Product Data Sheet

FIREX EC 43

Water immersion /weather resistant intumescent fire protection coating, for combustible electrical & communication cables

Long runs of unprotected, PVC or plastic rubber sheathed combustible cables, usually supported by cable trays, are prone to rapid fire spread /generation of toxic smoke /acid gases and can thus cause excessive damage to men & materials.

Unprotected cables burn & propogate fire after only a few minutes of exposure to fire/ flames. Power required for vital control functions, supplies and services fails very quickly.

Burning cable sheaths carry the fire rapidly forwards and the burning PVC gives off aggressive toxic vapours.

Indirect damage from cable fires (fire travel, breakdowns, corrosion resulting from harmful gases affecting sensitive instruments), is generally greater than the fire damage, initially visible.

Cable fire suppression coatings are thus a critical step in achieving fire safety, and ideally they should provide the following two key protections:

1. **Protection of cables against direct fire exposure /fire survivability - circuit integrity** : (Governing international test standard - IEC 60331-11)
2. **Prevention of fire propagation on cables** : (Governing international test standard - IEC 60332-3-21, IEEE 383 & FM 3971)

In addition, the above two protections, should be tested & certified, for a minimum period of >30 minutes**,** ideally at a fire temperature of >1100°C (Hydrocarbon).

The longer this protection time span, naturally the more superior the coating /protection capability.

The cable coating should also be water immersion /weathering resistant.

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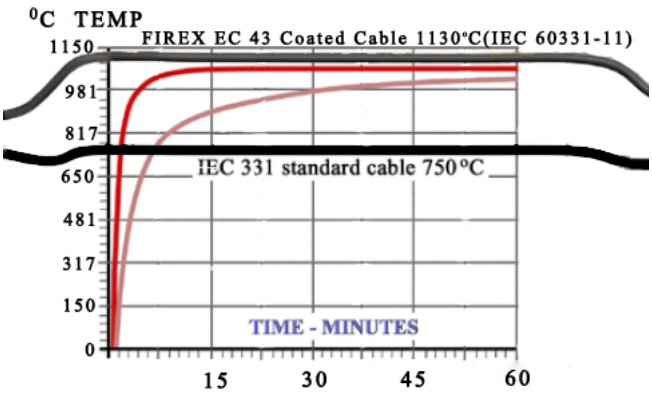
Firex EC 43 is a heavy-bodied, water-based intumescent coating which is designed to prevent flame spread along the jacketing of electrical (or other) cables and to provide a thermal barrier for protection against heat damage caused be external fires /internal short circuiting .

Firex EC 43, today, uniquely provides **the longest time span fire protection, in the world,** in both these two criteria's, at direct fire exposure >1100°C (Most cable coatings provide either only one of these protections, or only for a minimum time interval of 2-5 minutes and that too only against low intensity ISO /Cellulosic fires /750°C).

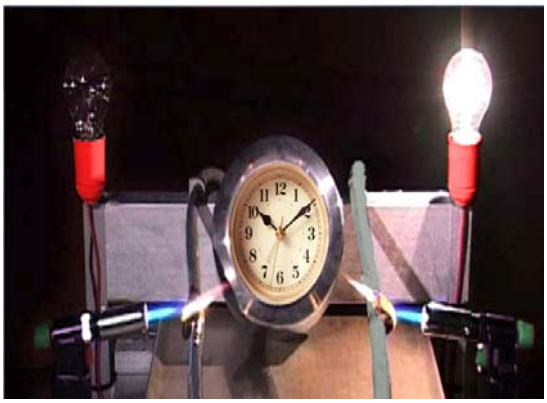
Worlds first cable fire suppression coating to pass IEC 60331-11, Fire survivability - Circuit integrity under hydrocarbon fire direct exposure (1130°C) **– Cable fire protection /Fire survivability - Circuit integrity with re-energisation. (Also passes 50 minutes /2mm DFT)** **: 60 MINUTES**

