



**SIGNUM**



*Fire Retardant Cable Coating*



## Why use Signum FR Coating?

Electrical faults are reported to be a major cause of fire throughout the world, especially in recent years. This increase in frequency of electrical fires can be attributed to a surge in use of electrical components, equipment, appliances and systems in today's day to day life.

Fires resulting from such electrical faults tend to spread rapidly through the length of the cables, and even more so where cables are bundled together or where there is a heavy concentration of power cables such as in cable galleries, cable tunnels, cable shafts etc.

While burning, most cable insulations release toxic and extremely corrosive gases, which are not only harmful to human life but when combined with moisture in the atmosphere, initiate extensive corrosion in steel, thereby affecting structural integrity of buildings as well.

Signum Fire Retardant (FR) Cable Coating is a specially formulated water-based intumescent coating, designed primarily for use on electrical, communication and data cables, whether individual or grouped and their supporting horizontal or vertical trays.

## How it works

When exposed to fire or high heat, in either vertical or horizontal arrangement of cables, the coating intumesces, and forms a thick insulating layer (char) on the surface of the cable jacketing/insulation. This not only prevents heat transmission or penetration but also stops the propagation of flames drastically.

Signum Fire Retardant Cable Coating does not emit toxic fumes or substances either during application or during exposure to fire. It greatly reduces deadly smoke generated during fire thereby preventing damage due to smoke and possible loss of life.

After self-extinguishing the flames, the char does not continue to burn as "after-glow" and does not re-ignite in flames.

Signum Fire Retardant Cable Coating enhances fire resistance to maintain circuit integrity under emergency conditions thereby ensuring cable functionality in areas where it is imperative to have connectivity.

## Features

- Water-based intumescent coating
- Asbestos-free, toxic-free
- Environmentally friendly
- Anti-rodent, anti-termite and vermin proof
- No cable derating, does not reduce current carrying capacity of cables
- Excellent flexibility after drying
- Moisture and humidity resistant
- Can be used outdoors/ in varying environmental conditions with no loss on effectiveness
- Easily applicable by brush or sprayed-on
- No loss in properties after prolonged exposure to nuclear radiation
- Mechanically tough, can withstand walking on coated cable trays without damage to coating
- Permanent in nature, lasts for the lifetime of cables
- Maintenance free



Intumescent action of Signum FR Coating on Cable

## Performance Specifications

Signum Fire Retardant Cable Coating has been tested for compliance with many national and internationally approved standards

IEEE 383: Standard for Type Test of Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations

IEC 60332: Test on electric and optical fibre cables under fire conditions

IS 10810 (Part 53): Methods of Test for Cables - Flammability Test

IS 10810 (Part 50): Methods of Test for Cables - Bending Test

ASTM D 2863: Standard Test Method for Measuring The Minimum Oxygen Concentration to Support Combustion (Oxygen Index)

## Certifications & Approvals

Signum Fire Retardant Cable Coating has been tested and certified by several internationally accredited third-party organizations approved to conduct such tests under Government of India authority in India

CBRI: Central Building Research Institute, Rourkee

CPRI: Central Power Research Institute - Thermal Research Center, Koradi

ERDA: Electric Research and Development Association, Gujarat

Approved Type Test Certificates for all performance standards are provided with all projects executed.

*We have our own in-house Fire Testing Laboratory constructed as per international standards for new R&D activities.*

Special fire tests for project-specific special/ unique conditions can also be undertaken and certified after successful testing as per relevant standards.

## Quality Assurance

Signum is certified for its quality systems according to ISO 9001:2015 standards by TUV India Pvt. Ltd., a member of internationally known TUV NORD GROUP.

Quality Assurance Plan (QAP) and Manufacturer's Certificate of Conformity/ Test Certificate (MTC) for Signum Fire Retardant Cable Coatings is available upon request.

## Technical Characteristics

Trade Name	RS90DF
Colour	Off White
Visual Characteristics	
Wet form	Thick paste like form
Dry form	Light textured surface finish
Viscosity	Highly viscous
pH Value	7
Specific Gravity	1.21 to 1.35
Thermal conductivity	Poor
Flash point	Not Applicable
Reaction on burning	Intumesces, non-toxic during burning
Expansion rate	More than 5 times
Toxicity	Non-toxic
Limiting Oxygen Index	> 50% as per ASTM D 2863
Oil Resistance	Excellent
Effect on Ampacity	< 2%
Resistance to water	Excellent
Resistance to weak acids and mild alkalis	Excellent
Resistance to ageing	Excellent
Resistance to Rodent Gnawing	Non palatable by microtine rodents (rats, mice etc.) as per lab tests conducted
Flexibility	No cracking/ peeling at bending radius of 12 x OD for armored cables as per IS 10810 Part 50, IS 1255-83
Impact resistance	Mechanically tough, can withstand nominal impact of drop loads without impairing performance of coating
Recommended thickness	1.5 mm average dry film thickness or as per requirement
Coverage	~ 3.2 to 3.5 kg/m <sup>2</sup> (at recommended thickness)
Drying time	To touch 2-3 hours, hard dry 24-72 hours
Packaging	50 kg containers
Shelf life	12 months in original unopened containers
Storage Temperature	4 °C to 45 °C
Surface preparation	Thick layers of dirt, oil, grease and other foreign matter should be removed from the surface to be coated prior to application
Application to cables	By brush or by spray equipment



## Application

Surface Preparation: Signum Fire Retardant Coating has excellent adhesion to all types of cable jackets without any special surface preparation. However, thick layers of dirt, dust, oil, grease and any other foreign matter must be removed prior to coating application. Special cleaning agents or solvents are not recommended.

Application to Cables: A thin fog coat can be applied to all exposed surfaces of cable(s) at the location under consideration. It is recommended to allow the coat to hard dry and then apply subsequent coats to ensure proper adhesion to cable surface. Next, two or more coats can be applied to achieve the necessary thickness, each coat being allowed time to hard dry.

For addition or deletion of cables from coated bunch, pull out/ add in the cables first and then coat the bare surface as per procedure described above.

It is recommended to apply several thin coats for better results.

Once cured, Signum Fire Retardant Cable Coating forms a tough film which is resistant to deterioration from flaking, impact, vibration and temperature changes.

## Recommended Application Areas

Residences, Commercial Spaces, IT Parks  
Hospitals, Hotels  
Multiplexes, Banks, Department Stores  
Airports, Metro Railway Stations  
Thermal, Nuclear, Hydro Power Projects  
Govt. buildings - Embassies, Administrative offices  
Military Installations - Hangars, Shipyards, Administrative offices  
Industries - Cement factories, Godowns, other factories  
Steel Plants, Coal Mines, Paper & Saw Mills, Petrochemical Plants,  
Explosive Manufacturing units

## Other Products by Signum

Steel & Timber Flush Doors  
Timber Carved Designer Series Doors  
Steel & Timber Fire Doors  
Steel & Timber Acoustic Doors - General and Fire Rated  
Metal Sliding Doors - General and Fire Rated  
Rolling Metal Shutters - General and Fire Rated  
Architectural Partitions  
Fire Stop Mortar Barrier



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TURNKEY **PASSIVE FIRE PROTECTION** SYSTEMS

Manufactured by: -

**Signum Fire Protection India Pvt. Ltd.**

TURNKEY PASSIVE FIRE PROTECTION SOLUTIONS

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