ENGINEERED REFURBISHMENT DURABLE CONCRETE PROTECTION COATING FOR HARSH ENVIRONMENT

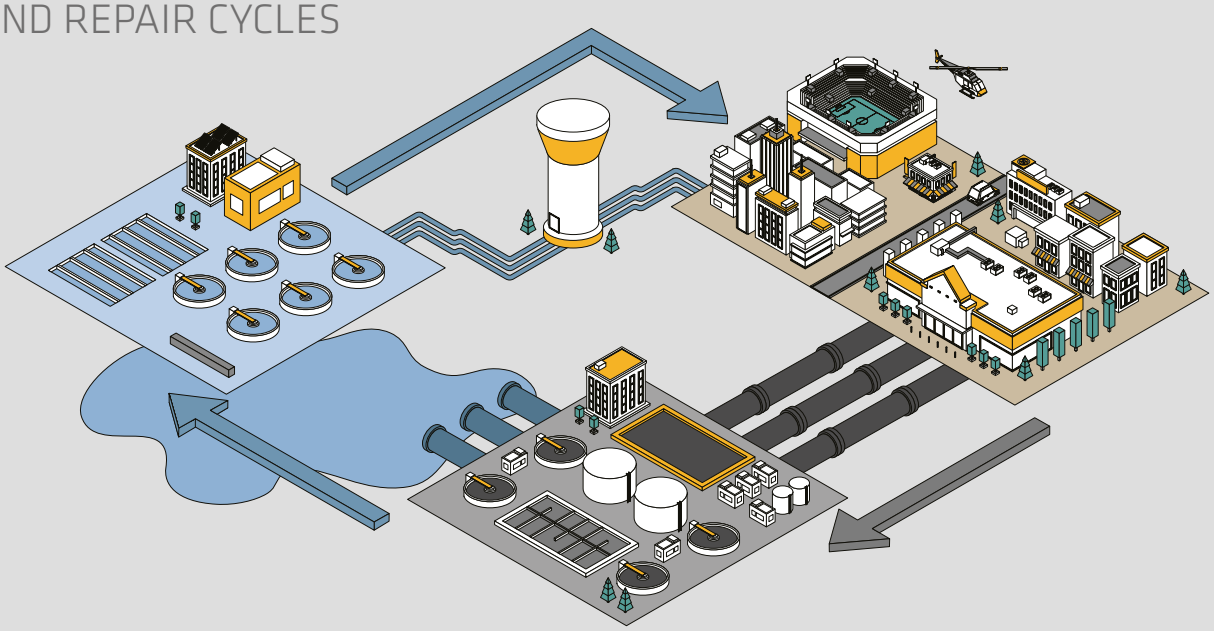
Sikagard®-7000 CR FOR WASTE WATER TREATMENT FACILITIES

