of fire protection—up to 4 hours for structural steel.

- 1-, 2-, 3- or 4-hour protection for structural steel per UL 1709, ASTM E119 and ISO 22899-1
- Easy installation, easy cleanup and virtually maintenance free
- Won't spall, crack or chip
- Doesn't contribute to corrosion of steel or other metals
- Has demonstrated its ability to remain secure in blast tests up to peak pressure of 0.33 bar (4.8 psi)<sup>1</sup>
- Easy inspection. 3M E-Mat can be removed, the steel inspected for CUI, then the same 3M E-Mat can be reinstalled to restore full fire protection



# Effective vessel and pipeline protection



When 3M™ Interam™ Endothermic Mat E-5A-4 is applied to vessel skirts and pipelines, it minimizes the effects of fire exposure by flame impingement in order to reduce the steel's rate of temperature rise and to delay structural failure.

- Meets criteria of NFPA 290 Standard for Fire Testing of Passive Protection Materials for Use on LP-Gas Containers<sup>1</sup>
- Protection where active suppression systems are undersized, unreliable or unavailable
- Re-enterable for cost-effective maintenance and inspection
- Doesn't contribute to corrosion of steel or other metals<sup>2</sup>
- Product qualification includes testing that has been conducted to the hydrocarbon fire exposure per UL 1709 (ASTM E1529)

3M™ Interam™ Endothermic Mat E-5A-4 provides passive fire protection as an effective alternative or supplement to active systems for protecting vessels from fire. Applied directly to the vessel, this flexible mat is often used where water or other active protection systems are inadequate, such as in remote locations or where difficulties arise with traditional water runoff.

<sup>1</sup> Similar to NFPA 58, Appendix H

<sup>2</sup> Per API 2218, American Petroleum Institute, "Fireproofing Practices in Petroleum and Petrochemical Processing Plants"

# Additional products for complete fire protection

## Scotch® Filament Tape 898

High-performance, polypropylene-backed tape reinforced with continuous glass yarn.

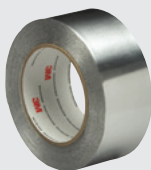
- Used to temporarily hold endothermic mat pieces in place during installation



## 3M™ Aluminum Foil Tape 425

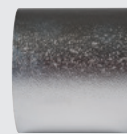
Used to seal cut edges of aluminum foil-backed 3M™ Interam™ Endothermic Mat E-5A-4 in order to complete total encapsulation.

- Designed to perform in high temperatures
- Thermally conductive, dead-soft aluminum backing combined with a transparent acrylic adhesive backing
- 4.6 mil thick aluminum foil, 4" x 60 yd. roll



## 3M™ VentureClad™ Insulation Jacketing Tape 1577CW-E

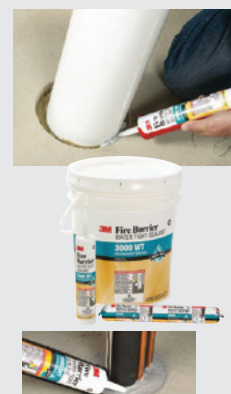
A UL listed, multilayered laminate designed for use as a zero-permeability vapor barrier and is an option for cladding over 3M™ Interam™ Endothermic Mat E-5A-4.



## 3M™ Fire Barrier Water Tight Sealant 3000 WT

Gun-grade, intumescent, silicone, elastomeric sealant that cures upon exposure to atmosphere. Forms a flexible firestop seal that also acts as a barrier to water leakage and noise transfer.

- Firestop protection up to 4 hours in accordance with ASTM E814 (UL 1479) and CAN/ULC-S115
- Seal remains pliable, allowing for typical pipe movement
- Adheres to full range of construction substrates; metallic and non-metallic pipes, e.g., CPVC
- Paintable, re-enterable, repairable



## 3M™ Fire Barrier Sealant CP 25WB+

Our most popular intumescent firestop sealant approved up to 4 hours of fire protection in listed through-penetration firestop assemblies. Also used to seal joints (gaps) between adjacent pieces of 3M™ Interam™ Endothermic Mat E-5A-4 in fireproofing installations.



## 3M™ Fire Barrier Moldable Putty Stix MP+

Designed to firestop a wide variety of through penetrations, including cable, conduit, insulated pipe and metal pipe.

- Firestop tested for up to 3 hours in accordance with ASTM E814 (UL 1479)
- Re-enterable and repairable
- Provides cold smoke seal (L-rating)
- Pliable—can form into almost any desired shape



## 3M™ Fire Barrier Rated Foam FIP 1-Step

Firestop foam used to fill the annular space created by pipes and cables penetrating through fire-rated construction.

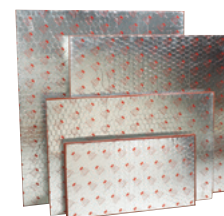
- Firestop tested up to 2 hours in accordance with ASTM E814 (UL 1479) and CAN/ULC-S115
- Meets the International Building Code for Passive Fire Protection
- Intumescent foam expands up to 5X when dispensed



## 3M™ Fire Barrier Composite Sheet CS-195+

A thin, one-part composite system designed to firestop large openings (e.g., blank or openings with single or multiple penetrations). Use Fire Barrier Composite Sheet CS-195+ at locations where cable trays, conduit or busways penetrate fire-rated assemblies.

