

Marketing Masters, Inc.

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Clip Nuts Made with TORLON® Composites by Marketing Masters

It's just a small part, but a clip nut made from TORLON(R) polyamide-imide (PAI) can make a really big difference when used on commercial aircraft to secure flooring, fairings, interior trim and bulkheads.

Clip nuts made of TORLON resin won't scratch through the protective covering to bare metal during installation or corrode during use. This can significantly reduce the hours of labor and costly procedures associated with replacing corroded metal parts. They can withstand torque loads in excess of 100 inch-pounds, yet have enough elongation to clip easily into place.

"Whether it's on a wide body jetliner built by Boeing or Airbus, or on the smallest Cessna that rolls off the assembly line, corrosion is a major concern in the aircraft industry," said Jacques P. Gauron, vice president of product development at Marketing Masters, Inc. The Issaquah, Wash., firm manufactures clip nuts molded from TORLON PAI for the aerospace, rail transit and ship building industries.

Manufacturers spend a tremendous amount of money priming and plating aircraft parts to reduce the potential effects of corrosion. Yet, the metal clip nuts that the industry has used for the past 40 years can gouge the surface of metal structures when they are installed, making it susceptible to attack from both galvanic and environmental corrosions.

Clip nuts made from TORLON resin are completely non-corrosive and weigh a fraction of their metal counterparts, yet they match the strength of metal clip nuts. "A typical DC-10 may have 15,000 clip nuts on the floor structure alone. Using a lighter weight clip nut can reduce the weight of the plane by 20 pounds," said Gauron. "That may not seem like much, but even a modest drop in weight can significantly reduce cost by burning less fuel."

"TORLON PAI is a great fit for this application because of its tremendous strength, high elongation and chemical resistance," said Jill Sanders, a global market manager for Solvay Advanced Polymers. "This is a unique combination of properties that you don't find with most other polymeric materials."

The strength of TORLON resin is competitive with metal across a wide temperature range and maintains its high mechanical properties up to 260 degrees C. It passes FAA flammability tests and is unaffected by aggressive aviation fluids such as MEK, Tric 1,1,1 and Skydrol® hydraulic fluid.

TORLON PAI is an ultra high-performance thermoplastic that can be processed by standard methods such as injection molding, extrusion and compression molding. It is also available in special wear-resistant grades that offer less friction and longer life than metals and other polymers even when lubrication is marginal or non-existent.

About Solvay Advanced Polymers

Solvay Advanced Polymers, L.L.C., is an indirect subsidiary of Solvay America, Inc., the U.S. holding company of Solvay S.A. The company produces high-performance polymers that are used in a wide range of demanding applications in the automotive, aerospace, industrial, food service, medical and electronics industries worldwide.

Solvay Advanced Polymers products include IXEF(R) polyarylamide and PRIMEF® polyphenylene sulfide product lines of Solvay S.A. combined with a portfolio of materials that had comprised BP Amoco's engineering resins business. For more information about this and other Solvay Advanced Polymers products and services, please visit our website at www.solvayadvancedpolymers.com.

Solvay S.A. is an international pharmaceuticals and chemicals group with headquarters in Brussels, Belgium, employing about 30,000 people in 50 countries. In 2002, its consolidated sales amounted to EUR 7.9 billion generated by its four activity sectors: Pharmaceuticals, Chemicals, Plastics, and Plastics Processing. Solvay S.A. is listed in the Euronext 100 index of top European companies. Details are available at www.solvay.com.

About Marketing Masters