Tested in Hydrocarbon Fire (>1100°C for 60 Minutes)



ISO/Cellulosic Fire Temperatures = 750°C
Hydrocarbon Fire Temperatures = 1100°C

Fire survivability - Circuit Integrity Testing

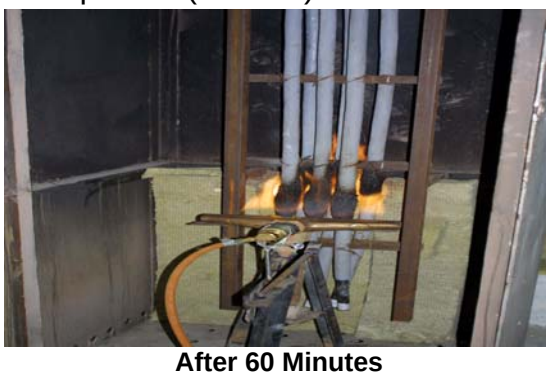


Uncoated cables will short circuit within 2 minutes of exposure to an oil fire. Firex EC 43 will function for >1hour without a short circuit

1. The Light brown curve shows the temperature of an ISO fire which is a normal fire in a building.
2. The red curve shows the temperature of an oil /hydrocarbon fire.

"Firex EC 43 – The product that can guarantee Fire Safety"

★ Worlds first cable fire suppression coating to pass IEC 60332-3-21, category A F/R, vertical fire propagation on multiple cables under hydrocarbon fire direct exposure (1130°C) **– Prevention of fire propagation.** **: 120 MINUTES**



After 60 Minutes

120 Minutes

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CBRI, ROORKEE

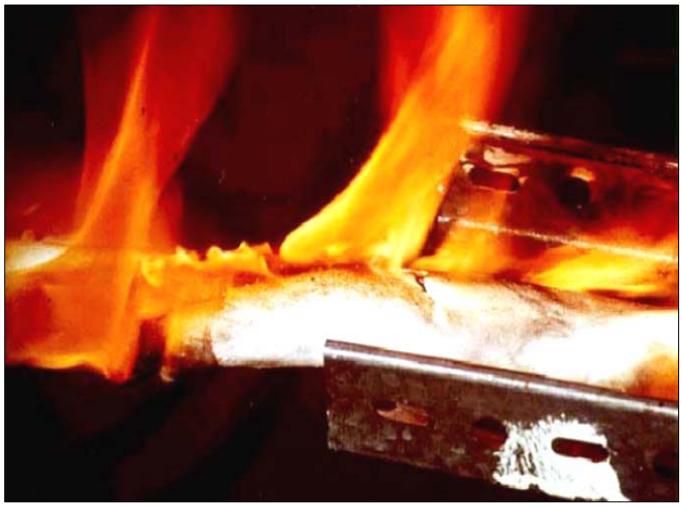
- ★ Also passes IEEE 383 & FM 3971.
- ★ Best in class intumescence – Superior fire & thermal protection.
- ★ High solids (68-70%)
- ★ Unique water immersion /weather resistance.
- ★ Suitable for both indoor & outdoor use. Weathering resistant. Post curing will not wash off with rain water.
- ★ Passes fire test post 14days water immersion test **(Tested at CSIR-IICT Hyderabad).**
- ★ **ONLY CABLE FIRE SUPPRESION COATING CAPABLE OF PROVIDING, BOTH LONG TERM FIRE PROPAGATION PREVENTION + LONG TERM FIRE SURVIVABILITY - CIRCUIT INTEGRITY, AGAINST HYDROCARBON FIRES >(1100°C) TOGETHER WITH WATER IMMERSION /WEATHERING RESISTANCE.**

Firex EC 43 can be applied to grouped cables or single cables.

Firex EC 43 forms a protective intumescent char when exposed to flame or to a temperature above 350ºF. (This char should be removed completely and clean cables should be recoated if intumescence should occur.)

