



Interam™ Endothermic Mat ES-5A-12

Product Data Sheet

June 2017

Supersedes: May 2016

Endothermic Mat ES-5A-12	• Aluminium Backing
Endothermique Mat ES-5A-12	• Support en aluminium
Endothermische Matte ES-5A-12	• Aluminium-Trägerschicht
Endotermica Mat ES-5A-12	• Di alluminio della protezione
Endotérmico Mat ES-5A-12	• Copia de aluminio
Endotherme Mat ES-5A-12	• Aluminium Drager



Product Description

When properly installed, 3M™ Interam™ Endothermic Mat ES-5A-12 provides a uniform covering that, when exposed to high temperatures, releases chemically-bound water to cool the outer surfaces of the wrap material and significantly retard heat transfer. Against the UL 1709 high-intensity fire, ES-5A-12 helps protect structural steel components for up to four hours and critical electrical components for up to one hour. The mat is flexible which aids in installation and allows it to more easily be applied on complex shapes and around corners.

3M™ Interam™ Endothermic Mat ES-5A-12 is formulated with high-temperature inorganic fibers that have low bio-persistence and therefore fulfill the Note Q conditions of the European CLP¹ regulation. With this they are exonerated from any carcinogenic classification.

This product does not contain at greater than 0.1 % by weight a Substance of Very High Concern (SVHC) substance identified according to Article 59 of REACH. This declaration reflects the substances on the candidate SVHC list, effective December 2015

¹ Regulation No. 1272/2008

Product Features

- Provides up to 4 hour fire protection for structural steel applications in accordance with UL 1709
- Provides up to 1 hour fire protection for electrical circuit applications² in accordance with ASTM E 1725 (using the UL 1709 fire exposure)
- Chemically-bound water helps cool protected item(s) in the event of a fire
- Flexible – can be installed on complex shapes and around corners
- Easy-to-cut for various shapes and sizes
- Non-corrosive³
- For use in new or retrofit applications
- Easy-to-clean

² Under normal operating conditions, the mat's ambient conductivity allows heat, such as that generated by power cables, to dissipate rather than be trapped by it.

³ Per API 2218

Applications

3M™ Interam™ Endothermic Mat ES-5A-12 is a flexible and space-saving wrap system that protects against fire in a wide range of new or retrofit applications requiring full envelope protection, including: structural steel and critical electrical circuitry (e.g. cables, cable trays, and conduits). *Consult system details, contact your local 3M sales representative to inquire about application-specific installation guides).*

Reference Documents

Installation shall be in strict accordance with manufacturer's written instructions, as shown on approved shop drawings. 3M™ Interam™ Endothermic Mat ES-5A-12 shall be a flexible, endothermic (i.e. heat absorbing) mat capable of being layered for 1-, 2-, 3- and 4-hour structural steel applications; 15-, 30-, and 60-minute electrical system applications. When properly installed, 3M™ Interam™ Endothermic Mat ES-5A-12 helps protect the encapsulated item(s) against heat penetration and flame spread. 3M™ Interam™ Endothermic Mat ES-5A-12 shall be listed by independent test agencies such as UL. Suitability for the intended application should be determined prior to installation.

Related Test Standards

UL 1709 (ASTM E 1529) - Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies

ASTM E 1725 - Fire Tests of Fire-Resistive Barrier Systems for Electrical System Components

**Performance & Typical
Physical Properties**

Colour:	Silver exterior, blue interior	
Mat Lamination	0.76 mm	(3 mil.) aluminium/scrim
Mat Thickness	12 mm	(0.47 in.)
Roll Dimensions	62.2 cm x 6.09 m	(24.5 in. x 20 ft.)
Roll Weight	40.6 kg	(89.5) lbs.
Weight/Unit Area	10.7 kg/m ²	(2.2 lbs/ft ²)
Bulk Density	865 kg/m ³	(54 lbs/ft ³)
Mat Area/Roll	3.79 m ²	(40.8 ft ²)

Fire Resistance against the UL 1709 hydrocarbon pool fire:

Critical Electrical Circuits (Thermal Barrier Systems)

Underwriters Laboratories (UL) system XCLF.TB-10

Rating, Minutes	Layers of ES-5A-12
15	2
30	3
60	4

Structural Steel

Underwriters Laboratories (UL) system BYBU.XR203

Rating, Hours	Layers of ES-5A-12
1	2
1-1/2	2
2	3
2-1/2	3
3	4
4	4

**Packaging, Storage
& Shelf Life**

Packaging

3M™ Interam™ Endothermic Mat ES-5A-12 is packaged in a corrugated cardboard box, 1 roll per box. A full pallet has 12 boxes.

