

TECHNICAL DATA SHEET (TDS)

FXN ROPE

Brand Owner: FireXNull Inc.

Product Type: Automatic, heat-activated fire suppression rope for enclosed electrical environments

Intended Use: Installed inside enclosed electrical and electronic enclosures to suppress early-stage ignition caused by overheating, arcing, sparks, or short circuits.

Not Intended For: Open-air use, structural fires, kitchens or grease fires, occupied-space life safety protection, or as a replacement for code-required fire detection and suppression systems.

1) Product Overview

FXN Rope is a passive, always-on fire suppression product designed for installation inside electrical enclosures. It contains heat-responsive microcapsules filled with FK-5-1-12 clean agent. When temperatures reach the activation threshold, the microcapsules activate and release the agent inside the enclosure at the source of ignition to suppress a developing fire before it spreads.

Key Benefits

- Automatic activation at a preset temperature threshold
- No power, no sensors, no wiring, no electronics, no human action required
- Clean, residue-free suppression
- Electrically non-conductive
- Non-pressurized device

2) How It Works

Under normal conditions, the microcapsules remain stable and inactive. When temperatures reach the activation threshold, the microcapsules rupture and release FK-5-1-12 clean agent inside the enclosure at the source of ignition.

3) Typical Applications

Designed for enclosed electrical and electronic environments, including:

- Electrical switchgear, panelboards, breaker panels, distribution boards
- Industrial control panels, PLC cabinets, automation enclosures, MCC cabinets
- Server racks, network cabinets, telecom enclosures
- EV charging infrastructure cabinets and related electrical enclosures
- Energy storage and renewable energy enclosures (BESS, inverters, combiner boxes)
- Marine and offshore electrical panels and enclosed compartments
- OEM equipment enclosures (CNC, packaging lines, robotics control boxes)

4) Key Specifications

Property	Specification
Activation Temperature	428°F ± 9°F (220°C ± 5°C)
Storage Temp (Unopened)	-40°F to 149°F (-40°C to 65°C)
Operating Ambient Limit	Max 149°F (65°C) sustained
Humidity (Recommended)	Below 80% RH
Diameter	0.20–0.28 in (5–7 mm)
Residue	No residue in intended use
Electrical Property	Electrically non-conductive
Pressure	Non-pressurized

5) Typical Composition (By Weight)

- **FK-5-1-12** (dodecafluoro-2-methylpentan-3-one): 38–45%
- **Polyvinyl Alcohol (PVA)**: ~30%
- **Potassium Nitrate (KNO₃)**: 10–18%
- **Encapsulation Shell (Thermoset Amino-Polymer)**: <10%
- **Plasticizers, stabilizers, binders**: <5%

- *Values are typical and may vary within normal manufacturing tolerances.*

6) Model Selection and Enclosure Volume Compatibility

Model	Rope Length	Recommended Enclosure Volume
FXN-R100	7.55 ft (2.3 m)	2.5–3.5 ft ³ (65–100 L)
FXN-R200	10.83 ft (3.3 m)	Up to 7 ft ³ (200 L)
FXN-R300	14.76 ft (4.5 m)	Up to 10 ft ³ (300 L)
FXN-R500	20.67 ft (6.3 m)	Up to 17 ft ³ (500 L)
FXN-R750	27.56 ft (8.4 m)	Up to 26 ft ³ (750 L)
FXN-R1000	34.45 ft (10.5 m)	Up to 35 ft ³ (1000 L)
FXN-R1500	46.59 ft (14.2 m)	Up to 53 ft ³ (1500 L)
FXN-R2000	59.38 ft (18.1 m)	Up to 70 ft ³ (2000 L)

Sizing Guidance: If your enclosure volume falls between two models, select the next larger model.

7) Installation (Summary)

1. **Placement:** Install within the enclosure near likely ignition sources.
2. **Mounting:** Use appropriate mounting hooks or brackets. **Do not cut, crush, or kink.**
3. **Clearance:** Do not cover the rope with insulation or dense wiring bundles.
4. **Safety:** Disconnect power prior to installation; follow lockout/tagout procedures.
5. **Post-Install Check:** Confirm the rope is securely mounted and positioned to receive heat exposure.

8) Storage, Shelf Life, and Service Life

- **Shelf Life (Unopened):** Up to 2 years from the Date of Manufacture (MFG) when stored in original sealed packaging. This is a recommendation for inventory management and does not, by itself, indicate expiration.

- **Service Life (After Opening / Installation):** Up to 5 years of service life begins from the date the sealed packaging is opened and the product is installed, provided it is installed promptly after opening, inspected periodically, and maintained within recommended conditions.
- **Total Life Limit:** For maximum reliability, the product should be replaced no later than **5 years from the Date of Manufacture (MFG)**, regardless of installation date.
- **Post-Activation:** FXN Sticker is a single-use device and must be replaced immediately after any discharge event.

9) Inspection and Maintenance

Recommended annual visual inspection:

- Confirm rope remains securely mounted and unobstructed.
- Check for physical damage, crushing, deformation, or discoloration.
- Replace if damage or abnormal condition is observed.

10) Safety and Handling

- For enclosed electrical environments only.
- Do not modify the product.
- After activation, ventilate the enclosure area and follow site safety procedures.
- Refer to the SDS for additional handling guidance.

11) Regulatory and Compliance Notes

- **Clean Agent:** FK-5-1-12 is recognized in NFPA 2001 as a clean agent (reference only).
- **System Clarification:** Not an engineered total flooding system (not NFPA 2001 engineered product).
- **UL Testing:** UL94 HB burn testing data is for material reference only; does not constitute UL certification or listing.
- **California Proposition 65:** Product compliance and warning obligations depend on exposure in the intended use environment. FireXNull provides a Proposition 65 warning on product packaging in accordance with California law.

12) Transportation

Non-pressurized. Not regulated as Dangerous Goods for shipping (DOT, IATA, IMDG).

13) Documentation

- **SDS:** Available upon request.
- **Instructions:** Available via FireXNull documentation portal.

14) Limited Warranty and Limitation of Liability

- **Limited Warranty:** FireXNull warrants product meets published specifications at time of shipment.
- **Limitations:** Supplemental protection only; does not replace code-required systems.
- **Limitation of Liability:** FireXNull is not responsible for damages from improper selection, installation, misuse, or failure to follow instructions and applicable codes.

15) Contact

FireXNull Inc.

Technical Support: support@firexnull.com

Phone: (888) 969-0010

Website: www.FireXNull.com