SEALING AND BONDING
SikaSeal®-641 Fire Coating

FIRE RESISTANT ABLATIVE COATING FOR CABLE SYSTEMS

BUILDING TRUST

PREVENTING FIRE PROPAGATION ALONG ELECTRICAL CABLES

PASSIVE FIRE PROTECTION OF CABLES

Cable fires are not only a common source of fires but also a significant contributor to fire propagation. These fires can lead to direct damages, release toxic and corrosive gases, and cause critical power failures.

To minimize these risks, various protective solutions for cables exist. These include fire-rated cables, encapsulation systems, or fire-resistant coatings like SikaSeal®-641 Fire Coating.

SIKA: A LEGACY OF FIRE SAFETY

Since the 1960s, Sika has led the way in fire-resistant cable coatings, delivering innovative, reliable solutions for structural fire protection.

MEET SikaSeal®-641 Fire Coating

SikaSeal®-641 Fire Coating is a cost-effective solution for preventing cable fires and their spread. Designed for indoor and outdoor use, it minimizes toxic gas release, structural damage, and power outages. As one of the first coatings introduced to the market, it has undergone rigorous external testing and certification, with the latest certifications renewed in 2024.

KEY FEATURES

- Exterior and Interior Use
- Self-Extinguishing
- Free of Solvents, Waterbased

HOW DOES SikaSeal®-641 Fire Coating WORK?

SikaSeal®-641 Fire Coating acts through an endothermic reaction during a fire. The coating contains materials that absorb heat by undergoing chemical and physical transformations. This reaction is so powerful that even when tested in a 100% oxygen environment, the burning stops when the heat source is removed (LOI 100%, see Certifications section). Effective cooling of the cables helps prevent the spread of fire and limits damage to the electrical systems.

COST EFFECTIVE SOLUTION

SikaSeal®-641 Fire Coating is recognized by global insurance leader FM for its fire hazard reduction, providing a proven approach to enhancing safety and reducing insurance costs.

FIELD OF APPLICATION

SikaSeal®-641 Fire Coating effectively protects electrical equipment against the spread of fire. The coating is used in a wide variety of areas in the construction industry.

CERTIFICATIONS

The range of existing tests and certificates for fire protection of cable coatings is extensive and varies by country, application field and customer specific requirements. Some standards focus on the coating itself, while others focus on the coated cable and its properties.

The table below outlines the most important certificates of SikaSeal®-641 Fire Coating:

Approvals/Certificates	Standards/Certifications	Description
FM Approval	FM 3971	Examination Standard for Fire Protective Coatings and Wraps for Grouped Cables containing tests for flammability, fire propagation and aging.
IEC Flame Propagation	IEC 60332	Test for vertical flame spread of vertically – mounted bunched wires or cables.
IEC Circuit integrity	IEC 60331	Functional integrity of cable in the event of a fire (flow of electricity).
Marine / Off-Shore certification	DNV Module B	Surface spread test
Reaction to Fire	Class B1 acc. DIN 4102	Test of behaviour of material when subjected to flame – burning, smoke, dripping. This test passed with coating applied on cables.
Limited Oxygen Index	LOI 100%	Cured coating is tested in a oxygen-enriched environment. LOI 100% means that even at 100% oxygen, SikaSeal®-641 Fire Coating does extinguish itself.
Resistance to Fire	ETA 22/0436 acc. EAD 350454-00-1104	Performance of SikaSeal®-641 Fire Coating when used in penetration seal applications.

