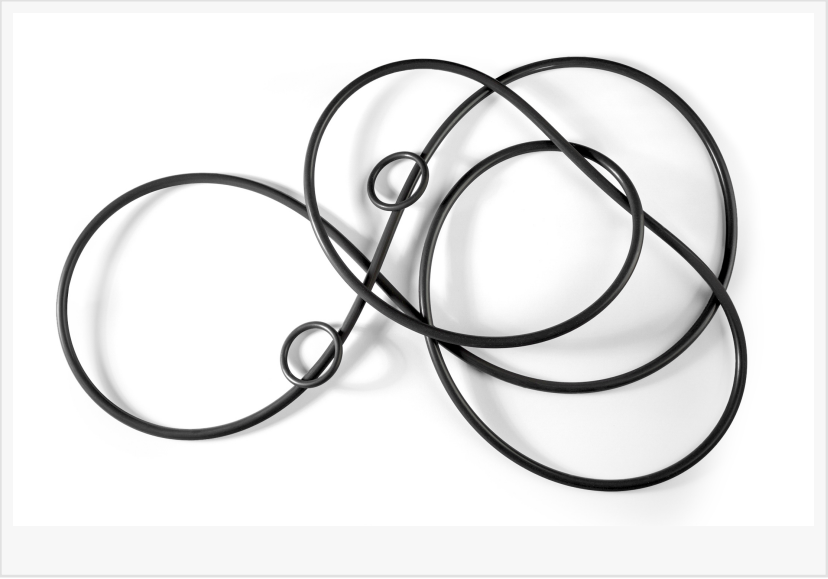
Greene Tweed Proves Sustainable Aviation Fuel (SAF) Compatibility with Elastomer Seals in New Study

LANSDALE, PA, UNITED STATES, June 12, 2025 /EINPresswire.com/ -- Ahead of the Paris Air Show, Greene Tweed, a global leader in advanced materials and high-performance solutions, has released results from a study confirming the compatibility of its fluorine-based elastomer seals with Sustainable Aviation Fuels (SAF). The results provide critical insights for aerospace leaders transitioning to sustainable, low-emission fuels, while ensuring safety and reliability.



As the aerospace industry focuses on decarbonization, SAFs offer substantial CO2 reductions of over 65% compared to traditional jet fuels. Nevertheless, challenges like seal compatibility remain. To address this, Greene Tweed conducted rigorous testing to ensure its seals perform effectively with these advanced fuels.

"Sustainable aviation fuels offer a practical path to reducing emissions, particularly for long-haul flights, where batteries and hydrogen remain less feasible," said Shawn McCloskey, Greene Tweed Chief Commercial Officer. "Our study ensures aerospace customers have reliable seal solutions for SAF adoption without compromising safety or performance."

Greene Tweed collaborated with multiple suppliers to evaluate SAF blends and their effects on the physical properties of fluorine-based elastomers FKM and FVMQ. The study assessed performance in SAF blends, including Synthetic Paraffinic Kerosene (SPK) and Synthetic Aromatic Kerosene (SAK), following ASTM D7566 standards. Testing simulated extreme aerospace environments, including temperatures up to 120°C and prolonged SAF exposure.

Key findings from the study include:

- Consistent Performance: FKM compounds (731, 772, 665) maintained performance across

blends, including three SPKs, 50/50 blends with control fluid, and 20% SAK with 80% SPKs.
• Material Properties: FKM elastomers showed strong compatibility with harsh SAF conditions, including fluid aging and dry-out scenarios.
• Aromatic Content Impact: Aromatic content in SAF formulations, particularly SAK blends, is critical for maintaining material performance.
• Advanced Testing Protocols: Testing under accelerated aging conditions confirmed long-term reliability.

“By analyzing the effects of chemical interactions between SAF blends and advanced elastomers, we have developed a robust data set that established long-term reliability and compatibility in extreme aerospace conditions,” noted Ronald Campbell, PhD, Senior Technical Advisor.

As the aviation industry works toward carbon-neutral growth, with U.S. airlines targeting a 50% CO2 reduction by 2050, SAFs are vital. Greene Tweed’s findings support these goals, ensuring component compatibility with SAF while maintaining safety and operational performance. These results were highlighted in a recent Aviation Week webinar, where Greene Tweed detailed its testing process. Representatives will also discuss these solutions at the Paris Air Show 2025. Interested attendees can register here to set up a meeting and learn more.

About Greene Tweed

Greene Tweed is a leading global manufacturer of high-performance thermoplastics, composites, seals, and engineered components. For 160 years, we have served clients in semiconductor, oil and gas, aerospace, defense, chemical and pharmaceutical processing, and other industries where failure is not an option. Greene Tweed products are sold and distributed worldwide. For additional information, call +1.215.256.9521, or visit our website at https://www.gtweed.com/.

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