



FIRE SECURITY

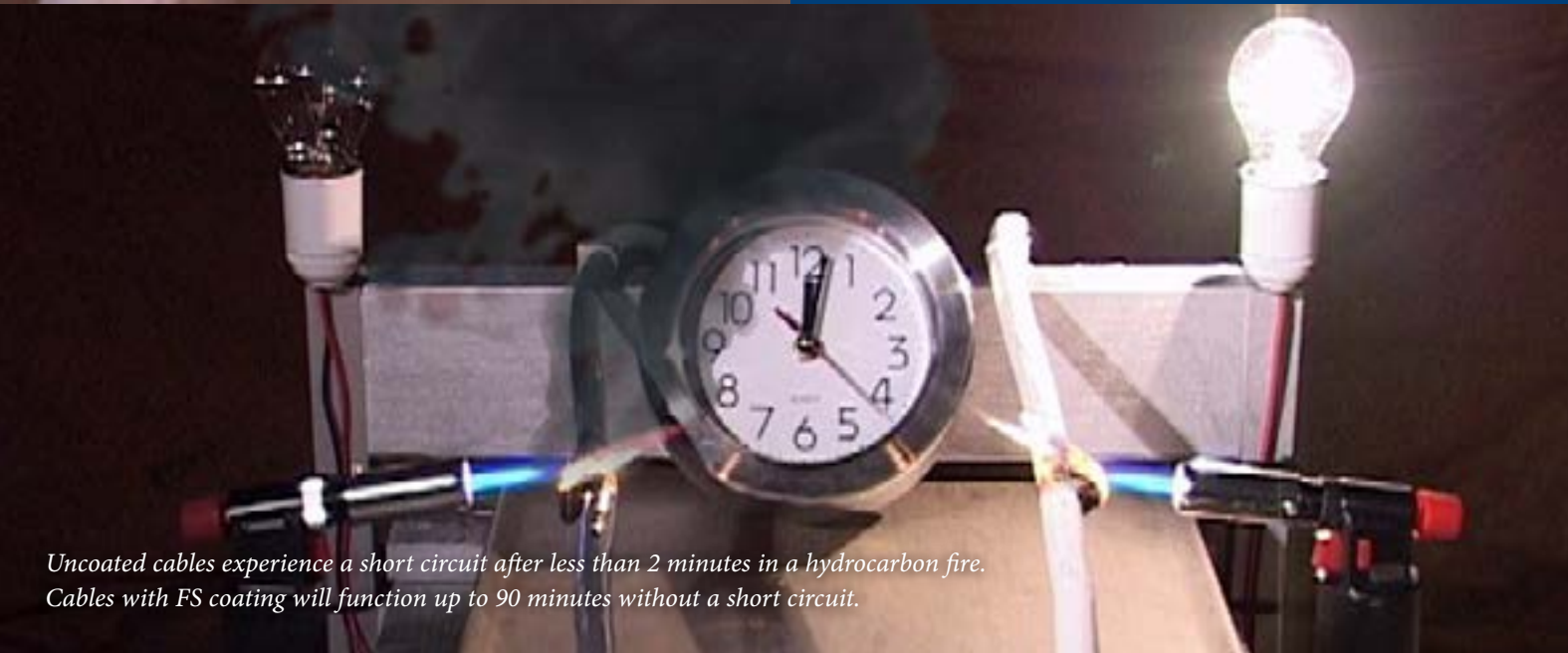
Lifetime extension, repair and fire protection of electrical cables
CRUISE SHIPS



*Fire Security has protected more than 230 cruise ships including the world's largest.
Last updated September 2021*



FS-1 is an intumescent coating that will expand 100 times its thickness during a fire - thus protecting the cables from fire damage and making sure the cables function when needed the most.



Uncoated cables experience a short circuit after less than 2 minutes in a hydrocarbon fire. Cables with FS coating will function up to 90 minutes without a short circuit.

AN INTERNATIONAL STANDARD FOR THE CRUISE INDUSTRY



Millions of people travel the ocean every year for business or pleasure. Fire Security is one of the most important partners in making this travel as safe as possible. It is our objective to enhance the safety of the vessel, its passengers and crew and as such Fire Security's products have become an international standard for the cruise industry.

Fire Security - what we offer and how we work.

Fire Security is a Norwegian company specializing in class approved repair and fire protection of electrical cables. We are the only producer offering a turnkey operation with specially trained personnel for application worldwide.

Fire Security offers to conduct surveys of cables in high risk areas of your vessels, after which a detailed report is handed over to you with suggestions to what we can do to improve the

fire technical properties of your cables, what you will gain and a price quote. This is done totally free of charge with no commitment from your side.

Our **Vice President Terje Waage** is in charge of the cruise sector at Fire Security. As a co-founder of the company he has more than 30 years of experience and has seen more than 230 cruise ships being protected by our team of applicators.

