HIGH-FLYING POLYMERS
SOLUTIONS FOR THE AERONAUTICS INDUSTRY
Our mission is to redefine the limits of the possible ever new and be a force for innovation in the construction, automotive and industry sectors. REHAU secures long-term competitive advantages by means of outstanding innovations and a high degree of reliability. Know-how obtained from the three business divisions is expertly brought together to develop new materials, formulations and products and to advance them through to series production. As an independent globally active family-owned company we are tops in flexibility and our 127 sales offices, 42 production sites and 16 administration offices make sure we are always right there where our customers need us. High-performance from every point of view.
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Due to a system conversion to SAP in 2012 our article numbers will change to material numbers.
The previous article numbers will become material numbers with 1 extra digit:
old: 123456 (Article number)
new: 1123456 (Material number)
To illustrate this in the catalogue, we have visually identified the additional digit: 1 = 1, e.g.: 1123456
Please note that in the system all quotations, order confirmations, dispatch notes and invoices will largely only be issued with the 7-digit number.
REHAU has been an acknowledged partner to the aircraft industry since 1980, always pushing the pace of development work.

References:
- Airbus S.A.S., Airbus Operations GmbH
- Fokker Aircraft
- ATR
- FACC
- Diehl Aircabin
- Sell
- Dasell
- Lufthansa Technik
- Eurocopter
- Ruag

© AIR FRANCE / Virginie VALDOS
RAU-FLIGHT, the new, innovative material, is crucial to the sector. It ensures the customer obtains better cost efficiency and a better energy balance.
Developing its own materials has been one of the cornerstones of REHAU’s technical success ever since the company was founded. Quality, reliability and products that benefit the customer have always been given utmost priority. With several thousand different formulations for the various business sectors, REHAU probably now has one of the largest material portfolios in the world to choose from.

A sustainable approach to using valuable resources and production methods that produce little waste and incorporate recycling concepts continue to be the mission of those who develop materials, processes and products at REHAU. This is why special attention is paid to the processing characteristics of materials in REHAU production facilities. With more than 40 such facilities worldwide, researchers and developers have a perfect basis upon which to make sure their materials are fit for production and for the market. In conclusion, this produces the synergies for the premium products for which REHAU is known.
Port Elizabeth plant, South Africa

Impact test
REHAU development engineers and technicians concern themselves with the product right from the idea stage, through the development and production processes and all the way to installation and use. They are there at the customer’s side to provide help and advice so that even special requirements can be worked on and innovative solutions found.

Our production and process engineering departments offer a host of solutions to meet any requirement, from single-piece production to series production and optimized manufacturing processes.

REHAU is an expert in all downstream processes such as painting, surface finishing and fabrication, to bring out the best from the various product characteristics.

REHAU’s expertise in developing its own materials provides solutions for special applications that are optimized in terms of both costs and benefits.

As regards logistics, REHAU has all the right answers plus made-to-measure solutions including just-in-time deliveries.

### Process expertise

<table>
<thead>
<tr>
<th>Details</th>
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<tbody>
<tr>
<td>Materials expertise</td>
</tr>
<tr>
<td>Production processes</td>
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<td>Design</td>
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<td>Materials development</td>
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<td>Processing</td>
</tr>
<tr>
<td>Fabrication/finishing</td>
</tr>
<tr>
<td>Painting</td>
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</tbody>
</table>
Bending test

Abrasion test
In the aviation industry, every gram counts. Lightweight construction in aviation has always been crucial by virtue of the physics of flight. Along with light structures, lightweight innovative materials are also of decisive importance. The use of these materials reduces energy consumption and thus helps improve cost efficiency. It also makes its own contribution to sustainable environmental development.

Improved cost efficiency, same properties

Again and again, REHAU succeeds in providing customers with made-to-measure intelligent polymer solutions that save energy at the same time as they meet the most stringent requirements in terms of engineering and design.

RAU-FLIGHT, a material developed specially for the aviation industry which reduces weight by more than 10 %, is a shining example.

The challenge lay in maintaining the mechanical values of approved high-temperature thermoplastics (PEI or PPSU) whilst producing an end product feasible for series production. Downstream operations, such as milling, painting, bonding etc., are all still possible without restriction.

New material RAU-FLIGHT can be specially customized to meet specific customer needs.

RAU-FLIGHT product advantages:
- Lighter than PEI: 10.0 %, PPSU: 12.6 %
- Identical mechanical properties
- Meets ABD031

Improved cost efficiency, same properties

The following example clearly highlights the benefits of RAU-FLIGHT:

A handrail system in an AIRBUS A-320 having a total weight of 48 kg would weigh more than 5 kg less if made of RAU-FLIGHT.

For an A-320, AIRBUS calculates annual fuel savings of 1,970 liters for every 10 kg of unladen weight spared.

RAU-FLIGHT product advantages:
- Lighter than PEI: 10.0 %, PPSU: 12.6 %
- Identical mechanical properties
- Meets ABD031

RAU-FLIGHT, the unique material principle:
“Glass bubbles” embedded in the polymer matrix.
Kerosene savings achieved by RAU-FLIGHT PPSU versions (around 12.6 % lighter) of polymer components with an assumed weight of 100 kg per MSN.