TESTING

40 YEARS OUTDOOR TEST

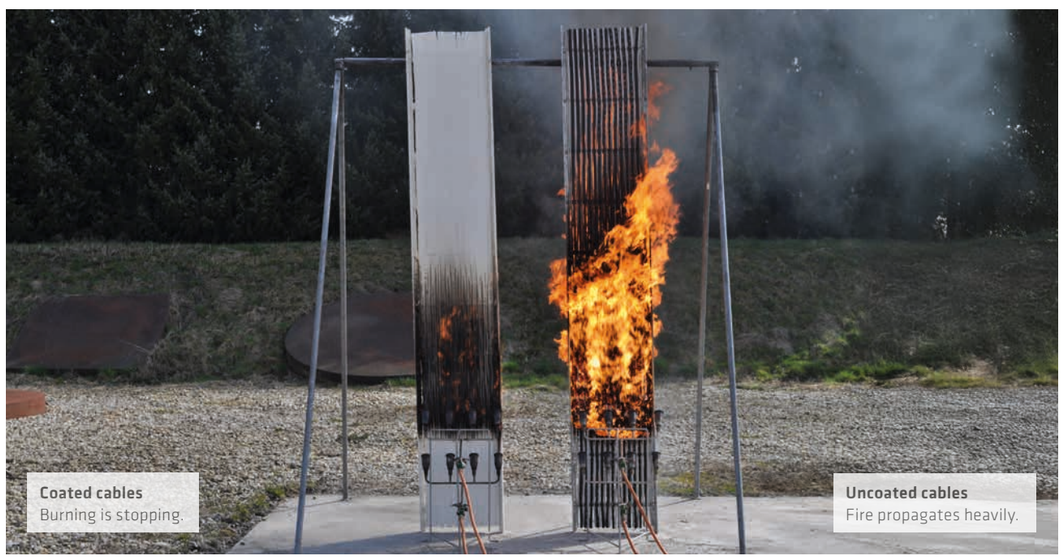
To demonstrate the resistance against weathering, a long-term outdoor test is running since 1980 in Germany. Cables coated with SikaSeal®-641 Fire Coating were installed on a rack, partially in a water-filled basin, partially in the air, subjected to sun, heat, rain and snow. After each decade, pieces of the coated cable are cut-out and sent for testing at an external institute.

The conclusion after 40 years storage drawn by the Technical University of Braunschweig is as follows:

The 40 year outdoor weathering has no negative influence on the LOI value (...) and also no negative influence on the adhesion of the coating on the cables or the flexibility of the coating.

COMPARATIVE FIRE TEST

Cables protected with SikaSeal®-641 Fire Coating (left) and cables without protective coating (right) were subjected to fire to 2 minutes, then the fire source was extinguished. The picture below was taken just after extinguising the fire source.



REFERENCES

SUCCESSFUL PROJECTS USING SikaSeal®-641 Fire Coating

EIFFEL TOWER, FRANCE

Project Description
Project name: Eiffel Tower Cable Refurbishment
Location: Paris
Construction year: 2009
SikaSeal®-641 Fire Coating was applied to high voltage cables supplying power to the antennas of a radio broadcast unit on the Eiffel Tower in Paris. To protect the aspect of this unique heritage building, the coating was colored brown to match the color of the steel construction coating.

CABLE TUNNEL, UNITED ARAB EMIRATES

Project Description
Project name: Cable Tunnel Bahia - Saadiyat
Location: Abu Dhabi, UAE
Construction year: 2021
New construction: under the sea cable circuit between Bahia and Saadiyat Grid Station. SikaSeal®-641 Fire Coating meets the stringent technical requirements from TRANSCO (local govenmental owened power transmission company).

GASPOWER PLANT, THAILAND

Project Description
Project name: Sime Darby CCGT Cogen Power Plant
Location: Laem Chabang Industrial Estate Chon Buri, Thailand
Construction year: 2021
SikaSeal®-641 Fire Coating ensures that cable fires and the resulting blackouts in the power distribution network are avoided.

REFINERY, THAILAND

Project Description
Project name: Refinery, Thailand
Location: Northern Thailand
Construction year: 2013
Protection for cables that are exposed to the harsh outdoor weather conditions of the Southeast Asian region.