When choosing a partner to conduct fire protection of cables, it is of utmost importance to use a company who knows how to perform the job according to requirements. Engage a company with a truly professional organization that uses well documented products to provide fire resistance under extreme temperatures.

Fire Security meets all these requirements.

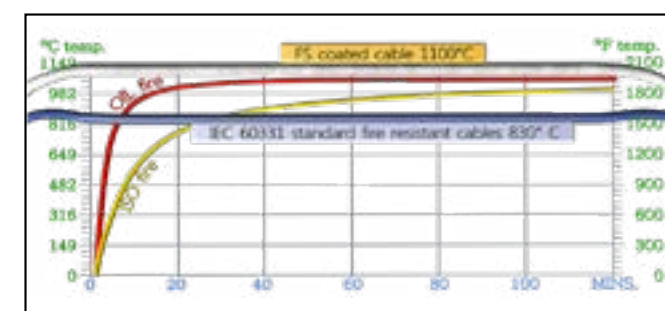
Fire Security has more than 30 years of experience in cable fire protection worldwide.

SAVING COST, SAVING ASSETS, SAVING LIVES

In a fire situation our systems will prevent:

- Ignition of the cable insulation
- Release of toxic fumes from the cable insulation
- Release of poisonous gas (HCL) from the cable insulation
- The cable tray from melting and collapsing

Will your cables survive a hydrocarbon fire?



The yellow curve shows the temperature of an ISO fire - 830° Celsius, which is a normal cellulose fire.

The red curve represents the temperature of an oil fire - up to 1100° Celsius - the temperature to which Fire Security has tested their coatings. This is the temperature you will be facing if you had such a fire.

How the protection works

During a fire, the coating will expand upto 100 times its thickness, thus protecting the cable from fire damage. Coated cables will function during a fire and be usable afterwards. If the fire is extinguished within reasonable time, there is no need for cable replacement.



WE SERVE THE WORLD'S LARGEST CRUISE LINE OPERATORS

Fire Security is the world leader in fire protection of cables on board cruise ships using our FS1 intumescent coating in a turnkey solution. Since 1996 we have protected in average one ship per month.
Fire Security has fire protected cables in vital areas on board more than 230 cruise vessels:

Aida Cruises	AIDAaura
Aida Cruises	AIDAbella
Aida Cruises	AIDAblu
Aida Cruises	AIDAcara
Aida Cruises	AIDAdiva
Aida Cruises	AIDA luna
Aida Cruises	AIDAmar
Aida Cruises	AIDAnova
Aida Cruises	AIDAperla
Aida Cruises	AIDAprima
Aida Cruises	AIDA sol
AIDA Cruises	AIDAstella
AIDA Cruises	AIDAvita
Azamara Club Cruises	Azamara Journey
Azamara Club Cruises	Azamara Quest
Carnival Australia	Pacific Dawn
Carnival Australia	Pacific Jewel
Carnival Australia	Pacific Pearl
Carnival Cruise Lines	Carnival Breeze
Carnival Cruise Lines	Carnival Celebration
Carnival Cruise Lines	Carnival Conquest
Carnival Cruise Lines	Carnival Destiny
Carnival Cruise Lines	Carnival Dream
Carnival Cruise Lines	Carnival Ecstasy
Carnival Cruise Lines	Carnival Fantasy
Carnival Cruise Lines	Carnival Fascination
Carnival Cruise Lines	Carnival Freedom
Carnival Cruise Lines	Carnival Elation
Carnival Cruise Lines	Carnival Glory
Carnival Cruise Lines	Carnival Holiday
Carnival Cruise Lines	Carnival Horizon
Carnival Cruise Lines	Carnival Imagination
Carnival Cruise Lines	Carnival Inspiration
Carnival Cruise Lines	Carnival Legend
Carnival Cruise Lines	Carnival Liberty
Carnival Cruise Lines	Carnival Magic
Carnival Cruise Lines	Carnival Miracle
Carnival Cruise Lines	Carnival Paradise
Carnival Cruise Lines	Carnival Pride