<table>
<thead>
<tr>
<th>Effect per aircraft operating over a period of 1 year</th>
<th>Effect per aircraft operating over a period of 15 years</th>
<th>Effect per fleet of 150 aircraft operating over a period of 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>≈ 2,000 liters</td>
<td>≈ 30,000 liters</td>
<td>≈ 4,500,000 liters</td>
</tr>
</tbody>
</table>

RAU-FLIGHT: DLR Certificates ABD0031 and AITM 3.0005

7-1 Flammability .............................................. FAR 25, App. F, Part 1 & AITM 2.0002A
7-2 Heat Release ............................................... FAR 25, App. F, Part IV & AITM 2.0006
7-3 Smoke Density ............................................. FAR 25, App. F, Part V & AITM 2.0007
7-4 Toxic Components ......................................... ABD 0031 & AITM 3.0005
REHAU FLIES HIGH
REHAU PRODUCTS FOR
THE AERONAUTICS INDUSTRY

1.1 Seat Track Covers
The safe connection point between passenger and aircraft.

1.2 Bumper System
The bodyguard for lightweight structures.

1.3 Cover Profiles
The clever transition between different floor coverings.

1.4 Light Covers
Classy design with sophisticated function details.

2.1 Handrails
Ergonomic and functional safety.

2.2 PSU Intermediate Rail
The luxurious connection between operating unit and luggage compartment.

2.3 Air Ducts
For a pleasant and hygienic atmosphere in the aircraft.
3.1 Edge Protector
Safely covered, be it luggage compartment or handrails.

3.2 Luggage Compartment Brackets
The reliable support in the luggage compartment.

4.1 Retainer and Slide Guide for Window Systems
Permanent fixing of interior elements.

4.2 Clamping Rails for Side Wall Panels
For fixing side wall panels to fuselage.

4.3 Tracks for Side Wall Panels
The perfectly fitting connection between wall panels.

5.1 Standard Silicone Profiles
The professionals when it comes to sealing, fixing and covering.
REHAU FLIES HIGH
REHAU PRODUCTS FOR
THE AÉRONAUTICS INDUSTRY
3.1 PROFILES

3.1.1 SEAT TRACK COVERS

Function
Aircraft seats are mounted on aluminum seat tracks. Seat position and distance are variable. Between the fixation points the seat track is covered with cover profiles.

Surface
Smooth matt brushed

Material
Polyamide12 (RAU-PA), flame resistant, colored

Process
Extrusion
3.1 PROFILES
3.1.2 BUMPER SYSTEM

Function: Protection of honeycomb structures, Cover of electric cables
Surface: Smooth matt brushed
Material: Polyamide 12 (RAU-PA), flame resistant, colored
Process: Extrusion (top and bottom profile), Injection molding (endcaps)
3.1 PROFILES
3.1.3 COVER PROFILES

Function
Thin decorative profiles bonded to aluminum carrier profiles, covers the joint between carpet and plastic floor coverings, e.g. in galleys, toilets and other screening profiles.

Surface
Brushed

Material
Polyamide 12 (RAU-PA), flame resistant, colored, Adhesive tape

Process
Extrusion

---

Standard: ABS 5786 AAA
Material: RAU-PA 592
Mat. No.: 1953069

Standard: ABS 5786 AAA
Material: RAU-PA 592
Mat. No.: 1953058

---

Standard: ABS 5759
Material: RAU-PA 592
Mat. No.: 1953952

---

Aluminum foil
3.1 Profiles
3.1.4 Light Covers
Translucent Cover Profiles

Function: Translucent light cover
Material: Polycarbonate (RAU-PC), flame resistant, transparent, UV-stabilized
Process: Extrusion
3.1 PROFILES
3.1.4 LIGHT COVERS
COEXTRUDED LIGHT COVER

Function: Transparent / opaque light cover
Material: Polycarbonate (PC), flame resistant, transparent, UV-stabilized,
Polycarbonate (RAU-PC), flame resistant, colored,
Aluminum foil
Process: Coextrusion,
Mechanical processing (milling, cutting to length),
Assembly (clamp insertion)

Due to the slight wall thickness an aluminum foil is used to enhance the opaque properties.

