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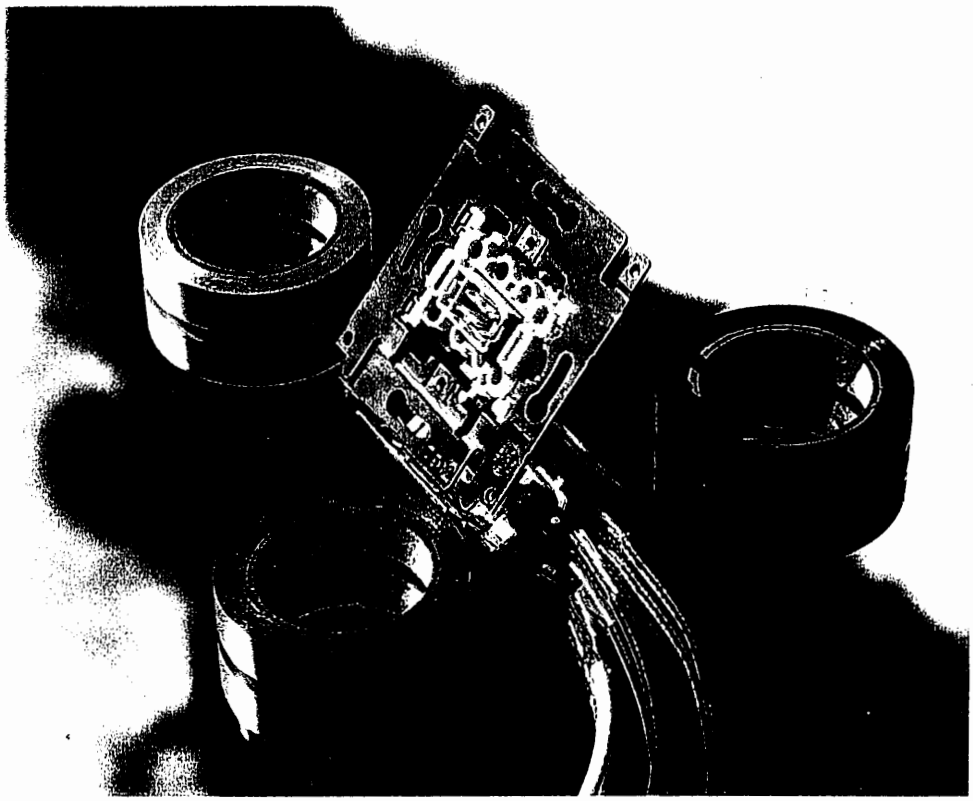
CARILON POLYMERS CASE HISTORY

Niko Electrical Socket



CARILON™ Polymers' non-halogenated flame retardant grade provided Niko with the toughness and resilience needed for its snap-fit socket assembly. Niko, a manufacturer of electrical socket components, chose CARILON Polymer DB6F0A10 for its impact resistance, performance over a broad temperature range as well as V-0 flame retardancy. For more information about CARILON Polymers, call 1-888-CARILON (888-227-4566).

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PRESS INFORMATION

Electrical Equipment Manufacturer Snaps Up Benefits from CARILON Polymers

Niko Case History

Cracking and breaking of a key component during snap-fit assembly prompted Niko, a Belgian manufacturer of electrical equipment, to seek a tougher, more resilient material for its switches and sockets. CARILON[1] Polymers, an engineering thermoplastic from Shell Chemicals[2], offered Niko a non-halogenated flame retardant grade with improved resilience and better heat tolerance than its previous material.

Before switching to CARILON Polymers, Niko used a flame retarded polypropylene in this application. Moldings from this product frequently broke as they were snapped into the metal framework of the electrical sockets, causing Niko to experience high failure rates during assembly.

Antoine Aelbrecht, Niko's head of quality, was impressed by CARILON Polymers' properties which he believed could solve Niko's dilemma. Aelbrecht contacted Shell Chemicals to investigate the possibility of using CARILON Polymers in Niko's challenging component.

"We had four primary requirements for the material," said Aelbrecht. "It must be flame retarded but non-halogenated, able to withstand a glow-wire test at 850 °C, pass a ball pressure test at 125 °C and have a mold shrinkage of around one percent."

Niko's electrical parts are used both in homes and in public facilities such as airports, where there are additional government regulations. "We had to deliver a mineral flame retarded CARILON Polymer grade that could meet Niko's primary requirements, as well as strict building codes," explained Hilde Krikor, a Shell research scientist.

The next step in gaining Niko's acceptance of the material was proving CARILON Polymers' mechanical capability for the application. "The material needed to exhibit good resilience and

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[1] CARILON is a Shell trademark.
[2] The expression 'Shell Chemicals' refers to the companies of the Royal Dutch/Shell Group which are engaged in the chemicals business. Each of the companies which make up the Royal Dutch/Shell Group of companies is an independent entity and has its own separate identity.

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toughness," said Krikor. To qualify CARILON Polymers, teams from Niko and Shell Chemicals put the material through a variety of tests designed to challenge its mechanical properties.

"We had very good results on all the tests," said Aelbrecht. "The material demonstrated a good level of stiffness, didn't break easily and retained its shape well." Armed with this information, Niko proceeded with the use of CARILON Polymers' DB6F0A10, a UL 94 V-0 flame retarded injection molding grade. Following its successful introduction of CARILON Polymers, Niko is now exploring use of CARILON Polymers for other applications in its product line.

CARILON Polymers are engineering thermoplastics with a unique combination of physical properties compared to traditional materials such as polyamides and polyacetals. These properties include strength, stiffness, performance over a broad temperature range, toughness, superior wear and friction characteristics, low hydrocarbon permeability and resistance to a variety of aggressive chemicals.

CARILON Polymers are available in extrusion grades and a variety of injection molding grades, including glass reinforced, flame retardant, mineral filled and lubricated compounds. The polymers can be easily processed on conventional molding and extrusion equipment, and their fast set-up can lead to significantly reduced cycle times in injection molding applications.

For more information on CARILON Polymers, visit the Shell Chemicals Web site at *www.shellchemicals.com*. In the United States, customers can write to Shell Chemical Company, P.O. Box 2463, Houston, Texas 77252-2463 or call toll free at 1-888-CARILON (1-888-227-4566). In Europe, customers can write to Shell Chemicals Ltd., Shell Centre, SEI 7NA or call +44 171 934 3300.

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