Carnival Cruise Lines	Carnival Sensation
Carnival Cruise Lines	Carnival Splendor
Carnival Cruise Lines	Carnival Spirit
Carnival Cruise Lines	Carnival Triumph
Carnival Cruise Lines	Carnival Valor
Carnival Cruise Lines	Carnival Victory
Carnival Cruise Lines	Carnival Vista
Celebrity Cruises	Celebrity Constellation
Celebrity Cruises	Celebrity Eclipse
Celebrity Cruises	Celebrity Equinox
Celebrity Cruises	Celebrity Infinity
Celebrity Cruises	Celebrity Millennium
Celebrity Cruises	Celebrity Reflection
Celebrity Cruises	Celebrity Silhouette
Celebrity Cruises	Celebrity Solstice
Celebrity Cruises	Celebrity Summit
Celebrity Cruises	Celebrity Xpedition
Color Line	Bohus
Color Line	Christian IV
Color Line	Color Fantasy
Color Line	Color Festival
Color Line	Color Magic
Color Line	Color Viking
Color Line	Kronprins Harald
Color Line	Peter Wessel
Color Line	Prinsesse Ragnhild
Color Line	Silvia Ana
Color Line	Skagen
Color Line	Superspeed 1
Color Line	Superspeed 2
Costa Crociere	Costa Atlantica
Costa Crociere	Costa Classica
Costa Crociere	Costa Concordia
Costa Crociere	Costa Deliziosa
Costa Crociere	Costa Diadema
Costa Crociere	Costa Fascinosa
Costa Crociere	Costa Favolosa
Costa Crociere	Costa Fortuna
Costa Crociere	Costa Luminosa

Costa Crociere	Costa Magica
Costa Crociere	Costa Mediterranea
Costa Crociere	Costa Pacifica
Costa Crociere	Costa Romantica
Costa Crociere	Costa Serena
Costa Crociere	Costa Victoria
Crystal River Cruises	Crystal Bach
Crystal River Cruises	Crystal Mahler
Cunard	Queen Mary 2
Cunard	Queen Elizabeth
Cunard	Queen Victoria
DFDS Seaways	Crown of Scandinavia
DFDS Seaways	Pearl of Scandinavia
DFDS Seaways	Princess of Scandinavia
Disney Cruises	Disney Dream
Disney Cruises	Disney Fantasy
Disney Cruises	Disney Magic
Disney Cruises	Disney Wonder
Festival Cruises	European Vision
Festival Cruises	European Stars
Holland America Line	Amsterdam
Holland America Line	Eurodam
Holland America Line	Koningsdam
Holland America Line	Nieuw Amsterdam
Holland America Line	Nieuw Statendam
Holland America Line	Noordam
Holland America Line	Maasdam
Holland America Line	Oosterdam
Holland America Line	Prinsendam
Holland America Line	Rotterdam
Holland America Line	Ryndam
Holland America Line	Statendam
Holland America Line	Veendam
Holland America Line	Volendam
Holland America Line	Westerdam
Holland America Line	Zuiderdam
Holland America Line	Zaandam
Ibero Cruises	Grand Celebration
Ibero Cruises	Grand Holiday

Ibero Cruises	Grand Mistral
Ibero Cruises	Grand Voyager
Norwegian Cruise Line	Norwegian Breakaway
Norwegian Cruise Line	Norwegian Bliss
Norwegian Cruise Line	Norwegian Dawn
Norwegian Cruise Line	Norwegian Epic
Norwegian Cruise Line	Norwegian Escape
Norwegian Cruise Line	Norwegian Gem
Norwegian Cruise Line	Norwegian Getaway
Norwegian Cruise Line	Norwegian Jade
Norwegian Cruise Line	Norwegian Jewel
Norwegian Cruise Line	Norwegian Joy
Norwegian Cruise Line	Norwegian Sky
Norwegian Cruise Line	Norwegian Spirit
Norwegian Cruise Line	Norwegian Star
Norwegian Cruise Line	Norwegian Sun
Norwegian Cruise Line	Pride of America
Oceania Cruises	Oceania Insignia
Oceania Cruises	Oceania Marina
Oceania Cruises	Oceania Nautica
Oceania Cruises	Oceania Regatta
Oceania Cruises	Oceania Riviera
Oceania Cruises	Oceania Sirena
P&O Cruises	Adonia
P&O Cruises	Arcadia
P&O Cruises	Aurora
P&O Cruises	Azura
P&O Cruises	Britannia
P&O Cruises	Oceana
P&O Cruises	Oriana
P&O Cruises	Ventura
Ponant	Le Boreal
Ponant	Le Ponant
Ponant	Le Soleal
Princess Cruises	Caribbean Princess
Princess Cruises	Coral Princess
Princess Cruises	Crown Princess
Princess Cruises	Dawn Princess
Princess Cruises	Diamond Princess