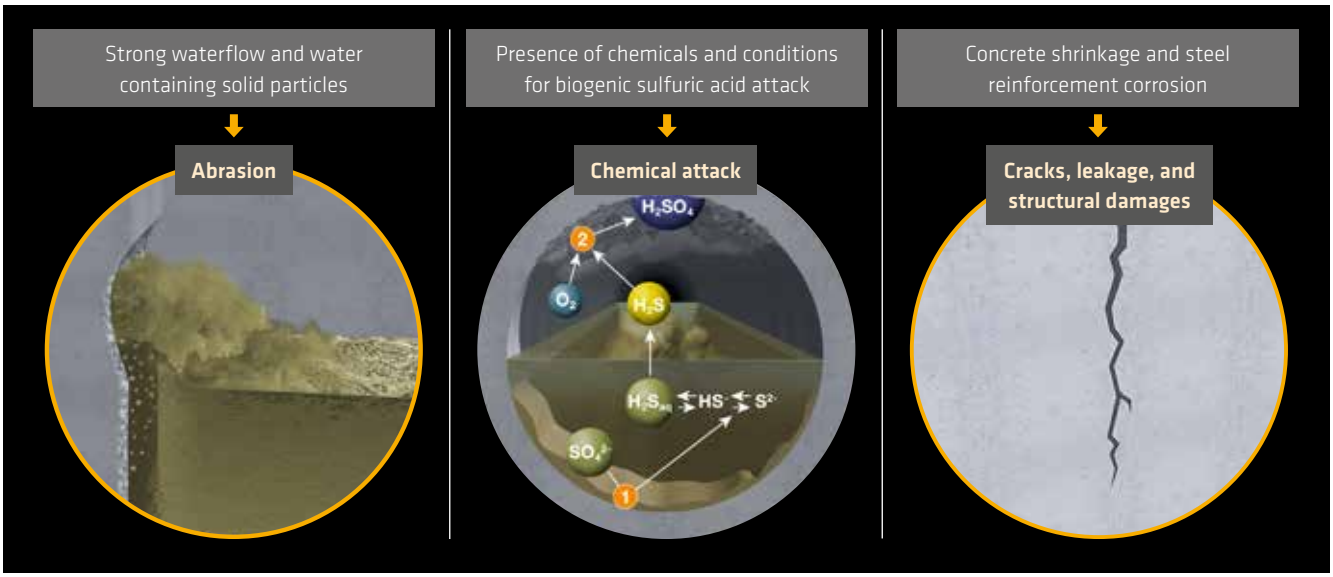
BUILDING TRUST

CHALLENGES IN WASTEWATER TREATMENT ENVIRONMENTS

WASTEWATER TREATMENT PRESENTS a demanding environment where assets must maintain integrity to prevent leaks and disruptions in critical processes. The concrete infrastructure of wastewater systems faces a multitude of physical and chemical attacks that can compromise its longevity. Sikagard®-7000 CR stands out as a purpose-built solution to address these challenges and ensure maximum durability.

ABRASION, CRACKS, AND CHEMICAL ATTACKS REDUCE THE LIFE CYCLE OF STRUCTURES, INCREASING MAINTENANCE AND REPAIR CYCLES

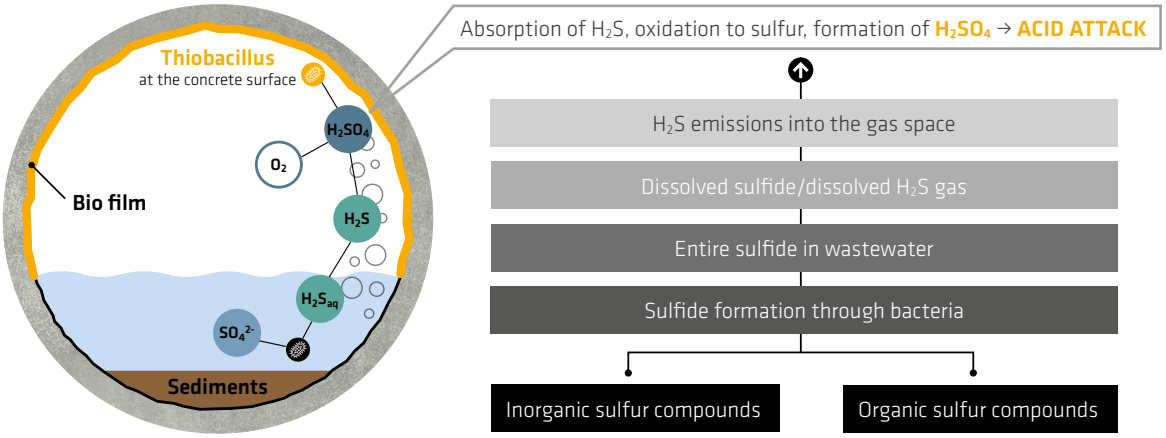




THE SPECIFIC BIOGENIC SULFURIC ACID ATTACK CAN HAPPEN IN CLOSED AREAS OF WATER STRUCTURES

BIOGENIC SULPHURIC ACID CORROSION

Development of Biogenic Sulphuric Acid Corrosion in sewage environment.



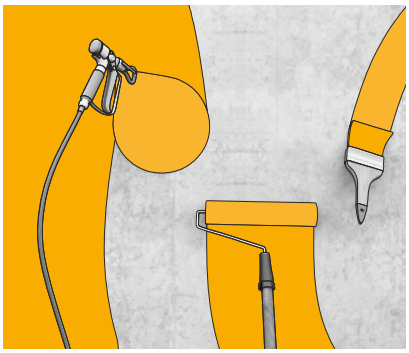
The intricate nature of wastewater treatment and its degradation processes pose significant challenges to the surrounding infrastructure. The rate of chemical attack is determined by a range of factors related to both the wastewater and its environmental conditions. These factors can even lower the pH level below 1 in extreme cases. Uncoated concrete is particularly susceptible to so-called biogenic sulfuric acid corrosion (BSA). BSA corrosion is caused by bacteria present in wastewater. These bacteria metabolize hydrogen sulfide (H_2S) into sulfuric acid. The sulfuric acid then deposits directly onto the concrete, causing chemical attack. This attack is particularly aggressive because the sulfuric acid lowers the pH of the concrete, making it more susceptible to corrosion. The resulting erosion of the concrete surface can be rapid and damaging.

