Thermo-Lag 270

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Single package, water-based, flexible mastic fire protective coating for cables and cable trays.
Description	A water based mastic that can be applied to electrical cables to retard fire propagation. Once applied, it meets code and insurance requirements for interior and exterior use. It provides a hard and flexible surface that will not dust, flake, or spall.
Features	• Flexible • Hard, dust free surface • Allows easy replacement of cables • Water-based product, low odor • Asbestos-Free – complies with EPA and OSHA regulations • Factory Mutual – tested and approved • Does not de-rate cables • Weathering – approved for exterior use • Quality Manufactured – under strict Carboline quality standards • Provides protection at 1/16” Dry Film Thickness
Color	Grey
Finish	Textured Textured finish varies depending on the method of application.
Primer	Primer is not required.
Fireproofing Wet Film Thickness	1/8" (3mm)
Fireproofing Dry Film Thickness	1/16" (1.6 mm)
Solids Content	By Volume 53% +/- 2%
VOC Values	**As Supplied** : 0.24 lb/gal (29 g/l)
Limitations	Not recommended for long-term surface temperatures over 195°F (91°C) in continuous use, 220°F (104°C) in non-continuous use.
Topcoats	Topcoats are generally not required. In severely corrosive atmospheres, contact Carboline Technical Service for a topcoat reccomendation most suitable for the operating environment.

SUBSTRATES & SURFACE PREPARATION

General	Before applying Thermo-Lag® 270 to electrical cables, the cables must be dry and free of all oil, grease, condensation or any other contamination.

PERFORMANCE DATA

All test data was generated under laboratory conditions. Field testing results may vary.

Test Method	System	Results
ASTM D2240 Hardness	Thermo-Lag 270	Shore D - 30-40
ASTM E84 Surface Burning	Thermo-Lag 270	Class A
DEFSTAN 02-711-2 Smoke Index	Thermo-Lag 270	Class A
EPS 96202 Ampacity	Thermo-Lag 270	No de-rating
IEC 60331-1 Circuit Integrity	Thermo-Lag 270	50 minutes @ 1/16" (1.6 mm)
IEC 60331-11 Circuit Integrity	Thermo-Lag 270	90 minutes @ 1/8" (3 mm)
IEC 60332-3-22 Flame Propagation	Thermo-Lag 270	2 hours @ 1/16" (1.6 mm)
IEC 60754 Halogen Gas Content	Thermo-Lag 270	Pass (<5.0 mg/g HCL)

*All values derived under controlled laboratory conditions.
*Test reports and additonal information available upon written request.

TYPICAL CHEMICAL RESISTANCE

Exposure	Fumes	Splashes & Spills
Acids	Very Good	Fair
Alkalies	Very Good	Fair
Salt	Excellent	Very Good
Solvents	Good	Good

MIXING & THINNING

Mixer | Use 1/2" electric or air driven drill with a slotted paddle mixer (300 rpm under load).

Mixing | Thermo-Lag® 270 must be mixed using a 1/2" electric or air driven drill with a slotted paddle or Jiffy mixer blade. Mix material for a minimum of 5 minutes to achieve the necessary texture required before spraying.

Thinning | Thermo-Lag® 270 may be thinned with clean potable water up to 5% by volume.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Air Spray | Graco 5:1 Bulldog with Even-Flo regulator valve, 4.6 gpm (17 lpm) output
Graco 10:1 President with Even-Flo regulator valve, 1.7 gpm (6.4 lpm) output

Air line must be a minimum 100 psi (6.9 kPa). Use 3/8"(9 mm) I.D. line from gun to Even-Flo regulator valve with an air adjusting valve attached at the gun end for atomization control.

Airless Spray | Graco 30:1 Bulldog, 3.0 gpm (11.0 lpm) output (6.4 lpm) output

Spray Gun | For Airless Spray Use:
Graco Mastic Golden Gun with Graco HDRAC 0.059" - 0.063" tips
For Air Spray Use:
Binks 7E2 Gun with 47-49 fluid tip / 3/8" or 1/2" air cap
Graco 204000 Gun with 164331 fluid tip / 160658 air cap

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Material Hose	3/4" (19 mm) I.D. minimum (50') is recommended for all pump recommendations listed. For hose lengths over 50' (15.3 m), a 1-1/2" I.D. hose is recommended. A 10' (3 m) 3/4" (19 mm) whip hose may be added to better facilitate handling. Minimum bursting pressure on material lines should be 1000 psi (68.9 kPa) when using 5:1 or 10:1 pumps. When using a 30:1 pump, the minimum bursting pressure should be 3,000 psi (206.7 kPa).
Compressor	Be certain that the air supply is a minimum of 75 cfm @ 100 psi (6.9 kPa). Air volume and pressure required will depend on equipment used.

