

Beneath the surface: Muirhead's new ActiveHygiene Leather

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Polygiene BioMaster technology is permanently integrated into the leather during the production process

While airframers and airlines have always gone to great lengths to ensure that the aircraft cabin is a safe environment for both passengers and crew, the COVID-19 pandemic thrust concerns about onboard hygiene into the front of passengers' minds.

Some measures taken in the last few years have been very visible — such as the use of electrostatic sprayers or UltraViolet UVC Germicidal Irradiation — while others have been less perceptible: silently disinfecting surfaces to reduce health risks.

In a single day, an aircraft seat will undergo near-constant contact with passengers, crew and possibly ground personnel. While between aircraft turnarounds, a “spray and wipe” process is usually sufficient to clean a seat, the use of antimicrobial technologies further enhances hygiene in the cabin by introducing added protective qualities to surfaces, both in line-fit and retrofit aircraft.

One such antimicrobial solution is [Muirhead's](#) ActiveHygiene Leather, the first ever leather made for aviation interiors to feature these antimicrobial properties. The product was designed in partnership with Sweden's Polygiene, a leading provider of hygiene control technology, to complement airlines' existing cleaning protocols and reduce microbial levels on the surface between cleans.

As Archie Browning, Sales Director at Muirhead, explains to *PAX Tech*: as a self-cleaning product, with respect to micro-organisms, ActiveHygiene removes the need for additional sanitizing of seat covers, head and armrests — helping operators speed up turnaround times.



Archie Browning, Sales Director, Muirhead

Polygiene BioMaster™ technology is permanently integrated into the material during Muirhead's 100 percent circular manufacturing process, making it an intrinsic part of the leather. The result, says Browning, is "an 'always on', self-disinfecting treatment that can reduce invisible microbes on the leather surface by more than 99 percent in 24 hours."

The antimicrobial technology in ActiveHygiene is effective against the likes of SARS-CoV-2 (COVID-19), H1N1 (Swine Flu), and H3N2 (the most commonly detected flu virus worldwide). Polygiene BioMaster, Browning points out, was the first commercial treatment to prove effective against SARS-CoV-2 on porous and non-porous surfaces.

As part of the Scottish company's stringent quality, performance, and sustainability requirements, Muirhead ActiveHygiene Leather was subjected to rigorous internal and external testing and evaluation, with all testing conducted to ISO 21702:2109 Industry standards — a measurement of antiviral activity on plastics and other non-porous surfaces — offering total confidence that the figures were credible and accurate.

"We took great care to ensure the material still complied with the global quality standard [ISO 21702:2109] after being artificially worn, as well as after cleaning. We also ensured the product was harmless to the skin and did not interfere with its natural bacterial flora. Lastly, we tested the effectiveness of the antimicrobial technology in varying environments by exposing the material to high temperatures and humidity levels."



Antimicrobial technology is helping take seat hygiene to new levels

Deeply dependable

The company's patented circular manufacturing process is unique, using its own process waste as fuel. Muirhead's own thermal energy plant reclaims energy as both steam or a biofuel co-product from its waste streams and uses some of this heat to directly power its tannery. This minimizes waste going to landfills and radically reduces the company's corporate and product carbon footprint.

The company sources 95 percent of its water from its own loch, with its own water ultrafiltration facility enabling them to recycle up to 40 percent of treated water back into use within production, while a take-back scheme enables the company to repurpose end-of-life leather as fuel.

"In addition, our unique end-to-end approach means we have a fully traceable, transparent supply chain — and our partnership with Polygiene® is no exception. But even more important than consistency is the actual performance and durability of our materials," states Browning, who adds that Muirhead's highly technical aviation leathers, including ActiveHygiene, last a very long time in service.

"That's why we offer an industry-leading seven-year warranty on our aviation leathers, with many carriers reporting that they fly Muirhead leather for 10 years or more.

"It is reasonable to suggest that with such a long service life, airlines will actually use half as much leather in their seating as they would other materials, so the long-term cost and environmental impact of using long-lasting natural leather is relatively low compared to using less durable materials," adds Browning.

Clean machine

Since launching ActiveHygiene, Muirhead has been working closely with a number of airlines and seating manufacturers to develop bespoke antimicrobial leather products for their needs — with the perfect colour, substance, and performance to suit their brands and delight their passengers.



Muirhead is looking to develop bespoke antimicrobial leather products for airlines

Conversations have been helped by the fact that installing ActiveHygiene leather in aircraft cabins means reducing both their turnaround times and their reliance on harmful chemicals. “With ActiveHygiene, the general upkeep of the leather seat covers requires nothing but a damp microfibre cloth and mild, soapy water,” Browning asserts, adding that “with Polygiene Biomaster built into the leather during our existing manufacturing process, there are no additional stages required, meaning that delivery lead times for our Muirhead ActiveHygiene Leather are not impacted in any way.”

Muirhead is on a mission to take seat hygiene to a new level and set new standards in cabin wellness. Offering an extra level of protection, antimicrobial technology is giving passengers peace of mind by allowing them to feel safe, confident and comfortable when travelling by air.