- Firestop tested for up to 4 hours in accordance with ASTM E814 (UL 1479)
- Thermally conductive—allows unwanted heat buildup to escape
- Re-enterable and repairable
- Easy to cut and form to desired shape



## 3M™ Fire Barrier Pillows

Self-contained, highly intumescent firestop pillows are stackable and conformable for new and retrofit projects.

- Up to 3-hour fire ratings per ASTM E814 (UL 1479)
- UL listed systems with openings up to 1,080 sq. in.
- No wire mesh or graphite
- Available sizes: 2" x 4" x 9" (small), 2" x 6" x 9" (medium) and 3" x 6" x 9" (large)





# Ordering Information

Product Number	Description	Unit	Size	Billing UPC Number	Qty.
<b>3M™ Aluminum Foil Tape 425</b>					
425	Seals cut edges of 3M™ Interam™ Endothermic Mat E-5A-4	Roll	4" x 60 yd. (4.6 mil thick)	000-51138-95074-3	2/Cs
<b>3M™ Fire Barrier Water Tight Sealant 3000 WT</b>					
3000 WT	Up to 4-hr Penetration Firestop Up to 4-hr Penetration Firestop Up to 4-hr Penetration Firestop	Color:  Tube Color:  Sausage Color:  Pail	10.1 fl. oz. 20 fl. oz. 4.5 gal.	000-51115-16593-1 000-51115-18788-9 500-51115-16594-3	12/Cs 12/Cs 1/Cs
<b>Scotch® Filament Tape 898</b>					
898	For use with 3M™ Interam™ Endothermic Mat E-5A-4 to temporarily hold mat pieces in place during installation	Roll	0.7" x 60.14 LY (18mm x 55m) 0.94" x 60.14 LY (24mm x 55m)	000-51131-06897-1 000-51131-06898-8	48/Cs 36/Cs
<b>3M™ VentureClad™ Insulation Jacketing Tape 1577CW-E Embossed Natural Aluminum</b>					
1577CW-E	For use as an optional supplemental weather protection cover over 3M™ Interam™ Endothermic Mat E-5A-4	Roll	3.89" x 56.7 LY (100mm x 50m)	000-51128-95763-9	12/Cs
Product Number	Description	Unit	Size	Billing UPC Number	Qty.
<b>3M™ Interam™ Endothermic Mat E-5A-4 (Aluminum Scrim)</b>					
E-5A-4	Protective wrap for cable trays, conduits and more	Roll	24.5" x 20 ft. (.408" thick)	000-51115-16571-9	1/Cs
<b>3M™ Fire Barrier Composite Sheet CS-195+</b>					
CS-195+	Up to 4-hr Penetration Firestop	Sheet	36" x 24" (.303" thick nominal)	000-51115-07220-8	1/Cs
	Up to 4-hr Penetration Firestop	Sheet	28" x 52" (.303" thick nominal)	000-51115-08260-3	1/Cs
	Up to 4-hr Penetration Firestop	Sheet	16" x 28" (.303" thick nominal)	000-51115-07437-0	1/Cs
	Up to 4-hr Penetration Firestop	Sheet	36" x 41" (.303" thick nominal)	000-51115-07224-6	1/Cs
	Up to 4-hr Penetration Firestop	Sheet	36" x 36" (.303" thick nominal)	000-51115-07222-2	1/Cs
<b>3M™ Fire Barrier Sealant CP 25WB+</b>					
CP 25WB+	Up to 4-hr Penetration Firestop	Color:  Tube	10.1 fl. oz.	000-51115-11638-4	12/Cs
	Up to 4-hr Penetration Firestop	Color:  Sausage	20 fl. oz.	000-51115-11642-1	10/Cs
	Up to 4-hr Penetration Firestop	Color:  Tube	27 fl. oz.	000-51115-11641-4	6/Cs
	Up to 4-hr Penetration Firestop	Color:  Pail	2 gal.	000-51115-11639-1	1/Cs
	Up to 4-hr Penetration Firestop	Color:  Pail	5 gal.	000-51115-11640-7	1/Cs
<b>3M™ Fire Barrier Moldable Putty Stix MP+, MPS-2+</b>					
MP+	Up to 4-hr Penetration Firestop	Color:  Stix in tube	1.45" dia. x 6"	000-51115-16561-0	12/Cs
MPS-2+	Up to 4-hr Penetration Firestop	Color:  Stix	1.4" dia. x 11"	000-51115-16526-9	10/Cs
<b>3M™ Fire Barrier Rated Foam FIP 1-Step</b>					
FIP 1-Step	Up to 2-hr Penetration Firestop	Color:  Tube	12.85 fl. oz.	000-51115-54925-0	6/Cs

Visit [www.3M.com/emat](http://www.3M.com/emat) or call 1-800-328-1687  
for technical information, listed systems, training information and more.

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