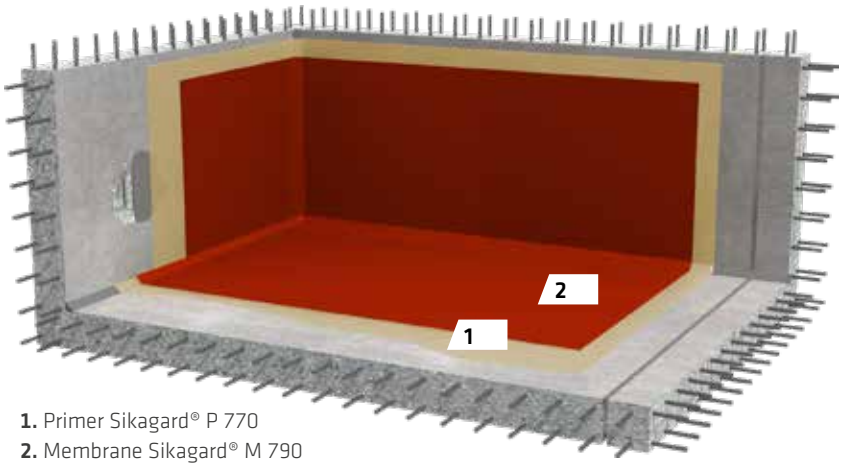
BIOGENIC SULFURIC ACID CORROSION CAN LEAD TO SEVERE STRUCTURAL DAMAGE TO CONCRETE COMPONENT STRUCTURES.

Sikagard®-7000 CR DURABLE PROTECTIVE COATING

Sikagard®-7000 CR IS A DURABLE PROTECTIVE COATING engineered for the preservation of concrete structures in water management applications, particularly water supply infrastructure and tanks within wastewater treatment facilities. Its unique blend of attributes renders it a trustworthy and robust system throughout its application and a durable solution for an extended service lifespan.

Sikagard®-7000 CR IS FAST TO APPLY AND CONSISTS OF:
One primer Sikagard® P 770 and a **membrane** Sikagard® M 790 for an overall thickness of 1 to 1.2 mm.





1. Primer Sikagard® P 770
2. Membrane Sikagard® M 790

HIGH CHEMICAL RESISTANCE WITH CRACK BRIDGING

Sikagard®-7000 CR boasts high chemical resistance to solvents and organic acids. It shows remarkable resilience against biogenic sulfuric acid corrosion. Extensive testing against biogenic sulfuric acid corrosion at the Fraunhofer Institute yielded no signs of degradation even after 18 months of exposure (equivalent to 15 years in real-world conditions). Additionally, it can bridge cracks up to 0.5 mm, striking a harmonious balance between chemical resistance and crack-bridging capabilities.

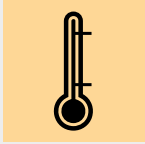
MOISTURE TOLERANT

The primer Sikagard® P 770 can be applied to substrates with high internal humidity, provided the concrete substrate appears visually dry. No specific measurement of concrete humidity is required. Application can be performed without limitations on relative humidity, enabling a rapid and reliable application process.

SHORT DOWNTIME

The Sikagard® P 770 primer can be overcoated with the membrane after 6 hours at 20°C and approximately 11 hours at 5°C. Contact with water is permitted after 24 hours at 20°C.

