

APPLICATION SUCCESS STORY



ARLON® Silicone Flexible Heaters Keep Trains Moving During Cold Winters

ARLON Water Resistant Substrate Helps Prevent Snow and Ice Buildup in Doorways

CUSTOMER PROBLEM

Winter months can bring snow, ice, and subzero temperatures. All these environmental conditions must be factored in when designing trains and other forms of mass transportation.

Moving parts, such as doors, are often exposed to moisture, snow, and ice. When moisture seeps in and temperatures drop, the door systems freeze, impacting proper function. Also, the buildup of snow and ice in the door threshold can hinder performance. As a result, that addition of a waterproof heating mechanism to the door threshold is necessary to prevent snow and ice buildup.

Important design considerations for the mechanisms include material flexibility, extreme water resistance, durability, UL certification, excellent heat transfer and the ability to operate within a wide temperature range.

THE ROGERS SOLUTION

One train manufacturer decided to use flexible heaters, constructed with ARLON® Silicone Water Resistant Substrate from Rogers Corporation, in the doorways of their trains. The choice was made due to the substrate being completely waterproof, thus avoiding the potential of circuits shorting out. The design of ARLON Silicone Water Resistant substrate consists of silicone bonded to a PTFE film which is impermeable to water.

The design also offers excellent heat transfer and durability yet has the bonus of exhibiting reliable performance in the most extreme high-moisture environments. The Substrate is also thermally stable from -58 to 232 °C (-72 to 450 °F), ensuring the train continues running smoothly regardless of what weather conditions and temperatures may arise. One side of the Substrate is cured and the other uncured, enabling easy bonding to the metal plate in the train's door.

ARLON® silicone is UL certified to UL 94 HB and V-0, with RTI ratings up to 150 °C, which upholds all transportation safety and flammability standards.

RESULT

Due to the excellent water-resistant properties of ARLON Silicone Water Resistant Substrate, all the manufacturer's specifications were met. As a result, their trains operate smoothly and safely for all passengers.

ROGERS CORPORATION-ELASTOMERIC MATERIAL SOLUTIONS US 800.935.2940 | Europe +32.9.235.36.11 | Asia +86.512.6258.2700

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