Other Features:-

- ★ Good adhesion of the coating facilitates vertical and overhead application, minimizes cleanup.
- ★ Does not affect the capacity of the cables to carry current; therefore, it does not require that the cables be de-rated; does not attack or harm standard cable jacketing.
- ★ Conforms readily to cable shape and maintains flexibility indefinitely, allowing for cable movement or removal.
- ★ Virtually maintenance free; does not crack or deteriorate significantly with age, resists attack from harsh environments.
- ★ Dries to the touch approximately 2 to 4 hours after application and cures thoroughly in 24 to 48 hours, depending on temperature and humidity.



- ★ Product can be applied easily by brush or spray by a contractor or in-house maintenance crew with no extensive training.
- ★ A safe, non-flammable, latex emulsion, it involves no job-site hazards, mixing, or thinning; cleanup is accomplished with soap and water.
- ★ Suitable for both indoor & outdoor use. Weathering resistant. Post curing will not wash off with rain water.
- ★ The release of hydrochloric acids vapors is slowed down considerably by using Firex EC 43. Acid vapours that are released are neutralized. There is no subsequent burning of protected cables after the direct effect of fire has been halted.

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Both products and materials (including raw materials) are subjected to control in officially approved testing facilities.

Substrate: In Dry indoor /outdoor climate : Plastic cable sheath compounds, metals -the substrate must be clean and dry - free of dust , dirt or oil – (cleaning by suction – for grease, oil with dry rags /solvents).

Method of application : Brushing, spraying, airless spraying

Material Preparation : Thoroughly stirring up with slow rotating mechanical mixer .

System: Firex EC 43

Technical Data

1.	System	:	Non-Hygroscopic water based intumescent coating
2.	Colour	:	Off white /Light grey
3.	Density	:	1.28 kg /ltr ± .03 kg /ltr
4.	Temperature resistance	:	>1800°F
5.	PH	:	7 - 8
6.	Solids by weight	:	68 – 70%
7.	Drying Time	:	Dry to touch, 4-6 hours. Full cure : 72 hours.
8.	Chemical, oil & water resistance:		Resistant
9.	Toxicity	:	Non-Toxic, asbestos & lead free.
10.	Toxicity Index	:	<1.5 (As per NES-713 & NCD-1409)
11.	Flash Point	:	Nil

12. Applicable Test Data **:**

a)	Fire propagation & aging test, as well as other tests as per FM-3971	: FM, USA
b)	IEC 60332-3-21 long term fire propagation prevention (120 minutes)	: CBRI, Roorkee.
c)	IEC 60331-11 long term fire survivability / circuit integrity (50 and 60 minutes)	: CBRI, Roorkee.
d)	Hydrocarbon fire test pass (>1100°c)	: CBRI, Roorkee.
e)	IEEE 383 Fire propagation prevention additional test.	: CBRI, Roorkee.
f)	Toxicity Index (As per NES-713 & NCD-1409)	: CBRI, Roorkee.
g)	14 days water immersion test pass, together with subsequent fire testing.	: IICT-CSIR, Hyderabad
h)	Heat dissipation	: ERDA Vadodara

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Packing	: -	180 kg Drums, 20 kg Pails, 5 kg Jars.
Shelf Life & Storage	:-	12 Months, Store in cool & dry area at room temperature (preferably below 32°C) and away from sunlight.

Special remarks:

Exposed cable channels should be protected on all sides, even underneath. Apply a good opaque coat to the entire exposed part of the cable sheath. Spray gaps and spaces generously so that material can run into them. When calculating amount required, surface curvature of cable must be taken into account.

Firex EC 43 is easily applied by brush or spray and it adheres well to cables, allowing for vertical or overhead application. Care should be taken to see that cables are clean and dry before application, particularly that they are free of oil, grease and dirt. Firex EC 43 should be applied in multiple thin coats (as per decided DFT), to ensure complete coverage & the desired protection level.

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