



ENGINEERED REFURBISHMENT

Sika® Icosit®

DIELECTRIC MEMBRANE 4 MM

Sika® Icosit® DIELECTRIC MEMBRANE 4 MM

A special multifunctional reinforced polymer-bitumen waterproofing and insulating membrane made of distilled bitumen and dielectric polymers, for stopping the dispersion of electrical current from railway lines and for protecting the metallic parts of underground works from corrosion.

CHALLENGE:

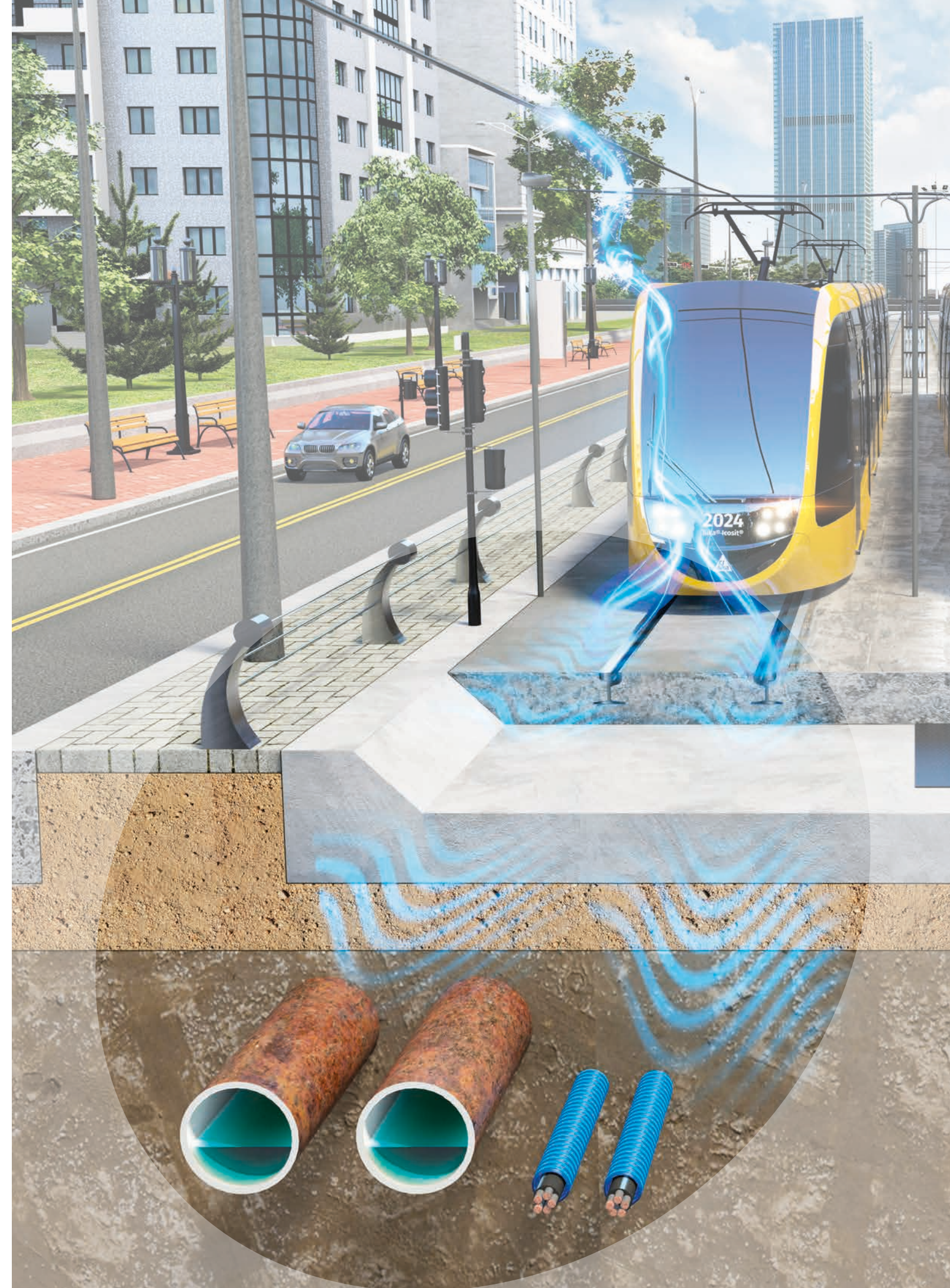
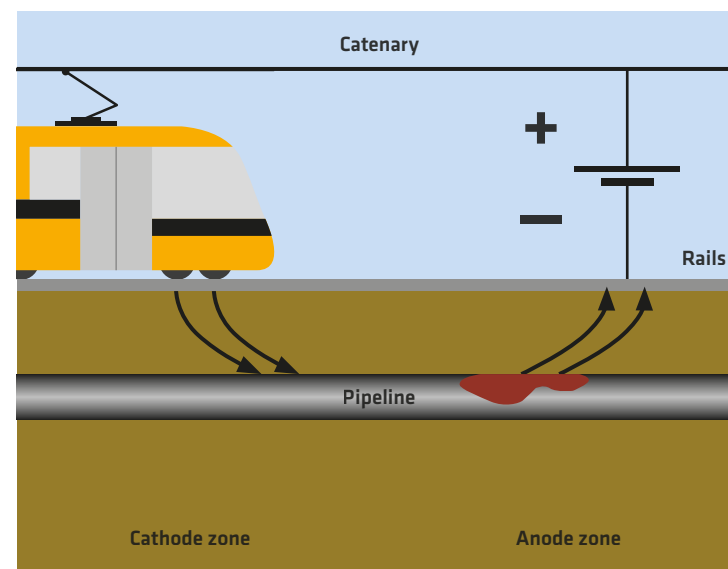
HOW TO STOP THE DISPERSION OF ELECTRICAL CURRENT FROM RAILWAY- AND TRAMLINES?

