CASE STUDY

GREENLANDER SHERPA

Exploring Eco-Conscious Adventure

The Greenlander Sherpa expedition vehicle and the Explorer Magazine 4x4 project both use Armacell's recycled PET foams — ArmaPET® Eco50 and ArmaPET® Struct GRX — combined with natural-fibre skins developed by Circular Structures. Two applications, one foundation: **sustainable sandwich panels built for real-world use**

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REDEFINING ADVENTURE VEHICLE

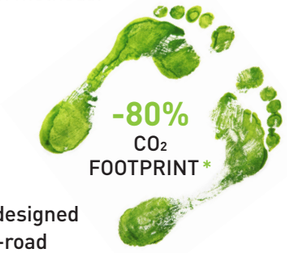
In the realm of sustainable adventure, few companies resonate with the essence of eco-friendly innovation as profoundly as Greenlander and its flagship product, the Greenlander Sherpa.

Emerging from a pioneering background in natural-fibre composites, **Circular Structures** embarked on a mission to redefine the concept of adventure, ensuring every journey is not only remarkable but also environmentally conscious.

©Greenlander:
Greenlander Sherpa mobile home

The adventure vehicle market has traditionally depended on fibreglass and standard composites. Greenlander recognised a unique opportunity: there was no expedition vehicle that effectively merged durability and performance with a more sustainable material approach. The Greenlander Sherpa meets this need, serving not only as a highly capable vehicle but also as a mindful choice in its production methods.

Towards Green Travel



Greenlander and Circular Structures have introduced **the Sherpa, a cutting-edge vehicle designed specifically for the premium off-road segment**. This groundbreaking product features natural-fibre skins and recycled PET cores, presenting a sustainable alternative to traditional glass-fibre materials. By embracing this innovative design, the Sherpa establishes a new benchmark for environmentally friendly expedition vehicles.

The integration of **natural-fibre skins with recycled PET cores, along with the option for plant-based resins**, establishes an effective and scalable approach to creating low-impact sandwich panels, highlighting a robust dedication to sustainability in vehicle production. Furthermore, **using Armacell's foam cores can lead to an approximately** 80% reduction in CO_2 emissions **compared to conventional fibreglass**.

When Comfort Meets Sustainability

The Sherpa is crafted for the contemporary explorer, combining a compact design with exceptional durability. Its structural sandwich panels offer insulation, strength, and moisture resistance, making it ideal for various environments. With customisable interiors, off-grid power options, connectivity features, and off-road capabilities, it serves as **a true mobile home**.

This vehicle harmonises the ruggedness needed for remote adventures with the inviting ambiance of a cos living space. Each component is thoughtfully chosen to ensure a balance between high performance and sustainability, proving that eco-friendliness can coexist with quality and comfort.

Integrating ArmaPET

Circular Structures has effectively integrated Armacell's advanced rPET technology into the production of the Greenlander Sherpa, marking a pivotal advancement in sustainable manufacturing. This collaboration harnesses innovative materials to significantly improve the vehicle's performance while promoting eco-friendly practices.

The incorporation of ArmaPET solutions into sandwich panels for both mass production and prototype builds showcases a real commitment to sustainability: **ArmaPET Eco50, utilised for walls and insulation**, offers a lightweight, structurally sound, and thermally efficient option, while **ArmaPET Struct GRX enhances floors and panels** with its refined cell structure, high shear strength, and minimised resin absorption.

Both foams, crafted from 100% recycled PET and **paired with natural-fibre skins**, provide exceptional strength, insulation, moisture resistance, and durability, as demonstrated from initial builds to full-scale production.

The Future of Eco -Conscious Adventures

Greenlander and Circular Structures have set a new standard in the all-road camping market, demonstrating that adventure can be both thrilling and sustainable. The Greenlander Sherpa enables travellers to explore the globe while enjoying the comforts of home, all while prioritising environmental responsibility. This vehicle transcends mere transportation; it represents a lifestyle choice that appeals to a growing demographic of eco-conscious consumers.

The project encompasses two distinct paths, unified by a commitment to sustainability. **The Greenlander Sherpa is designed as a serial product**, aimed at scalability and long-term adoption within the premium all-road segment. Meanwhile, **the Explorer Magazine Achleitner 4x4 serves as an independent initiative to showcase a Sprinter-based cabin** under 3.5 tons, using sustainable sandwich panels. Despite supply chain challenges that necessitated a switch to 50 mm panels instead of the planned 40 mm, the team successfully achieved the weight target, garnering significant attention and recognition at the Abenteuer & Allrad event in June 2025.

Through innovative design and a steadfast dedication to eco-friendly practices, Greenlander has redefined the adventure vehicle landscape with the launch of the Greenlander Sherpa. This case study illustrates how the integration of natural materials and cutting-edge sustainable technology can create impactful solutions in a market eager for transformation. Circular Structures continues to pave the way toward a sustainable future, proving that the pursuit of adventure and environmental stewardship can indeed coexist.


©Circular Structures:
rPET foams with natural-fibre skins


©Explorer Magazine:
Circular Structures Exterior
NFC sandwich panels

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ABOUT ARMACELL

As the inventor of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal and mechanical insulation solutions that create sustainable value for its customers. Armacell's products significantly contribute to driving energy efficiency worldwide. With more than 3,300 employees and 26 production plants in 20 countries, Armacell operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.

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