APPLICATION PROCEDURES

General	Thermo-Lag® 270 may be applied by spray, trowel or hand application. When spray applying, Thermo-Lag® 270 must be thinned 5% by volume (1 quart water per 5 gallons maximum). A single coat built up with a number of quick passes allows greater control over quantities, thickness and finish. In most conditions, it is advantageous to apply two thin coats rather than one thick coat.
Application Rates	At an ambient temperature of 70°F (21°C), apply 1/8" (3mm) per coat (wet)
Wet Film Thickness	Frequent thickness measurements with a wet film gauge are recommended during the application process to ensure uniform thickness.
Palming	Hand application of Thermo-Lag® 270 may be more economical when cables are "ganged" or for protecting individual strands. Rubber gloves are recommended
Trowel	A standard plasterer's hawk and trowel may be used for suitable applications. Selection of instruments is left to the discretion of the applicator.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	10°C (50°F)	4°C (40°F)	4°C (40°F)	0%
Maximum	43°C (110°F)	35°C (95°F)	35°C (95°F)	90%

*Air and substrate temperature must be at least 40°F (4.4°C) and rising. Surface temperature should be a minimum of 5°F (3°C) above the dew point. The maximum humidity is 90%. Area must be protected from rain or running water during application until material is cured. Minimum ambient temperatures must be maintained for 24 hours after application.

CURING SCHEDULE

Surface Temp.	Dry to Touch	Final Cure Time
21°C (70°F)	24 Hours	15 Days

*Curing times are dependent on thickness, humidity and temperature. Normal dry times are based on a wet thickness of 1/8" (3.2 mm).

CLEANUP & SAFETY

Cleanup	Pump, gun, tips and hoses should be cleaned with clean, potable water at least once every 4 hours at 70°F (21°C) and more often at higher temperatures.

CLEANUP & SAFETY

Safety	Follow all safety precautions on the Thermo-Lag® 270 Material Safety Data Sheet. It is recommended that personal protective equipment be worn including spray suits, gloves, eye protection and respirators when applying Thermo-Lag® 270.
Overspray	All adjacent and finished surfaces shall be protected from damage and overspray. Wet overspray may be cleaned with soapy or clean potable water. Cured overspray may require chipping or scraping to remove.
Ventilation	In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour until the material is dry.
Caution	Thermo-Lag® 270, like most water based coatings, is electrically conductive until it is dry. Extreme caution should be exercised when the material is applied to energized cables and equipment. The material should never be applied without the supervision of plant safety personnel.

TESTING / CERTIFICATION / LISTING

Intertek	Intumastic® 270 has been successfully tested at Intertek laboratories to the following international test standards: IEC 60331-1 - Circuit Integrity IEC 60332-3-22 - Flame Propagation IEC 60754-1 - Halogen Gas Content DEFSTAN 02-711-2 - Smoke Index
FM Global	Thermo-Lag® 270 has been tested and approved by Factory Mutual Research Corporation at 1/16" (1.6 mm) dry thickness, and evaluated by Sandia Laboratories in tests sponsored by the U.S. Nuclear Regulatory Commission using both propane and diesel fueled fires. Copies of both the Factory Mutual and Sandia Laboratories' test reports are available upon request. Ampacity tests run by Factory Mutual show "No electrical derating necessary when a cable is coated (and cured properly) with Thermo-Lag® 270." The temperature attained was well below the maximum temperature rating of the cable insulation. Heat transfer calculations should be used to calculate derating requirements of large groups of conductors. **Factory Mutual Research Corp.** **Sandia Labs** •Diesel (Cable Tray) •Propane (Cable Tray) **Electrical Power System** •Ampacity - No derating of cables required •Report EPS 96202 Fire Retardant coating for Electrical Power and Control Cables at 1/16" dry film thickness.

PACKAGING, HANDLING & STORAGE

Shelf Life	18 Months *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Shipping Weight (Approximate)	11 lbs. per gallon
Flash Point (Setaflash)	>300°F (148°C)
Storage	Store indoors in a dry environment between 40°F - 110°F (4.4°C - 43.3°C). Keep from freezing.

PACKAGING, HANDLING & STORAGE

Packaging	5 gallon

WARRANTY

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