Dispersed dielectric currents also known as “stray currents” form in the ground near electric rail and tram lines. In DC electrified lines the current supplied by the sub-station runs through the overhead lines, supplying electrical energy to the electric motors of the trains and trams or returning to the sub-station, mostly through the rails but also through the ground near the tracks where a certain quantity of electricity is dispersed. If there are metal pipes in the ground, the dispersed current runs along these pipes until it reaches the vicinity of the electric rail and tram line sub-station causing interference in the pipes with the formation of a negatively charged cathode where the current enters and a positively charged anode where it leaves with the relevant corrosion.

Alternating current electric lines may also generate the same kind of phenomena although on a less intense scale. The corrosion produced by stray currents is much greater than that produced by galvanic currents that generates when different metals come into contact or by the same metals in different atmospheric conditions) as the intensity of the current can reach tens of amperes.

A current of 1 Ampere corrodes 9 kg of iron and 33.6 kg of lead in one year. Pipes can be protected against corrosion with active or cathode protection, or with passive protection, in other words with suitable coatings. However, when a new rail or tram line is built in a residential area where the position of old underground installations is unknown or it is impossible to reach, obviously it will be necessary to keep the dispersion of electric current in the ground to a minimum. Instead of insulating the underground installations it will be necessary to insulate the rails of the electrified lines to contain the dispersion.

Electrochemical corrosion can also be triggered by the mains earth circuit of a metal pipeline resting on the ground.



Sika® Icosit® DIELECTRIC MEMBRANE 4 MM

SOLUTION:

Sika® Icosit® Dielectric Membrane 4 mm is the Sika membrane that insulates rails from electrical currents (AC and DC) and stops the dispersion of current to the ground.

Sika® Icosit® Dielectric Membrane 4 mm has a very high dielectric strength (CEI 15-1: 192 KV/cm) and also a very high volume resistivity (CEI 15-23: 486,8 T cm) that make it an optimal electrical insulator.

As Sika® Icosit® Dielectric Membrane 4 mm is waterproof and does not absorb humidity its electrical resistance remains unaltered in time. It is resistant to site traffic and to the friction between the concrete surfaces where it is installed because it is reinforced with elastic, rot-proof, puncture resistant, non-woven single strand Spunbond polyester fabric.

Sika® Icosit® Dielectric Membrane 4 mm is resistant to acids, inorganic bases to mould and bacteria.

The proposed conform layer build-up is also resistant to the oils, greases and hydrocarbons which it can be expected to come into contact with, in its specific use. The autogenous welding of the overlaps means no adhesives are used with different electric resistance, guaranteeing the homogeneity and continuity of the protection against stray currents.

Sika® Icosit® Dielectric Membrane 4 mm also protects metallic structures on which it is bonded against corrosion as it is resistant to the acidity of the ground, is waterproof, does not absorb water and forms an effective vapour barrier against water vapour and oxygen.

The top face of the membrane is coated with a uniformly distributed, fine serigraphed talc, a patented treatment which makes it possible to quickly unroll the rolls and install the membranes with the reliable and quick welding of the joints. The underside of the membrane is coated with Flamina, a plastic film that melts when torched producing a strong bond over the entire surface area.

APPLICATION FIELDS:

Sika® Icosit® Dielectric Membrane 4 mm is used to cover rail and tram track beds. The insulation technique is relatively simple as the membrane is dry laid horizontally, then turned up and hot bonded with a propane torch on the vertical parts. The overlaps between the sheets are hot bonded with the torch and will be 8 cm longitudinally and 10 cm crosswise with respect to the membrane.

The coating will then be protected with a layer of concrete on which the tracks will be laid. Before the concrete is cast on the membrane this will be covered with a 0.2 mm thick polythene sheet.

Sika® Icosit® Dielectric Membrane 4 mm can be also used, torch-on fully bonded, to provide passive protection on pipes, tank basements or other underground metal structures.





A GLOBAL COMPANY BUT LOCAL PARTNER



FOR MORE INFORMATION ON RAIL FIXING:



WE ARE SIKA

Sika is a specialty chemicals company with a globally leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protection in the building sector and industrial manufacturing. Sika has subsidiaries around the world and produces innovative technologies for customers worldwide. In doing so, it plays a crucial role in enabling the transformation of the construction and transportation sector toward greater environmental compatibility.

Any product name or reference reflects the Sika product name at the time of creation of this document and may differ from the product name or reference during past events.

Our most current General Sales Conditions shall apply.

Please consult the most current local Product Data Sheet prior to any use.



SIKA SERVICES AG
Tueffenwies 16
CH-8048 Zurich
Switzerland

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

BUILDING TRUST