APPLICATION TEMPERATURE FROM +5 TO +35°C



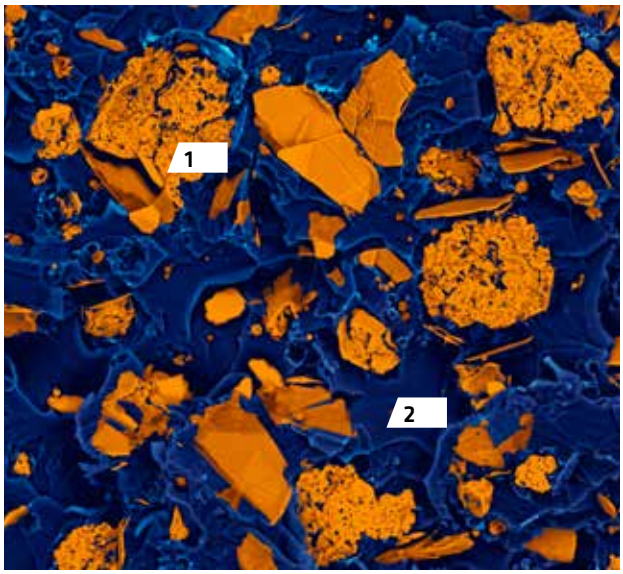
Application can be effective across a wide temperature range, from 5°C to 35°C, enabling application in various regions and seasons. This broad operational range reduces dependence on specific weather conditions, making scheduling more flexible.

SOLVENT FREE, VERY LOW VOC & ODOUR

Sikagard® P 770 and Sikagard® M 790 are solvent-free products with very low VOC content and odor during application. This makes them ideal for use in confined spaces without compromising application safety or ease of use.

XOLUTEC TECHNOLOGY

Sikagard®-7000 CR IS BASED on the unique Xolutec Technology. By optimizing the intermolecular interactions between the resin building blocks, it forms an enhanced cross-linked polymer network (XPN), which imparts the remarkable properties described above.



1. Densely embedded inorganic components
2. Highly cross-linked polymer network

Xolutec®
Durability by Design

UNIQUE COMBINATION OF COMPLEMENTARY CHEMISTRIES

Interphase interactions between the resin blocks and the inorganic fillers were optimized.

As a result, a high-density organic-inorganic material with outstanding characterictics is created, which consists of:

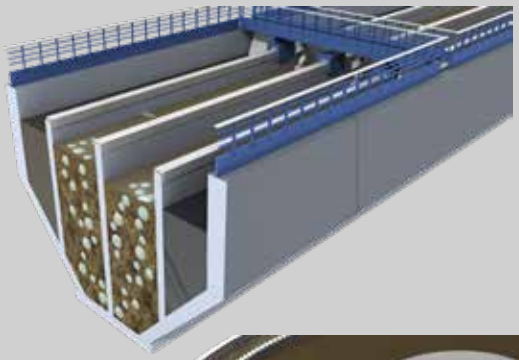
- High cross-linked polymer network
- Densely embedded inorganic components

TYPICAL APPLICATIONS

THE UNIQUE PROPERTIES OF Sikagard®-7000 CR make it highly suitable in water management and industrial applications as concrete protection coating. It protects concrete from chemical attacks and mechanical abrasion.

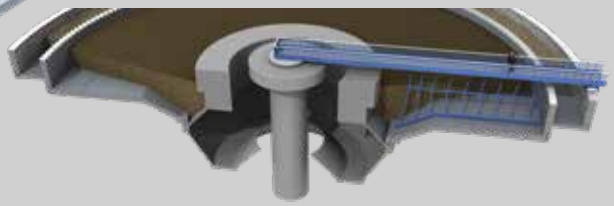
URBAN AND INDUSTRIAL WASTEWATER TREATMENT TANKS

- pH and alkalinity of the wastewater
- Chlorides, nitrates, ammonia, sulphates, salts, grease that wastewater may contain
- Biogenic sulfuric acid attacks in covered containers
- Humidity that increases concrete degradation by reinforcement corrosion
- Specific chemical attacks in industrial environment
- Abrasion and erosion caused by particles and suspended solids in the wastewater
- Abrasion and erosion due to strong water flow in aeration tanks
- Thermal and freeze-thaw cycling

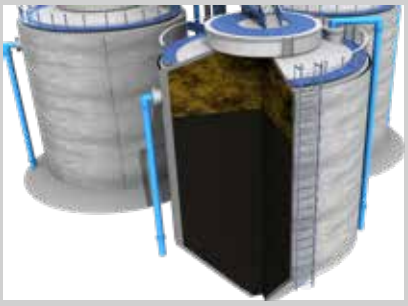


- Sewer lift station
- Screening
- Oil and grease removers
- Primary sedimentation tanks