Standard: -
Material: RAU-PC
Mat.No. -

RAU-PC, colored
Aluminum insert, 57 mm x 0.3 mm
3.1 PROFILES

3.1.4 LIGHT COVERS

Function: Translucent light cover
Material: Polycarbonate (RAU-PC), flame resistant, transparent, UV-stabilized
Process: Extrusion, Mechanical processing (edge milling)
3.2 SYSTEMS

3.2.1 HANDRAILS

Function: Handrail
Material: Polyetherimide (RAU-PEI)
Process: Extrusion,
Mechanical processing (milling, cutting to length),
Injection molding,
Assembly

Standard: -
Material: RAU-PEI 140
Mat. No.: -

Standard: -
Material: RAU-PEI 140
Mat. No.: -
3.2 SYSTEMS

3.2.2 PSU INTERMEDIATE RAIL

Function: Cover between PSU (Personal Service Unit) and luggage compartment
Material: Polyetherimide (RAU-PEI), Silicone
Process: Extrusion, Mechanical processing (milling, cutting to length), Injection molding, Painting, Assembly

Standard: -
Material: RAU-PEI 140
Mat. No.: -
3.2 SYSTEMS
3.2.3 AIR DUCTS

Function: Ventilation
Material: Polyetherimide (RAU-PEI), Silicone
Process: Extrusion, Mechanical processing, Injection molding, Painting, Assembly

Profile
Injection molding
Silicone seal

Standard: -
Material: RAU-PEI 140
Mat.No. -
3.3 MOLDINGS

3.3.1 EDGE PROTECTION PROFILES

Function: The moldings for protecting edges cover sandwich components and cover gaps between 2 luggage compartments.

Material: Polycarbonate (RAU-PC), Silicone

Process: Injection molding, Extrusion, Cutting and bonding of silicone profiles

| Standard: - | Material: RAU-PC 440 |
| Mat. No. - |
| Standard: - | Material: RAU-PC 440 |
| Mat. No. - |
### 3.3 MOLDINGS

#### 3.3.2 LUGGAGE COMPARTMENT BRACKETS

<table>
<thead>
<tr>
<th>Function</th>
<th>Support in luggage compartment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>30% carbon fiber reinforced polyphenyl sulfide (RAU-PPS)</td>
</tr>
<tr>
<td>Process</td>
<td>Injection molding, Mechanical processing, Painting, Assembly</td>
</tr>
</tbody>
</table>

| Standard: | - |
| Material: | RAU-PPS 150 |
| Mat. No.: | - |
### 3.4 FIBER COMPOSITE COMPONENTS

#### 3.4.1 RETAINER AND SLIDE GUIDE FOR WINDOW SYSTEMS

**Function**
For fixing interior parts, e.g. overwing exit door cover

**Material**
- Glass fabric reinforced polyetherimide (RAU-PEI)
- Carbon fabric reinforced polyetherimide (RAU-PEI)

**Process**
- Thermoforming preconsolidated panels,
- Mechanical processing

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*Standard: -*  
*Material: RAU-TC 13304*  
*Mat.No.: -*

*Standard: -*  
*Material: RAU-TC 13307*  
*Mat.No.: -*  

*Standard: -*  
*Material: RAU-TC 13307*  
*Mat.No.: -*
Function: Guiding the window blind
Material: Polycarbonate (RAU-PC), Glass fiber fabric with polyetherimide (RAU-PEI)
Process: Injection molding (window funnel), Thermoforming of window blind guide
3.4 FIBER COMPOSITE COMPONENTS

3.4.2 CLAMPING RAILS FOR SIDE WALL PANELS

Function: Rails for connecting side wall panels
Material: Glass fiber fabric with polyetherimide (RAU-PEI)
Process: Thermoforming of preconsolidated panels,
          Mechanical processing

Standard: -
Material: RAU-TC 13302
Mat. No.: -
3.4 FIBER COMPOSITE COMPONENTS
3.4.3 TRACKS FOR SIDE WALL PANELS

**Function**
Fixing side wall panels to fuselage

**Material**
Carbon fiber fabric reinforced polyetherimide (RAU-PEI)

**Process**
Thermoforming of preconsolidated panels,
Mechanical processing,
Assembly,

**Remarks:**
Prototype tool available,
Track passed AIRBUS static test

**Standard:** -
**Material:** RAU-TC 13302
**Mat.No.:** -
3.5  SILICONE PROFILES

3.5.1  STANDARD SILICONE PROFILES

Product
- Standard profile (AIRBUS),
- Gap seal for side wall panels (ABS0306),
- Profile (ABS0307),
- Other standard profiles and developments upon request

Function
- Seals / gap covers / fixing elements

Material
- Silicone
  - DAN 1106 · AIMS 04-07-003 · RAU-SIK 8968
  - DAN 1107 · AIMS 04-07-006 · RAU-SIK 8964

Process
- Extrusion

---

Standard:  ABS 0306 B20
Material:  RAU-SIK 8968
Mat.No.  1834584

Standard:  ABS 5748 AA
Material:  RAU-SIK 8968
Mat.No.  1834504

Standard:  ABS 5744 AA
Material:  RAU-SIK 8968
Mat.No.  1834504
Quality is crucial to our success. By meeting the quality standards and requirements of our customers we contribute greatly to their satisfaction. At every REHAU facility we work to quality principles and regulations applicable worldwide.

The dimensions shown in this leaflet are approximate. In regard to tolerances, our Conditions of Sale apply exclusively.

We therefore recommend that you verify the suitability for your intended purpose of designs contained in this leaflet.

EXPERTISE AND RELIABILITY
REHAU STANDS FOR ULTIMATE PROFESSIONALISM AND QUALITY.