

Press release

[Frenzelit GmbH develops solutions to prevent corrosion in vehicles](#)

Effective protection against galvanic corrosion

Frenzelit GmbH is proud to present novaform[®], a material for galvanic decoupling of metal surfaces in vehicles that offers an effective and affordable alternative to conventional methods of corrosion prevention.

The solution manufactured by Frenzelit is a separating layer that decouples two metal surfaces. Differently alloyed metals always seek potential equalization when they come in contact with one another. Electrons pass from the low-alloyed metal to the high-alloyed metal. The result: The low-alloyed metal corrodes.

Electric vehicles also require reliable protection from galvanic corrosion, especially for separating the rocker panel from the battery module. External influences such as water (road spray during rainy weather) or salt (spread on roads in the winter) can accelerate potential contact corrosion.

novaform[®] fiber gaskets

Frenzelit developed rings made of “novaform[®]” for a customer project. The rings belong to the family of NBR-bound (nitrile butadiene rubber) fiber gaskets. novaform[®] stands out thanks to its low compressibility paired with its high contact resistance, a decisive criterion for the application. The non-conducting part acts as a separating layer between the high-voltage battery systems required in electric cars and the vehicle body. It prevents the emergence of a conductive connection between the parts to stop corrosion.

One common method of protecting automotive parts from corrosion is sealing them by means of painting, but it may not be sufficient when used on the contact surfaces of two different metals that are present in a vehicle. This type of sealing is the successor to the earlier process of galvanizing the entire body. Another option to prevent corrosion is to use something called a sacrificial or reactive anode. As the name suggests, the part “sacrifices” itself to protect the higher-grade metals it separates. The

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12 / 2020
Seite 1 von 4

reactive anode is always created from a metal alloy with a more negative electrochemical potential than the two metals it is used to protect. It allows itself to be consumed in their place, corroding slowly in the process.

Reactive anodes have clear disadvantages: Their use requires more effort and expenditure, because they must be replaced more frequently depending on the size and geometry of the application.

Supplied on a reel: Rings using the kiss-cutting process

In contrast, the Frenzelit part lasts for the entire service life and does not require maintenance. It offers distinct cost and application advantages over established solutions. Another key benefit is the fact that it is supplied on a reel. Supplying the material in bulk would be too impractical for high volumes, as it requires the removal of the release liner from the self-adhesive surface of the part prior to assembly. Instead, Frenzelit delivers the parts on a reel to facilitate assembly. The individual rings are already pre-punched using the kiss-cutting process. This option is also an excellent choice for automated manufacturing processes.

Under ideal circumstances, the delivery form is directly coordinated to match the customer's assembly process, as Christian Kraus, Head of Sales Mobility at Frenzelit, explains: "Even though we are merely a component supplier of novaform® rings, we always try to apply an integrative approach that encompasses the entire process. This helps distinguish us from our competitors in the market. How will the part be further processed when it reaches the customer – manually or automatically? What would be the ideal delivery form? We consider ways in which we can support the customer's workflows and optimize their processing times as efficiently as possible."

Proprietary fiber compound

Frenzelit brings comprehensive expertise to collaborative development projects with customers – from the fiber to the finished part – this means the company not only punches and manufactures parts, but also has in-depth knowledge of the materials used. This includes a proprietary compound of aramid fibers along with filler and functional fibers bonded with NBR to produce the exclusive novaform® material for gasket solutions.

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Images:

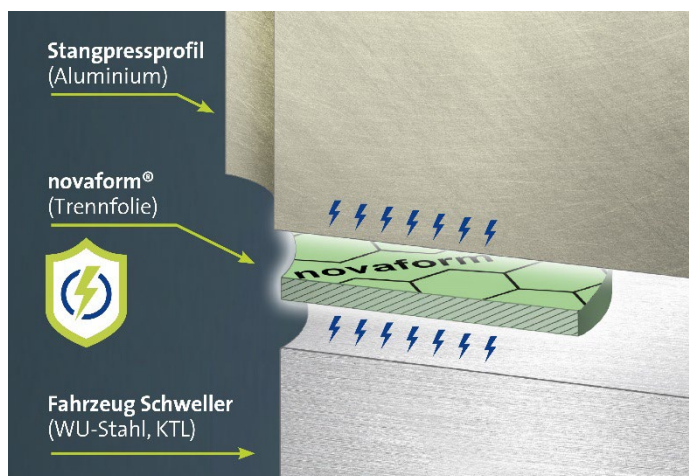


Image 1: A novaform® separating layer to protect against contact corrosion.
Image: © Frenzelit GmbH

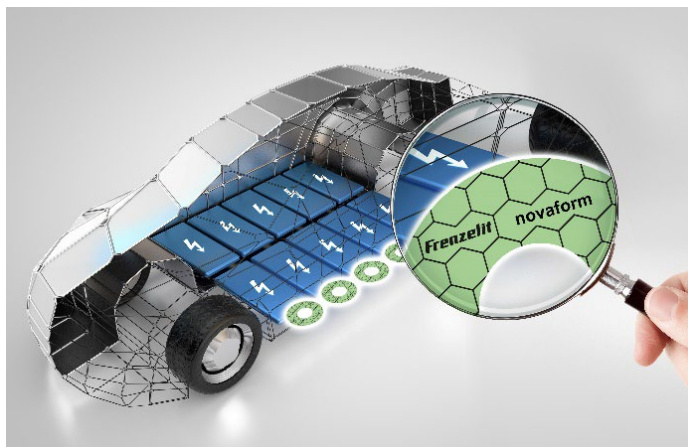


Image 2: novaform® application area: Galvanic decoupling.
Image: © Frenzelit GmbH

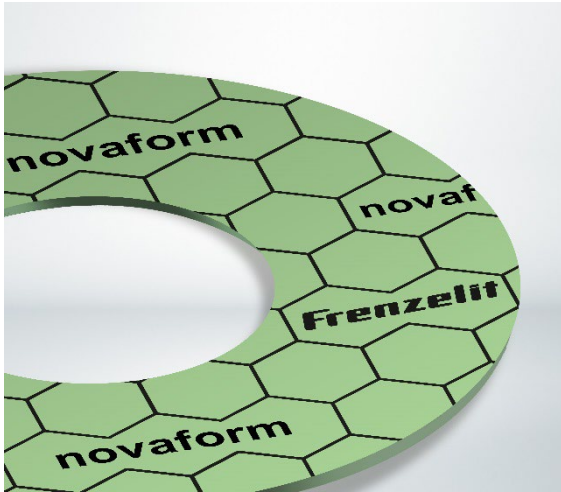


Image 3: novaform® separating layer from Frenzelit.
Image: © Frenzelit GmbH

About Frenzelit

Frenzelit GmbH develops, produces and sells gaskets and gasket materials, technical textiles for insulation, seals and filtration systems and expansion joints for plant engineering. With its two strategic divisions “Industry” and “Mobility”, Frenzelit GmbH is in perfect alignment with the unique needs of its customers. Around 500 employees work at the Bad Berneck and Himmelkron plants. The family-owned company from Upper Franconia operates internationally with its own location in North Carolina, USA and has a global presence with additional subsidiaries and sales offices in the Czech Republic, China, India and Dubai. Frenzelit has been successful in the marketplace since 1881 and is certified according to IATF 16949 and ISO 9001 (Quality Management, ISO 14001 (Environmental Management) and ISO 50001 (Energy Management).

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