



SafTee First NoFire Arc and Fireproof Tape Products

NoFire/SafTee Arc and Fireproof Tape

- Provides **fire, heat and high voltage protection for cables**, especially power distribution cables.
- This tape has been tested and approved to **meet Consolidated Edison of New York specifications for fault arcing, flame resistance and salt water immersion in underground vaults and structures, It meets Con Ed Spec EO 5343 and is the ONLY ARC and FIRE RESISTANT TAPE approved in Coin Ed Spec EO 100,177**

Advantages

- Reduces or eliminates flame spread and fire spread
- Reduces the emission of smoke
- Eliminates the generation of toxic products of combustion
- Prevents or reduces spread of cable failure to adjacent cables in the event of:
 - single cable failure due to a fire
 - insulation breakdown due to heat or arcing
 - environmental factors
 - catastrophic cable failure
- Provides increased resistance to abrasion, impact and environmental factors including water, chemicals
- Available in standard (no fiberglass) or fiberglass reinforced versions

Unique Properties of NoFire Coating

- Zero Flame Spread Index
- Zero Smoke Developed Value
- Zero Toxicity

Toxicity Tests of NoFire/SafTee Tape

ASTM E662, BSS 7239, & NES 713

| Gas (ppm) | Maximum Safe Limit (ppm) | Test Results Flaming Mode |
|------------------|---------------------------------|----------------------------------|
| H2S | 750 | 0 |
| Acrylonitrile | 400 | 5.5 |
| Phosgene | 25 | 0 |
| SO2 | 400 | 0 |
| CO | 4,000 | 27.5 |
| HCN | 150 | 0 |
| NH3 | 750 | 20 |
| Formaldehyde | 500 | 0 |
| HCL | 500 | 0 |
| HF | 100 | 0 |
| Phenol | 250 | 0 |
| CO2 | 1,00,000 | 5,000 |
| NOX | 250 | 5 |

Technical Specifications (as per Con Edison EO-5343*)

Material Description

NoFire/SafTee Arc and Fire Proofing Tape provides protection to primary distribution cables from the effects of the arc flash and fire that results from a fault on an adjacent cable or cables.

- 1.1 The material is completely free of asbestos, fiberglass, silica, and any other material which does not meet all applicable Con Edison Environmental, Health & Safety (EH&S) Standards.
- 1.2 Materials meet all applicable Con Edison Environmental, Health and Safety (EH&S) standards.
- 1.3 The dimensions (length, width, thickness) and weight of this material is as specified in Table 1 below. This material is sufficiently flexible to facilitate the wrapping process described in Con Edison Specification EO-6025, Procedure For Arc-Proofing Cables with Tape.
- 1.4 The material is white in color.
- 1.5 This wrapping material is supplied in rolls and sheets. The width and length can be tailored to a client's specifications. The most frequently requested sizes are noted below:
 - 1.5.1 1" wide X 240 unrolled roll length
 - 1.5.2 3" wide X 240 unrolled roll length
 - 1.5.3 14" X 14" sheet
 - 1.5.4 Fiberglass tape is used to secure the NoFire/SafTee Arc and Fireproofing tape

Arc Resistance

- 2.1 The material protects the cable from the effects of a 20,000 ampere, 10 cycle arc (from a 60 cycle source) created by a fault on an adjacent cable section. This level of arc protection can be demonstrated in a high-power laboratory following the test setup described in Canadian Electricity Association (CEA) report 204 D 426 titled Cable and Joint Arc-proofing Tests and Recommendations.
- 2.2 Tapes conform to the standards and qualification tests listed on Table 1.
- 2.3 The material, when applied to a section of cable representative of an actual Con Edison field installation, is capable of providing continuous protection up to 250°F (121°C) and withstands a steam impingement of 800°F (426°C) for 15 minutes.
- 2.4 The material does not disintegrate or lose its tensile strength when completely immersed in a salt water bath (>3% Salt Solution) at 50°C for a period of 30 days.
- 2.5 Tension Test - When the material is tested by the grab test as described in ASTM D5034-90, the minimum breaking strength shall be at least 100 lbs.
- 2.6 Flame Test - The material sample shall be wrapped around a metallic sleeve approximately 3 inches in diameter. The sleeve thickness shall be 7/64 (±0.008) inch. One half lapped layer of the sample shall be securely wrapped to the sleeve. The ends of the sample material can be secured with glass tape.
 - 2.6.1 Compliance with one of the following two test methods is required for any arc resistant materials. A minimum of three burns from three samples is required for both methods.
 - a The sampling assembly shall be exposed to a Fisher Bunsen Burner No. 3-902 rated at 10,000 BTU/hr or equivalent. The flame temperature shall be confirmed by measurement to be 1,700°F (±50°F). The hottest part of the flame shall be applied to the specimen for six minutes.

- b The sampling assembly shall be exposed to the hottest part of the flame from a Bernzomatic SureFire propane torch, Model T701, with a 3/8 inch diameter tip or equivalent. The flame temperature shall be confirmed by measurement to be 2,000°F (±50°F). The flame shall be applied to the specimen for 3 minutes.
- 2.6.2 During the indicated elapsed testing time, the samples shall not fall apart and expose a significant portion of the metallic sleeve. Then also remain intact and not melt or deform. Failure of the material to pass either of these two testing methods shall be a cause for rejection.

Fire Resistance

- 3.1 3.1.The material successfully completes ANSI/IEEE 383--1974 section 2.5, Flame Tests to the satisfaction of Con Edison's Distribution Engineer cable section.
- 3.2 3.2 The material shall be applied to a section of Con Edison supplied cable in a method that reflects an actual field installation. Con Edison shall approve all ANSI/IEEE 383--1974 section 2.5 test setups before the initiation of the testing.
- 3.3 3.3 The Flame Test must be documented with a video record as well as a written report.
- 3.4 3.4 The smoke density emitted from the burning wrapped cable for the "Flaming and Non-Flaming Mode," when tested in accordance with ASTM E 662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials, shall be as follows:
 - a Non-Flaming Mode: D_s @ 90 seconds shall be less than 10, D_s @ 4 minutes shall be less than 20, D_m shall be less than 40.
 - b Flaming Mode: D_s @ 90 seconds shall be less than 10, D_s @ 4 minutes shall be less than 20, D_m shall be less than 40.

TABLE 1

| Test Item | Test Type | Test Method | Requirements |
|------------------|------------------------|--------------------|--|
| A | Material Width | ASTM:D3774-89 | 1" (± 1/32") Roll |
| | | | 3" ± 1/16") Roll |
| | | | 14"x14" (± 1/16") Sheet |
| B | Material length | ASTM:D3773-90 | 240"(± 1/16" Roll |
| | | | 14"(± 1/16) Sheet |
| C | Material Thickness | ASTM:D1777-07 | 0.030"(min) |
| D | Material Weight | ASTM:D3776-85 | 0.27 lbs/ft ² ± 10% |
| E | Thermal Conductivity | ASTM:D1518-85 | 0.070 BTU-in/hr-ft ² -°F |
| | Electrical Resistivity | ASTM:D257-99 | 3 X10 ¹⁰ ohms (min) |
| G | Flame Test | Paragraph 3.2.6 | Paragraph 3.2.6 |
| | Tension | ASTM:5034-90 | Tensile Strength 100 lbs (min) |
| I | Flame Spread | ASTM E 162 | Flame spread index shall be less than or equal to 25 |
| | Arcing | Paragraph 3.2.1 | 20,000 amps for maximum of 10 cycles (60 cycle source) |

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