- Secondary treatment
- Aeration
- Sedimentation tanks



SLUDGE TREATMENT TANKS, DIGESTERS IN BIOGAS PLANTS



- Organic acids
- Ammonia
- Biogenic sulfuric acid attacks
- Erosion due to digestate movements
- Low pH

SEWER PIPES / TUNNELS

- Biogenic sulfuric acid attacks
- Erosion and abrasion of water and particles
- Corrosion of steel reinforcement
- Chemical attack of wastewater

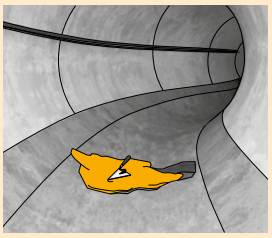
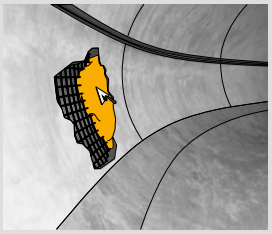
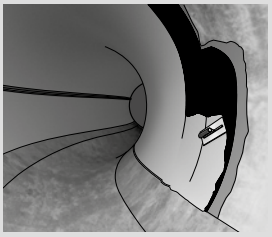
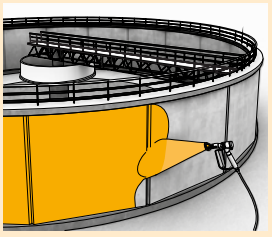
SECONDARY CONTAINMENT FOR CHEMICAL STORAGE

- Chemical attack of chemical substances stored in case of leakages
- Increase of chemical attacks level when storage of chemical at high temperature
- Thermal and freeze saw cycling

