Advanced Materials

Adhesives, syntactics and composites solutions for high performance

Aerospace selector guide
Rely on us with confidence
Rely on us with confidence

For more than 60 years, as a global provider, Huntsman Advanced Materials has developed innovative solutions and high performance materials for the fabrication, assembly and repair of interior and exterior aircraft components.

Huntsman’s versatile adhesives and syntactics are used by aircraft manufacturers who serve commercial airlines and general aviation throughout the world. Many of the epoxies and polyurethanes are flame retardant and exhibit the low flame, smoke and toxicity characteristics required to comply with regulations such as FAR 25.853 that govern materials used in large civil aircraft.

In our efforts to develop innovative solutions for the aerospace market, we strive to meet the high product standards set forth by the industry and federal regulations that govern the performance properties of materials used in aircraft, such as: strength, weight, toughness, flexibility, low coefficient of thermal expansion, high resistance to corrosion and fatigue, flame retardancy, halogen-free formulations, noise and vibrational damping.

We deliver more than just products

Our Research & Development team continuously experiment with new chemistries and technologies to fulfill today’s requirements, anticipate tomorrow’s needs and comply with ever more stringent health, safety and environmental regulations.

Our process control from raw material qualification to the delivery of finished products enables us to produce advanced materials known for their quality and reliability.

Araldite

The brand serving worldwide aerospace industry for more than 60 years.

Aircraft manufacturers’ specifications

Our products are extensively qualified to meet aircraft manufacturers’ specifications and are used in every new airborne design in the airplane life cycle, from designers, formulators and prepreggers to part manufacturers in large civil aircrafts, helicopters, regional jets, aerospace engines, general aviation.
Syntactics

Huntsman Araldite® and Epocast® epoxy syntactics, together with pre-cured Eposert® syntactic provide solutions for edge sealing, forming and bonding of honeycomb, metallic and plastic insert potting applications and for honeycomb reinforcement and repairs.

Syntactics for honeycomb reinforcement

Reinforcement of sandwich composites where high loading is required can be made by two means. Epocast® products can be applied directly into the honeycomb or pre-cured and molded to the desired insert dimension. Huntsman also offers a unique range of pre-formed and cured inserts available under the Eposert® brand that can be installed rapidly in a honeycomb core before fasteners are added.

These low-density inserts are well suited to aircraft manufacturing techniques and repair applications for reinforcing composite floor panels, galley walls, bulkheads and lavatory cabinets. Epocast® solutions meet stringent requirements of numerous aircraft specifications. The table below shows the main products used in sandwich structures reinforcement.

Syntactics for honeycomb edge sealing

Aircraft manufacturers and repair stations use these materials to fabricate and refurbish cabin components such as overhead baggage bins, floor panels and lavatory cabinets as well as flight control surfaces, nacelles and landing gear doors. Huntsman edge sealing syntactics are produced in a range of densities to meet the handling and performance requirements of customers.

Suitable products for edge sealing include: Araldite® 1644-A/B ultra-low density syntactic, Epocast® 1617-A/B and 1618-B/D low-density syntactics and Epocast® 89537-A/B and 1652-A/B medium density syntactics. Huntsman also supplies a one-component epoxy designated Epocast® 1610-A1 ultra-low density syntactic. The majority of Huntsman edge sealing materials are self-extinguishing and feature easy to apply viscosities, sag-resistance for use on vertical surfaces and high strength.

Syntactics for insert potting or bonding

Medium and low-density grades of Epocast® epoxy syntactic and Uralane® 5774-A/C polyurethane adhesive comprise the range of products for insert potting, providing a dependable reinforcement for honeycomb composite panels before inserting fasteners. Typical applications include composite floor panels, galley walls, bulkheads or lavatory cabinets.

The most conventional type of insert are metallic ones and in this case several Epocast® syntactics can be used such as the fast curing and self-extinguishing Epocast® 1610-A/B. The latest designs often include thermoplastic inserts (such as polyamide-imide based ones); in this case standard epoxy syntactics cannot be used. In response to this, Huntsman has developed Uralane® 5774-A/C, a two component polyurethane adhesive.

<table>
<thead>
<tr>
<th>Syntactics for honeycomb reinforcement</th>
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<th>Syntactics for insert potting or bonding</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>stations use these materials to</td>
<td>Epocast® epoxy syntactic and Uralane®</td>
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<td>made by two means. Epocast® products</td>
<td>fabricate and refurbish cabin</td>
<td>5774-A/C polyurethane adhesive</td>
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<tr>
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<td>components such as overhead</td>
<td>comprise the range of products for</td>
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<td>honeycomb or pre-cured and molded to</td>
<td>baggage bins, floor panels and</td>
<td>insert potting, providing a dependable</td>
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<tr>
<td>the desired insert dimension.</td>
<td>lavatory cabinets as well as flight</td>
<td>reinforcement for honeycomb composite</td>
</tr>
<tr>
<td>Huntsman also offers a unique range of</td>
<td>control surfaces, nacelles and</td>
<td>panels before inserting fasteners.</td>
</tr>
<tr>
<td>pre-formed and cured inserts available</td>
<td>landing gear doors. Huntsman edge</td>
<td>Typical applications include composite</td>
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<tr>
<td>under the Eposert® brand that can be</td>
<td>sealing syntactics are produced in a</td>
<td>floor panels, galley walls, bulkheads</td>
</tr>
<tr>
<td>installed rapidly in a honeycomb core</td>
<td>range of densities to meet the</td>
<td>or lavatory cabinets.</td>
</tr>
<tr>
<td>before fasteners are added.</td>
<td>handling and performance requirements</td>
<td>The most conventional type of insert</td>
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<tr>
<td>reinforcing composite floor panels,</td>
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<td>thermoplastic inserts (such as</td>
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<td>sandwich structures reinforcement.</td>
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<td>has developed Uralane® 5774-A/C, a two</td>
</tr>
</tbody>
</table>

