

NEWS RELEASE

16 November 2023
Nippon Sheet Glass Co., Ltd.

Realizing Glass Cord for Hazardous Substance-Free Development of Resorcinol Formaldehyde (RF)-Free Adhesive for Rubber Reinforcing Materials

NSG Group is pleased to announce that it has developed an adhesive for rubber reinforcement materials that does not contain resorcinol and formaldehyde* (RF), chemical substances of concern for environmental and human health hazards, for its Glass Cord products. While restrictions on the use of hazardous substances are expanding within the supply chain that handles our products, the adhesive we have just developed is based on our proprietary technology and was developed based on the concept of a highly versatile, safe, and secure adhesive that can be used with rubber products for a variety of applications. We have already started providing samplings of Glass Cords using this adhesive and aim to launch the product in FY2024/3.



Glass Cords of NSG Group

Rubber products such as timing belts, tires, and hoses use various fibers (glass fiber, aramid, carbon fiber, synthetic fiber, etc.) as reinforcement materials to maintain strength and form stability. Resorcinol Formaldehyde Latex (RFL) adhesives have been widely used in the process of bonding various fibers and rubber compositions because of their high adhesive performance. However, as restrictions on the use of materials and components that use substances harmful to the environment and human health are spreading worldwide, there has been a need to develop new adhesives that do not contain RF, which is a cause for concern.

The adhesive developed by the NSG Group this time applies our proprietary adhesion technology already successfully developed for belts in oil and uses a newly developed coupling agent as a substitute for RF, which is harmful to the human body, thereby eliminating the risk of leakage of hazardous chemicals and contributing to a reduction in environmental impact. In addition, it achieves adhesive performance equivalent to that of conventional RFL adhesives. Furthermore, it is characterized by the fact that it can be widely used as an adhesive for not only glass fiber but also polyester, carbon fiber, aramid fiber, and other fiber cords.

NSG Group is the only manufacturer in the world capable of producing both Glass Cords, the final product and high-strength glass fiber. We contribute to the field of timing belts for automobiles and motorcycles, which require high strength and resistance. The new adhesive can be applied to a wide variety of rubber types and can achieve adhesive properties equivalent to those of RFL adhesives

and will offer new value not only to various rubber belts but also to customers seeking environmentally friendly products such as sealing materials, tires, and window frame gaskets.

NSG Group has established the NSG Sustainability Policy and Environmental Policy, and in accordance with the Sustainable Development Goals (SDGs), the Group is pursuing manufacturing process improvements and product innovations that consider the environment and other factors while balancing the needs of all stakeholders. We will continue to strive for the realization of a sustainable society through our high-value-added glass products and services.

***About Resorcinol and Formaldehyde**

Resorcinol is used as an antioxidant in foods and as a preservative in some pharmaceuticals, but long-term exposure to it can affect the endocrine system, which plays an important role in regulating the complex functions of the body, causing damage and harmful effects on the body. Some countries are even considering regulating the use of resorcinol.

Formaldehyde has been used as an adhesive for furniture and wallpaper and as a preservative, but it is a chemical substance for which standards for use have been established in Japan because of the risk of dermatitis and carcinogenesis if taken into the human body.

About MICROGLAS® Glass Cord

MICROGLAS® Glass Cord is a reinforcing cord for rubber and plastic products made of high-performance fibers such as ultrafine high-strength glass fiber, carbon fiber, and aramid fiber, processed with a special treatment agent. NSG Group's MICROGLAS® Glass Cord combines a cord design that takes advantage of the mechanical properties of various fibers with an adhesive treatment that has a high affinity with the rubber or resin to be reinforced to provide high strength, high elasticity, high durability, high environmental resistance, low elongation, and low creep elongation. MICROGLAS® Glass Cord provides new functions and value to rubber and resin products, such as high strength, high elasticity, high durability, environmental resistance, low elongation, and low creep elongation.

About MICROGLAS® Glass Cord: <https://hpm.nsg.com/en/products/glasscord/index.html>

Adhesive properties of new products

	New products	RFL cord
Peel surface	Rubber tear	
Peel adhesion specimen		

Adhesion performance equivalent to RFL cord

About NSG Group (Nippon Sheet Glass Co., Ltd. and its group companies)

NSG Group is the world's leading supplier of glass and glazing systems in the business areas of Architectural, Automotive, and Creative Technology. Architectural manufactures and supplies architectural glass as well as glass for the solar energy and other sectors. Automotive serves the original equipment (OE) and aftermarket replacement (AGR) glazing markets. Creative Technology comprises several discrete businesses, including lenses for printers and scanners, specialty glass fibers and glass flakes, mainly Glass Cord, which is a reinforcing material for timing belts, and Fine Glass products. <https://www.nsg.com>

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INQUIRIES ABOUT PRODUCTS:

<https://hpm.nsg.com/en/products/glasscord/contact/index.html>