Storage

3M™ Interam™ Endothermic Mat ES-5A-12 is stable under normal storage conditions, store in a dry warehouse environment in original, unopened container. Normal stock and stock rotation practices are recommended.

Shelf Life

Product shelf life is indefinite when stored indoors.

Installation Techniques

Consult applicable Listed Third Party (e.g. UL) drawings and system details.

The mat shall be installed with the aluminum foil side away from the item to be protected.

Butt joints are reasonably tight with gaps not exceeding 10mm (3/8").

Gaps greater than 3 mm (1/8") and up to 10 mm (3/8") shall be caulked with 3M™ Fire Barrier CP 25WB+ or 3M™ Fire Barrier 3000 WT Intumescent Silicone sealant.

Joints between adjacent sections of ES-5A-12 on the same layer, known as "lateral" joints, should be butted.

The circumferential or "longitudinal" overlap required is minimum 5 cm (2").

The lateral joint seam of a subsequent layer should be staggered minimum 5 cm (2") from the previous layer's joints.

As an installation aide, filament tape such as 3M™ 898 Filament Tape can be used to temporarily hold the ES-5A-12 mat in place. The tape may be left in place.

For structural steel applications, all layers except the exterior most layer of ES-5A-12 mat require 1.2 mm (0.046", 18 gauge) steel tie wires. Space the wires approximately 30.5 cm (12") on-center and locate wires approximately 2.5 cm (1") from the circumferential butt joints.

Lateral and longitudinal joints should be covered with 100mm wide 3M™ 425 Aluminum Foil Tape.

Stainless Steel banding is required as the final permanent fastening step to hold the ES-mat in place. The banding shall be minimum 13 mm wide x 0.5 mm thick (1/2" wide x 0.020"). A minimum of 3 bands are required on every 62.2 cm (24.5") wide section of E-mat. The bands should be spaced 2.5 – 3.5 cm (1" – 1.5") from the edges of the ES-mat, and max 30.5 cm (12") on-center. Required banding shall be tightened so it will not freely move, without cutting the outer foil surface of the mat.

Exposed edges of ES-5A-12 mat shall be covered with 3M™ 425 Aluminum Foil tape.

Items that penetrate through the ES-5A12-mat envelope (known as "heat transfer" or "interfering items") such as all-thread rod, clevis hangers, c-channel strut, angle iron, etc... need to be covered with E-mat, with the same number of layer of ES-5A-12 mat that is on the protected item, and extend for a minimum 30.5 cm (12") distance along the penetrating item

Tools / Materials

For a typical mat installation, the following tools may be of assistance: razor knife, large scissors or electric scissors (to cut mat), T-Square or similar straight edge (to help with straight cuts of mat), tape measure (to measure mat required), marking pen (to identify layers of mat), 3M™ Aluminum Foil Tape 425 (to seal cut edges of mat), rubber roller (to ensure good adhesion of tape), Scotch® Filament Tape 898, 19mm wide (to temporarily hold mat pieces in place - optional), stainless steel bands 13 mm wide x 0.5 mm thick (1/2" wide x 0.020") and band clips to help secure mat, band tensioners, 3M™ Fire Barrier Sealant CP 25WB+ Sealant or 3M™ Fire Barrier FB 3000 WT Intumescent Silicone (to fill seams).

Installation considerations	Determine the appropriate number of layers required for your application. Ensure proper covering and protection of joints, seams, overlaps and any area that requires special cutting and fitting. Ensure proper use of banding to mechanically restrain the mat system. Refer to listed system details for sealant, banding requirements, layer requirements and other installation procedures.
Maintenance	No maintenance is expected to be required when installed in accordance with listed system details. Once installed, if any section of the 3M™ Interam™ Endothermic Mat ES-5A-12 is damaged, the following procedure will apply: for damage to the outer metallic covering, install 3M™ Aluminum Foil Tape 425 to overlap a minimum 50mm (2") in all directions. For more extensive damage (including damage to the mat material), contact 3M Fire Protection Products at www.3m.com/firestop .
Availability	3M™ Interam™ Endothermic Mat ES-5A-12 is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Interam™ Endothermic Mat ES-5A-12 comes 1/box and is available in a 62.2cm x 6.09m (24.5 in. x 20 ft.) roll. For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please visit www.3m.com/firestop .
For Additional Information	To request additional product information or to arrange for sales assistance, please see below for contact details.
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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations

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