

Flammadur® A77

Flame Proofing of Cables

Flammadur® A77 is a paint-like, fire retardant coating, which intumesces to form a firm carbon layer. Coating cables or tubes with a layer of A77 prevents and/or retards the spread of flames along combustible (e.g. PVC)-jacketed cables

Industry Qualifications:

- Factory Mutual Class 3971 (1999)
- International Electro-technical Commission IEC 60332-3-22 (2007)
- The Institute of Electrical and Electronics Engineers IEEE 383, 2.5.4 (1991)
- German Lloyd, according to SOLAS and IEC 60332-3-22 (2007)

Made in Germany by AIK Flammadur Brandschutz, GmbH

Product Features:

- Coating for Smoke and Fire Prevention
- Flame proofing of Combustible- Jacketed Cables
- A paint-like, intumescent substance which expands a minimum of 65 times by volume
- Does not melt or drip when exposed to the flame
- Available in Two Colors (same price)

Uses:

- The coating prevents flame spread in conductors, when exposed to moderate fire sources that might occur from arc or sparks falling or occurring in the cable tray, or from fire exposure of combustible trash or foreign material around the cables in grouped or trayed conditions.

Quantity of Flammadur® A77 Needed:

- It takes 3.06 kg/m² of spraying two coats of A77 on cables
(100cm x 100cm x 0.25 cm (wet height) x 1.225 g/cm³ (wet density) = 3.06 kg/m²)

Safety Precautions:

- Flammadur® A77 is not designed to offer electrical insulation properties and since it is water based, when it is wet, it should not be applied to energized electric cables.
- A waterproof protective varnish, film or plastic covering should be used when installed outside or in other damp areas
- Before handling read the Material Safety Information.
- Wear eye protection and suitable gloves.

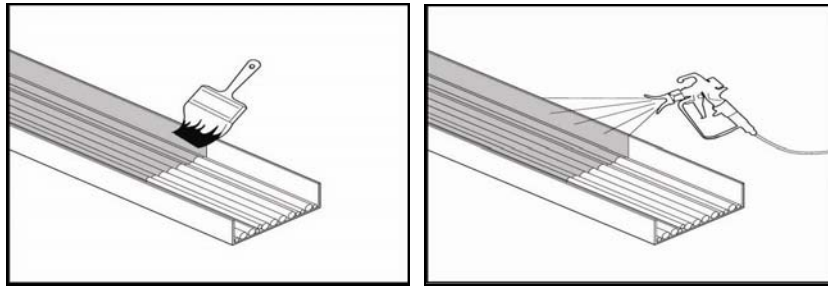
Preparation:

- Apply between 40°F (5°C) to 100°F (40°C)
- Clean cables, which with the supporting structures, must be dry and free from the oil, grease, dust and paint.
- Mix thoroughly in the pail. Any separated water in the pail must also be mixed. Do not add water.



Fire Protection Technologies, Inc.

Installation:



- Apply by spraying, brushing or rolling the paint-like A77 coating to all areas of cables and cable runs. When spraying use equipment like the Graco (U.S.) airless sprayer, Type ELTG 433GT with the special pump President (15:1) and a nozzle size of 0.74 mm (0.029 in.). (The pressure has to be adjusted until a workable condition is obtained).
- Two coats of A77 are required. **To achieve proper coverage for both coats, we recommend the following:**

Since A77 comes in two colors, white and gray, order both colors, use one color for the **first coat and use the second color for the second coat. Depending on the depths of the coats, the quantities needed of the two colors may differ.**

- First coat of A77 will end up being about 0.5 mm on vertical surface and 1 mm on horizontal surface. Let dry for 24 hours.
- Spray or brush a second coat so that the total thickness of the A77 coat, including the first coat is 2.5 mm (wet), which will dry to about 1.59 mm thick layer, as requirement of Factory Mutual.
- Initial curing takes 4 to 8 hours, with final curing in 24 to 48 hours.
- After the second coat is dry in 48 hours, check if any spots are not covered. (A77 is white so look for dark spots and add A77 to those places).

Clean-Up:

- Clean up tools and spills by using wet cloth or soap and water.