Princess Cruises	Emerald Princess
Princess Cruises	Golden Princess
Princess Cruises	Grand Princess
Princess Cruises	Island Princess
Princess Cruises	Ocean Princess
Princess Cruises	Pacific Princess
Princess Cruises	Ruby Princess
Princess Cruises	Sapphire Princess
Princess Cruises	Sea Princess
Princess Cruises	Star Princess
Princess Cruises	Sun Princess
Princess Cruises	Regal Princess
Princess Cruises	Royal Princess
Princess Cruises	Majestic Princess
Pullmantur Cruises	Empress
Pullmantur Cruises	Horizon
Pullmantur Cruises	Monarch
Pullmantur Cruises	Sovereign
Pullmantur Cruises	Zenith
RCCL	Adventure of the Seas
RCCL	Allure of the Seas
RCCL	Brilliance of the Seas
RCCL	Enchantment of the Seas
RCCL	Explorer of the Seas
RCCL	Freedom of the Seas
RCCL	Grandeur of the Seas
RCCL	Harmony of the Seas
RCCL	Independence of the Seas
RCCL	Jewel of the Seas
RCCL	Liberty of the Seas
RCCL	Mariner of the Seas
RCCL	Navigator of the Seas
RCCL	Nordic Empress
RCCL	Oasis of the Seas
RCCL	Radiance of the Seas
RCCL	Rhapsody of the Seas
RCCL	Serenade of the Seas
RCCL	Sovereign of the Seas
RCCL	Splendour of the Seas

RCCL	Symphony of the Seas
RCCL	Vision of the Seas
RCCL	Voyager of the Seas
Regent Seven Seas	Seven Seas Explorer
Regent Seven Seas	Seven Seas Mariner
Regent Seven Seas	Seven Seas Navigator
Regent Seven Seas	Seven Seas Voyager
ResidenSea	The World
Seabourn Cruise Line	Seabourn Encore
Seabourn Cruise Line	Seabourn Legend
Seabourn Cruise Line	Seabourn Pride
Seabourn Cruise Line	Seabourn Spirit
Seabourn Cruise Line	Seabourn Odyssey
Seabourn Cruise Line	Seabourn Ovation
Seabourn Cruise Line	Seabourn Sojourn
Seabourn Cruise Line	Seabourn Quest
Silja Line	Finnjet
Silversea Cruises	Silver Cloud
Silversea Cruises	Silver Explorer
Silversea Cruises	Silver Wind
Silversea Cruises	Silver Whisper
Silversea Cruises	Silver Spirit
Silversea Cruises	Silver Shadow
Silversea Cruises	Silver Muse
Star Cruises	Star Pisces
Star Cruises	Superstar Capricorn
Superfast Ferries	Superfast 355
Superfast Ferries	Superfast 356
TUI Cruises	Mein Schiff 1
TUI Cruises	Mein Schiff 2
TUI Cruises	Mein Schiff 3
TUI Cruises	Mein Schiff 4
TUI Cruises	Mein Schiff 5
TUI Cruises	Mein Schiff 6
Viking Cruises	Viking Star
Viking Cruises	Viking Sea

Fire Security also provides cable fire protection for tankers, industrial plants, oil installations, tunnels and high rise buildings.





Carnival

January 11, 2006

To Whom It May Concern:

Carnival Cruise Lines is the world's largest cruise operator and over the past six years the company has protected cabling in high fire risk areas throughout its fleet using Fire Security's highly effective coating systems.

The company plans to continue use Fire Security's products on its future newbuilding projects.

Fire Security products are used in a variety of engine room spaces, specifically the separator rooms, incinerator flat, emergency generator and Azipod rooms.

The safety and security of Carnival's guests and crew is of the utmost importance so it is vital to use a company that possesses a solid reputation in the industry and offers products that can perform at high levels in extreme temperatures. In addition, we require a product that would allow us to continue normal service, regardless of the surrounding environment and temperature.

Since Fire Security met all our expectations and demands with regards to organization and products, Carnival contracted with them to complete the remaining vessels in our fleet.

Carnival is very pleased how Fire Security assisted our company in these various projects and can offer Fire Security and their coatings our highest recommendation.

Best Regards

B.W. Swensen
Vice President, Technical Operations
Carnival Cruise Lines



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Sandefjord, 16.09.2005

To: Whom it may concern

Fire Security Coating

Color Line is one of the leading cruise- and ferry operators in Scandinavia. On all our vessels we have protected the cables in high risk areas, such as engine rooms, purifier rooms etc. by using the products of Fire Security.

In August 2005 we experienced a fire in the main engine room on board one of our vessels. Lighting fixtures and smoke detectors melted completely, nevertheless the consequences were insignificant.

Over a short period temperatures were extreme until the local fire protection system - Hifog - extinguished the fire. The cables were found to be in normal working order and there was no need for any cable replacements as a result of this incident.

We assign this fortunate outcome to the products of Fire Security, which allowed the ship to continue it's normal service.

We are pleased to give Fire Security and their coatings our best recommendation.

Best regards

for COLOR LINE MARINE AS

Johann Martinussen
Superintendent, Electric & Automation

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FIRE SECURITY

Our products have been approved by leading classification societies and authorities:
U.S. COAST GUARD, Lloyd's Register, Achilles, Bureau Veritas, DNV, RINA, NMA, ABS, FM, UL



SUSTAINABLE SOLUTIONS

Fire Security protects and extends cable life using non-toxic materials.

SAVING LIVES, COSTS and THE ENVIRONMENT

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