



Ceramic Textiles and Composites

Applications Bulletin

Blankets for Aircraft Firewalls

Offer high temperature protection, light weight and low maintenance

Engine struts and fan cowls on jet engines are subject to a great deal of abuse during normal operation – high temperatures, exposure to hydraulic oil, stress, and punishing vibration. In this hostile environment, the selection of proper materials is important.

Metal shields and intumescent paint currently used for fire protection need periodic replacement, which is expensive and time consuming. The special properties of these materials made it difficult to find a long-lasting substitute that is lightweight, durable, and will act as a barrier to heat and flame in the event of a fire.

To protect the engine struts and composite fan cowls, Boeing Commercial Airplane Co. surveyed new materials and selected a lightweight, multilayered firewall blanket using a fabric of Nextel™ 312 Ceramic Fibers.

The core of the blanket is a quilted pillow of Nextel 312 Ceramic Fiber Fabric, bulk fiber insulation and fiberglass cloth, which is covered with a silicone-coated fiberglass cloth. To protect the blanket from chemical damage and abrasion, the Nextel 312 Ceramic Fiber Fabric side is also shielded with aluminized fiberglass.

The blanket significantly reduces maintenance costs because of its durability, ease of installation, and longevity, and if a fire should occur, Nextel 312 Ceramic Fiber Fabric has been proven in tests to meet the FAA's 2000°F (1093°C) 15-minute flame penetration requirement.

Boeing is currently using this blanket containing Nextel 312 Ceramic Fiber Fabric to protect composite fan cowls on their 757-200 and 737-300, and the underside of the engine and air inlet ducts on their 757-200.

Nextel 312 Ceramic Fiber Fabric has proven to be ideal for applications calling for a lightweight fire barrier that will meet the FAA's 2000°F (1093°F) flame penetration test.



The Boeing 757's fan cowls are protected with a firewall blanket using a fabric of Nextel 312 Ceramic Fibers.

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