

Product Information

ROHACELL® HERO

THE CORE MATERIAL FOR AIRCRAFT STRUCTURES



In January 2017, ROHACELL® HERO foam was qualified by AIRBUS under AIMS 04-11-011 and ABS5955 standard for aircraft structural parts.

This opens up new opportunities for AIRBUS, Tier 1 and other aircraft manufacturers to design innovative sandwich composite aircraft components that are lightweight, mechanically strong and efficient to produce, regardless of geometric dimensions.

Putting ROHACELL® HERO to the test

To prove the technical performance of a composite part with a ROHACELL® HERO core, two structures (leading edge and nose landing gear door) were built and tested to the aircraft industry impact standard.



The outcome confirmed not only the technological, but also the economic feasibility of a ROHACELL® HERO core in structural aircraft parts.

Proven technical & economic advantages

The main structural load case for fairings is the bird strike impact test. However, proof of economic benefits requires further consideration of both materials used and the type of processing technology.



Bird strike impact test result: The structures (a leading edge and a nose landing gear door) with a ROHACELL® 71HERO foam core passed the tests.

Economic case evaluation results for the NLG door:

- Cost reduction of up to 25% per part
- Weight savings of up to 19% per part

A strong case for time and labor savings

With “Foam/Infusion”, overall savings result from shorter processing times during multiple part production steps throughout the process, as compared to a traditional honeycomb/prepreg method.

- Core preparation → ready-to-use cores
- Lay-up times → significantly reduced
- Core integration → less than 15 minutes
- Curing / infusion → one-shot curing

AIRBUS procurement frame contract

In November 2016, Evonik Resource Efficiency GmbH proudly announced the signing of a procurement frame contract with AIRBUS Group (Toulouse, France) officially establishing joint agreement on development, manufacture and supply of structural foams and plastic products for aircraft applications. This agreement forms the basis for a sustainable, innovative and long-term partnership with the aircraft OEM and Tier 1 suppliers.

Full scale level: Real bird strike (8 lbs)
Lightning strike
Hail strike
Static strength / stability
Robustness

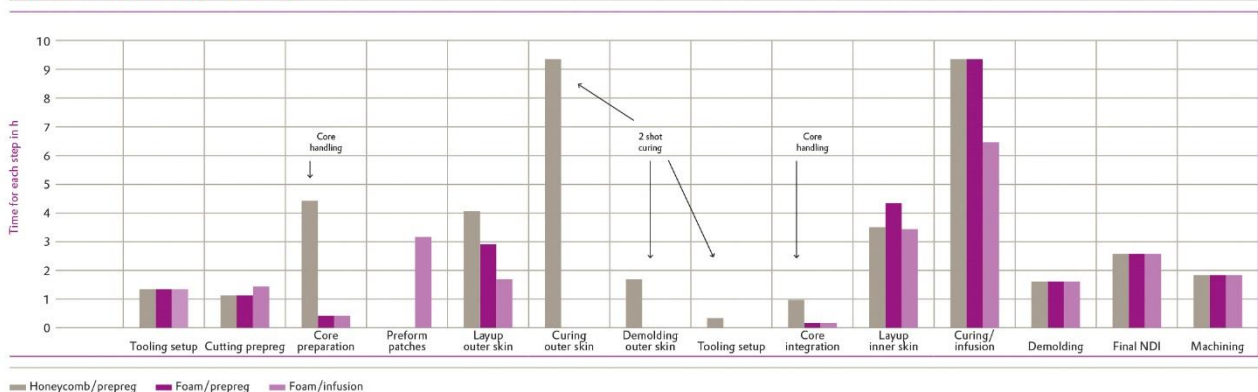
TRL 6 level obtained for A320 LE project

To qualify ROHACELL® HERO, AIRBUS and Evonik did several investigations following the building block approach. ROHACELL® HERO passed all tests!

Detail and element level: Gel bird on nose area
Hail strike
SCB/CSB
Local stability (BOCATAS)
4 PB after impact
4 PB no crack growth after impact

ROHACELL® HERO product specific: Allowables (specification)
5 batches (Tension, Compression, shear), QTP/QTR

Comparison of time by process step



ROHACELL® is a registered trademark of Evonik Industries and its subsidiaries

This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. Evonik expressly disclaims any representations and warranties of any kind, whether express or implied, as to the accuracy, completeness, non-infringement, merchantability and/or fitness for a particular purpose (even if Evonik is aware of such purpose) with respect to any information and recommendations provided. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.

Evonik Resource Efficiency GmbH
Darmstadt, Germany
Phone +49 6151 18-1005
rohacell@evonik.com
Evonik Foams Inc.
Theodore, Alabama, USA
Phone +1 866 764-6235
Evonik Degussa (China)
Shanghai, China
Phone +86 21 6119 1544
www.rohacell.com