Chemical Properties

Properties Intumescent	Flexible Expands a minimum of 65 times per volume when exposed to the heat, builds firm carbon foam and prevents passage of heat from the fire
Material Composition	Intumescent mastic free of solvents, asbestos, non-toxic, contains water.
Final Color	White
Consistency	Viscous Liquid
Required Additives	None, Ready-made
Density (g/cm³ at 20°C)	1.2-1.25 (wet), 1.33 (dry)
Bonding to Adhesive	Cables and Cable Insulation. Sticks to surfaces

Physical Properties

Recommended Shelf Life	18 months
Storage. Application Temp.	Apply between 40°F (5°C) to 100°F (40°C)
Applications	Surfaces are to be free from oil, grease and dirt.
Min. Thickness, wet film	2.5 mm
Min. Thickness, dry coat	1/16 inch (1.59 mm) (FM Approval)
Amount of wet coat, approx.	3 kg/m ² = 10 oz/ 1ft ²
Cure Time, at 68°F(20°C) coating dries cures	4-8 hours 24-48 hours
Cleaning Solvent	Water
Flexibility	Flexible, when dry
Method of Application	Brush, roller or airless sprayer

Tests:

- In 1991, tested and approved by INIEX in Belgium according to IEEE Standard 383, Paragraph 2.5.4 (1980) for “Flame Retardant Coating for Class IE Electric Cables, Field Splices and Connections for Nuclear Power Generating Stations.”
- In 1991, tested and approved by ISEP in Belgium according to International Electro-technical Commission IEC 332-3(1992-3) on electric cables under fire conditions.
- In 1999, tested and approved by Factory Mutual Research Corporation* in USA, according to class 3971 for “Flame Retardant Coating for Grouped Electrical Cables”.
- In 1999, passed gamma radiation exposure of 200 million rads at Phoenix Memorial Laboratory of University of Michigan, USA and subsequent vertical burn test at Factory Mutual Research Corporation, USA.
- New name Factory Mutual Insurance Company (FM Global Technologies LLC)
- **In 2008, Limitation of the propagation along cable bundles according to the 1981 Amendment to the International convention for the Safety of the Sea, 1974, Chapter II-1, Rule 45, 5-2 Germanischer Lloyd, IEC 60332-3-22 Cat:2000(2008)**

1999 Factory Mutual Tests:

Flammadur® A77 Cable Coating meets Factory Mutual Approval requirement as per Class 3971 for “Flame Retardant Coating for Group Electric Cables.”

1. Passed flame test in an vertical exposure of 2 minutes. Flames did not impinge or scorch the specimen above 5 inches (127 mm) from the flame and without degradation above 3 inches (76 mm).
2. No coating breakdown occurred when exposed to high voltage of 1000 V for 1 minute before and after exposure to the fire.
3. A horizontal cable coated with A77 satisfied the Factory Mutual Approval requirement that burning shall not continue longer than one minute after flame cutoff and electric shutdown and the burned (exposed) area shall not exceed 9 inches (128 mm) in length.
4. A cable coated with A77 satisfied the Approval requirement that leakage current shall not exceed 5.0 milliamperes when measured between the conductor and the outer jacket during this high potential test of 1,000 volts.
5. A cable coated with A77 was subjected to saltwater test. There was no disintegration or deterioration of the coating. The cable sample then passed the fire tests and the applied high potential test.
6. The cable coated with A77 passed accelerated aging test, by exposures to extreme temperatures, and subsequent fire and applied high potential test.
7. The cable coated with A77 passed ampacity test, i.e., there was no electrical derating necessary when a cable was sprayed with A77.



Before exposure to fire:



After exposure to fire:



Product Data Sheet
Flammadur® A77 is available in 20 kg (44 lbs) pails.

FPT A77-10-21-2009



Products and Technical Assistance available from

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Warranty:

The information provided is based upon typical installation conditions and tests Fire Protection Technologies, Inc. believes to be reliable. However, due to a wide variety of possible use conditions, the manufacturer and distributor does not guarantee that typical values expressed will necessarily be obtained. THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. NEITHER SELLER, DISTRIBUTOR, OR MANUFACTURER SHALL BE LIABLE FOR ANY INJURY, LOSS, OR DAMAGE, DIRECT, INCIDENTAL OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT. Before using, user shall determine the suitability of the product of their intended use, and user assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of the manufacturer, or distributor.