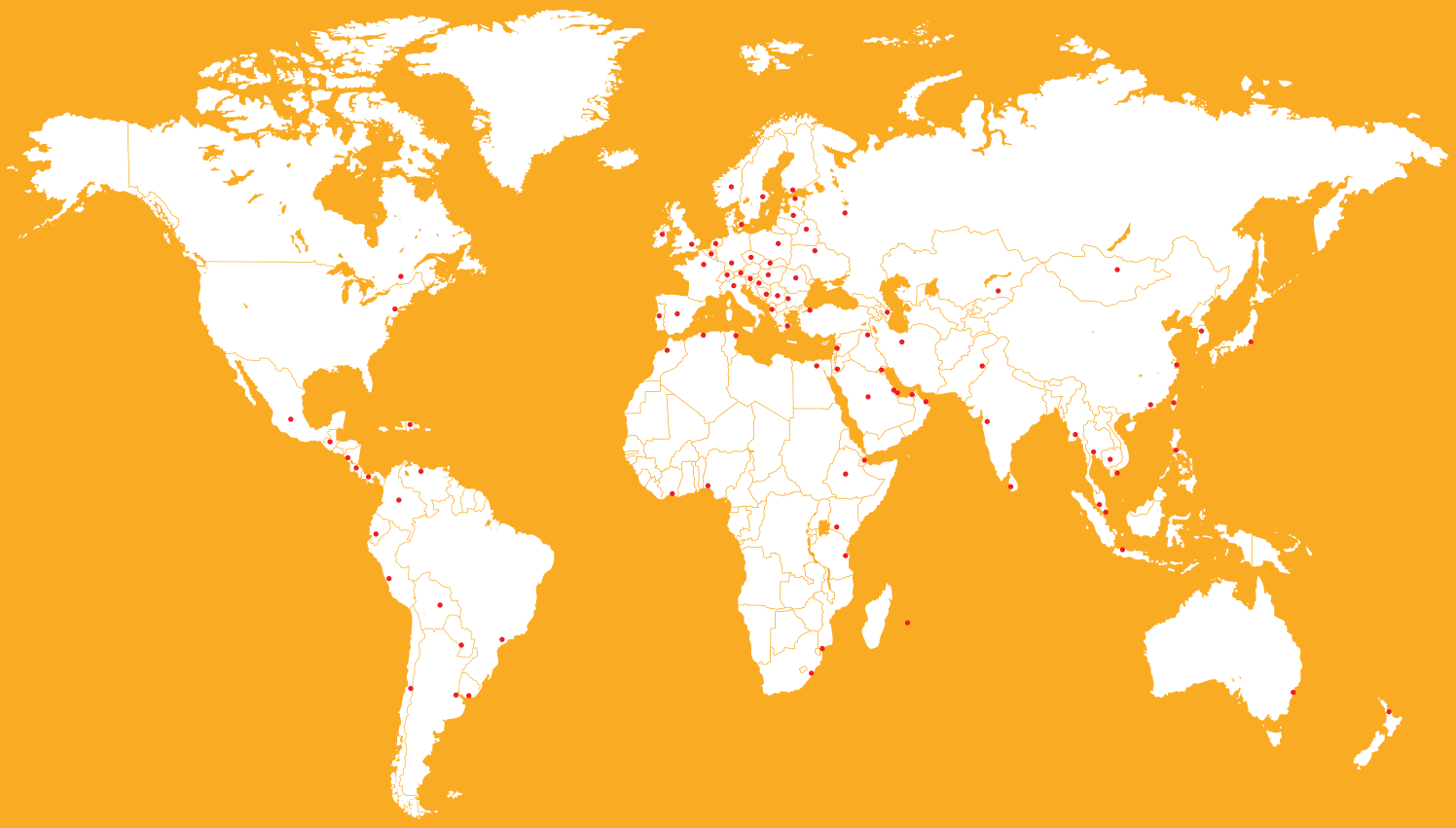
SIKA OFFERS FULL SOLUTIONS FOR WATER INFRASTRUCTURE

SIKA OFFERS A COMPREHENSIVE RANGE of solutions for water structures. Each project is unique and requires specific solutions depending on the conditions of the jobsite and service life expectation.

Sika's full solutions portfolio comprises concrete admixtures, waterstop joints, repair mortars, concrete protection products, joint sealing, roof waterproofing systems, and floors, demonstrating its adaptability to the specific requirements of new and refurbished wastewater infrastructure projects. Please find below some Sika solutions suitable for water infrastructure. Feel free to contact our local experts for tailormade specifications and advice.

	**Sika MonoTop®-3400 Abraroc** One-part, cementitious hand or machine applied, structural concrete repair mortar with very high resistance to abrasion and hydraulic abrasion. Sika MonoTop®-3400 Abraroc is ideal for repairing:	■ Water-retaining structures containing water (pH > 4) ■ Structures subjected to heavy abrasion or mechanical loads (e.g., the upper part of concrete sedimentation tanks which is often eroded by the rolling wheel) and is suitable for the environments XC1-XC4, XD1-XD3, XS1-XS3
	**Sika MonoTop®-4400 MIC** Calcium aluminate based, Microbially Induced Corrosion repair mortar. Design for repair of confined environment exposed to biogenic deterioration when the windows of operation are very short, the tanks to be repaired cannot be completely emptied, or when extra-long durability is required.	■ Open to service the following day after application (within 1 hour if required) ■ Application on the areal part of a structure not fully emptied ■ Extra-long durability proven by on-site testing, accelerated weathering & site return
	Sikaflex®-403 Tanks and Silos One-part, moisture curing, elastic sealant with good mechanical resistance and high resistance to specific chemicals present in water treatment processes. The product is used for:	■ Sealing segmented or bolted steel tanks including wall to floor connection joints ■ Tanks for the anaerobic digestion process including Biogas tanks ■ Domestic and municipal sewage treatment plants including wastewater
	**Sika® Carbodur® Grid** Bi-directional carbon grid embedded as reinforcement into Sika MonoTop®-3200 Grid or Sika MonoTop®-3260 Grid for application on concrete or masonry structures.	■ Management of cracks ■ Old fragile concrete and masonry structures like water pipes ■ Does not create brittleness in the existing structure ■ High tensile resistance in both directions, corrosion resisitant
	**Sikagard®-5500** 1-part, water-based, low carbon footprint, highly elastic protective coating for concrete. It is used to protect concrete structures against ingress of chloride, water & carbon dioxide.	■ Very high crack bridging behaviour – static & dynamic ■ High build-up without sagging ■ Maintain CO_2 protection over long period of time ■ Lower risk of green growth than traditional coating

PRESENÇA MUNDIAL COM PARCEIROS LOCAIS



São aplicáveis as condições gerais de venda mais recentes.
Consulte a ficha do produto em vigor antes de qualquer utilização e processamento.

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A CONSTRUIR CONFIANÇA