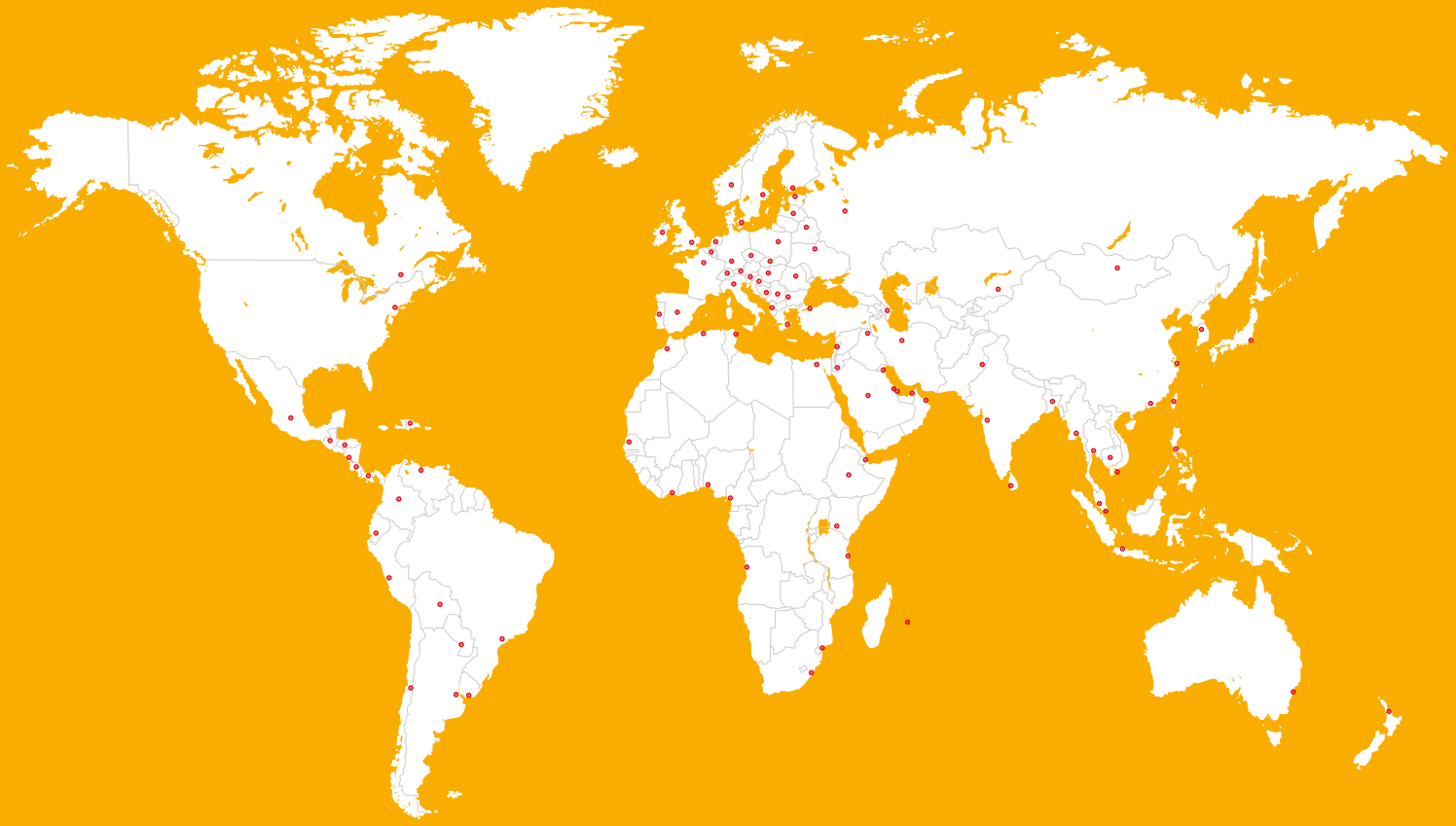
HARBOUR TUNNEL, AUSTRALIA

Project Description
Project name: Sydney Harbour Tunnel
Location: Australia
Construction year: 2023
SikaSeal®-641 Fire Coating was applied to all electrical cables in the switch rooms, battery rooms, generator rooms and equipment rooms on the north and south sides of the Sydney Harbour Tunnel.

OFFSHORE PLATFORM, NORWAY

Project Description
Project name: Oseberg Platform
Location: North Sea
Construction year: 1980/2012
When this offshore installation was built in the 1980s, SikaSeal®-641 Fire Coating was chosen to reduce the spread of fire on the rig's cabling. It was selected again during major modifications and maintenance work on the platform in 2011 and 2012.

GLOBAL BUT LOCAL PARTNERSHIP



WE ARE SIKA
Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

Certified Quality System ISO 9001/EN 29001 since 1986

Certified Management System ISO 14001 since 1997

USGBC MEMBER

SIKA SERVICES AG
Tueffenwies 16
CH-8048 Zurich
Switzerland

Contact
Phone +41 58 436 40 40
www.sika.com

BUILDING TRUST