

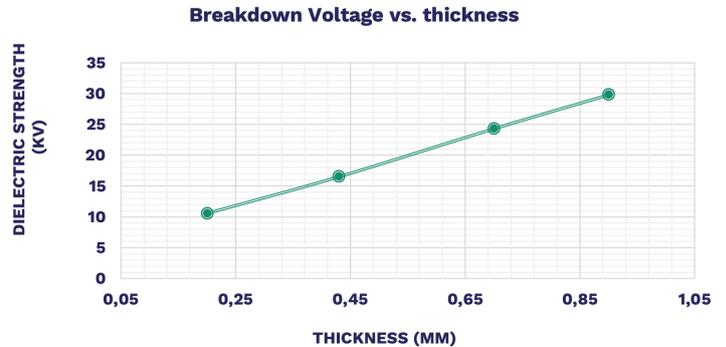
Benefits of Rilsan® coatings for busbars, battery racks, electrical devices and more

Solutions for the Electrical Insulation Industry

Rilsan® Polyamide 11 coatings have been used in applications involving electrical insulation since they were first applied to electrical cabinets in Denmark in the mid 90's. These **bio-based** polyamide coatings offer great protection from high voltage while also providing excellent flexibility, impact and abrasion resistance, corrosion protection, and UV resistance.

IMPROVED DIELECTRIC INSULATION

The dielectric resistance of Rilsan® powder coatings can be as high as 65kV/mm at 125 µm, depending on the grade selected. Since polyamide 11 is a thermoplastic material, final coating thickness can be easily tuned by adjusting processing conditions. This allows you to use less material for lower dielectric requirements, or build on a very thick coating for higher dielectric requirements. The insulation level required in electric vehicle battery components (5kV) can be reached with a thickness as low as 100 µm, while in other applications a thickness of up to 1.25 mm can be applied resulting in a dielectric resistance over 20 kV!



IMPROVED DIELECTRIC INSULATION

- **Unmatched mechanical durability** – significantly better wear and impact resistance than epoxy
- **Improved thermal efficiency** – higher dielectric resistance means a lower thickness is required which allows for better heat dissipation
- **Superior weatherability** – able to withstand intense UV exposure and extreme thermal cycling
- **Great chemical resistance** – unaffected by long-term exposure to solutions like 50% sodium hydroxide and 10% sulfuric acid (ambient temp.)
- **Excellent flexibility** – capable of passing ISO 6860 (3.175 mm conical mandrel bend) at over 250 µm

Easy and Efficient Processing Reduces Cost

- **Easy thermoplastic processing** – unlike thermosets such as epoxy, thermoplastics do not need to undergo a chemical reaction to form a solid coating. This makes processing quicker and easier as you do not need precise cure times and temperatures
- **Parts can be formed or machined after coating** – parts can be bent after coating and the coating can be selectively machined away to create metal contact points
- **Low coating density = more parts per pound** – a density of 1.1 allows for a covering efficiency of over 8.2 m²/kg at 100 µm
- **Adhesion to a variety of substrates** – steel, aluminum, copper, nickel, and more
- **Quick and easy masking** – thanks to coating flexibility and the ability to use lower thicknesses for the same amount of dielectric protection



OTHER BENEFITS

- Rilsan® polyamide 11 is derived from renewable plantbased resources and Rilsan® coatings are BPA and TGIC free
- UL-94 V-0 compliant
- Approved and used in various applications by all major automotive OEMs

Related Applications

- Busbars
- Heat exchangers
- Battery racks
- Switchgears
- Connectors
- Field coils
- Toroidal inductors
- Rotors and stators
- Other electrical components
- Chiller plates
- Cooling channels

The high versatility of Rilsan® PA11 allows it to be used with other processing methods to suit the needs of the industry. Rilsan® PA11 can be used to insulate busbars using the cross-head extrusion process, which provides the same benefits to your final product (flexibility, chemical resistance, electric strength) while often allowing an even faster production rate.

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