

Making seat covers ethical, sustainable and accessible with Muirhead

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Muirhead's FreeTAN with free FR technology

Muirhead manufactures high-performance, low-carbon Scottish leather, and is doing so while being open about where its products come from and their environmental impact. The company recognizes the evolving awareness and demand from its customers to ensure products are ethical and minimize a company's carbon footprint.

From farm to final cut

Muirhead prioritizes sustainability in its production process and is transparent about its environmental impact. Currently, the company is working towards a carbon-zero goal.

"As part of our Journey to Zero strategy, we aim to achieve a net-zero carbon footprint on Scope 1 and 2 by 2025," Myles Hobbs, Aviation Director EMEA & Americas, Muirhead, tells *PAX Tech*.

The company is committed to continuous research and development of innovative techniques, such as bio and plant-based chemistry systems, novel tanning systems, alternative applications of collagen and the recycling of leather.

Muirhead also recently opened its new, £14 million (US\$17.4 million) "Super Tannery" after seven

years of development. The facility is the result of the latest round of multi-million-pound investments by Scottish Leather Group in its facilities and forms part of the Group's 20-year strategy.

"This innovative hide processing technology brings about a further change in our energy and water use," Hobbs explains, citing an 82 percent reduction in energy use and 42 percent reduction in water use, compared to previous equipment.

Muirhead has also fully replaced its existing tanning chemistry with compostable technology, marking a significant step toward eliminating the use of fossil fuels, oil-based elements and heavy metals in its operations. The resulting product, FreeTAN® with free FR technology, is completely free from heavy metals, chrome and glutaraldehyde.

Hobbs also reveals that through a circular manufacturing process, the company has successfully reduced the carbon intensity of its hide by 90 percent over the last two decades. This allows Muirhead to create the world's lowest carbon leather, with an environmental impact of just eight kilograms of carbon dioxide equivalent per square metre. The company either recycles or returns water to the same watershed without any environmental impact. In addition, he says that 100 percent of Muirhead's electricity is sourced from certified renewable sources.

A traceable and transparent supply chain further allows Muirhead to optimize its carbon footprint at all stages of the leather's journey, "from farm to the final cut."

Hobbs explains that to account for the carbon footprint of its products and avoid "greenwashing," Muirhead uses the ISO-accredited Life Cycle Analysis (LCA). This technique measures various impacts, including the GWP100, and takes upstream farming influences into account.

Trends to watch



Design trends in the aviation industry are constantly evolving and as Debra Choong, Design Manager, Muirhead, tells *PAX Tech*, recent trends are focused on sustainability. “We have observed a notable shift toward more considered material application and more sustainable production processes,” Choong reveals. “Particularly pertinent is the focus

on what happens to end-of-life products. In the aviation sector, we’re witnessing discussions around biodegradability, as well as transitioning from laminated seat backs to separate sewn covers to facilitate easier dismantling and processing.”

Choong also reveals a trend towards embracing the material “imperfections” of organic materials such as genuine leather, particularly in the luxury segment.

“From a production perspective, this emerging trend has positive implications for sustainable manufacturing, she says. “It improves yield and, therefore, enables more efficient material use—ultimately minimizing waste.”

Accessibility through seat covers



Muirhead's Sensation collection

Something that is not a trend but a conscious move towards inclusivity is Muirhead's initiative to make the aircraft cabin more accessible to neurodivergent passengers.

“We have recently unveiled our pioneering vision for neurodiverse-friendly aircraft seat covers,” Jamie O'Donnell, Designer, Muirhead, tells *PAX Tech*. “Designed with neurodivergent adults in mind, the new 'Sensation' collection highlights the importance

of seat cover design in fostering an inclusive onboard experience and seeks to inspire CMF designers as they envision the future of people-focused aircraft cabins.”

The collection provides neurodivergent people with comfort and a sense of security while enabling them to better regulate their emotions onboard.



Jamie O'Donnell, Designer, Muirhead

“At Muirhead, we recognize that the inclusive cabin of the future must balance functionality with aesthetic appeal,” O'Donnell says. “The collection features a soothing monochromatic palette of greens, blues and neutrals to evoke a calming atmosphere.”

The seat covers make use of Muirhead's digital printing capabilities and favour natural materials, demonstrating how textures and patterns can be used to create a multi-sensory experience and help passengers process their environment.

Forging an eco-friendly future

As Muirhead makes strides in sustainability and accessibility, the company remains committed to full supply chain transparency.

“From December 2024, the incoming Deforestation Regulation will require all leather manufacturers to demonstrate that their processes do not contribute to deforestation or forest degradation,” Hobbs says. “At Muirhead, we take pride in Muirhead's Sensation collection delivering full supply chain transparency with 100 percent traceability and zero percent deforestation.”

Muirhead sources its supplies from close to home and is working with suppliers who are adopting regenerative farming practices via land restoration and agroforestry.

“Our commitment to traceability aligns with the Cattle Tracing Scheme, ensuring that our hides’ origin is meticulously accounted for,” Hobbs explains. “The U.K. and Ireland are among the highest-rated territories in the Animal Protection Index, with the U.K. credited for developing the globally recognized Five Freedoms of Animal Welfare.”

Muirhead’s adherence to rigorous standards and practices allows it to continue creating leather products that contribute to a more sustainable, transparent and ethically responsible supply chain.

“We are proud to play a role in this transformative journey towards a greener and more sustainable future,” Hobbs concludes.