* Available as Eposert®

1. Edge close-out and panel reinforcement with Epocast® syntactics
2. Insert bonding with Epocast® syntactics
3. Insert potting with Epocast® syntactics and Uralane® adhesives
4. Skin repair with Araldite® and Epocast® systems
5. Panel forming with Epocast® syntactics
6. Panel bonding with Araldite® and Epibond® adhesives
7. Component bonding with Araldite®, Epibond® and Uralane® adhesives
Adhesives

Huntsman has developed a comprehensive range of extensively qualified adhesives providing solutions to engineers facing a wide variety of design issues. Araldite®, Epibond® and Uralane® adhesives provide superior joining and bonding solutions for plastics, metals, composite materials and other substrates.

Epoxy adhesives

> excellent adhesion to metals and thermoset composites
> high strength and high stiffness
> high creep resistance
> high fatigue resistance
> high temperature resistance
> excellent chemical resistance and long-term durability

Polyurethane adhesives

> excellent adhesion to most composite materials and plastics
> good adhesion to metals
> mechanical properties from rigid to flexible
> high fatigue resistance
> good long-term durability

Composites solutions for manufacturing, and maintenance and repair (MRO)

Huntsman proposes novel structural thermoset platform providing unique combination of mechanical and FST performance and enabling efficient production of interior composites parts with maximized weight savings. Huntsman also offers a range of laminating systems qualified for parts manufacturing and/or maintenance and repair, allowing fast operation as well as more structural repair operations.

Structural FST solution for interior Araldite® FST 40002 / 40003

> Meets Flame, Smoke and Toxicity (FST) according to FAR 25.853 / ABD 0031
> Halogen free
> Unfilled
> High mechanicals
> Compatible to high quality, user-friendly processes RTM and infusion

Structural repair solution Epocast® 52 A/B

> Designed for composite repair
> First system qualified by CACRC (Commercial Aircraft Composite Repair Committee)
> Good fiber wetting
> Low temperature vacuum-bag curing capabilities
> Good Hot-Wet strength
## Syntactics

### Ultra low density

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Work life</th>
<th>Curing class¹</th>
<th>Typical service temperature</th>
<th>Typical compressive strength</th>
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### One-component pre-mix frozen syntactic

- **Epocast® 1610-A1**  
  BMS 5-28, type 10  
  30 days  
  120  
  90  
  15  
  0.50

- **Epocast® 1661**  
  PWA 36757-2  
  8 h  
  180  
  180  
  60  
  0.60

### Two-component syntactic

- **Epocast® 1629-A/B**  
  BMS 5-28, type 10  
  30 days  
  120  
  90  
  15  
  0.50

- **Epocast® 1661**  
  PWA 36757-2  
  8 h  
  180  
  180  
  60  
  0.60

### Low density

<table>
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<tr>
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</table>

### One-component pre-mix frozen syntactic

- **Epocast® 1614-A1**  
  BMS 5-28, type 14, classes 1 and 2  
  8 h  
  120 - 180  
  180  
  100  
  0.75

### Two-component syntactic

- **Araldite® 252-A/B**  
  ASNA 4072, issue A  
  60  
  70  
  RT  
  70  
  35  
  0.65

- **Epocast® 1624-A/B**  
  BMS 5-28, type 26  
  60  
  70  
  RT  
  70  
  -  
  0.65

- **Epocast® 1626-A/B**  
  BMS 5-28, type 26, SMS 116201, type 3  
  10  
  70  
  RT  
  70  
  -  
  0.65

- **Epocast® 169-A/9615**  
  SS-9587, type 1  
  90 - 120  
  RT  
  70  
  15  
  0.68

- **Epocast® 169-A/9646**  
  BMS 5-28, type 14, classes 1 and 2  
  25 - 40  
  70  
  RT  
  70  
  55  
  0.68

- **Epocast® 167-A/B**  
  BMS 5-28, type 26  
  50 - 70  
  RT  
  90  
  40  
  0.70

- **Epocast® 1617-A/B**  
  BMS 5-28, type 17, RMS 027, type 5, class 3  
  60 - 90  
  RT  
  70  
  40  
  0.70

- **Epocast® 1618-D/B**  
  BMS 5-28, type 18, class 1  
  15  
  70  
  RT  
  90  
  35  
  0.70

- **Epocast® 1619-A/B**  
  BMS 5-28, type 19  
  20 - 50  
  70  
  RT  
  40  
  0.70

- **Epocast® 1622 FST A/B**  
  BMS 5-28, type 18, class 2, AIMS 08-08-001-04  
  15  
  70  
  RT  
  70  
  59  
  0.70

- **Epocast® 1633-A/B**  
  BMS 5-28, type 18, class 2, AIMS 08-08-001-04  
  2 - 5  
  70  
  RT  
  70  
  45  
  0.73

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* ISO 604  I  ** Eposert® = Preformed, cured syntactics. Other Eposert types can be made available on request  I  RT: Room Temperature = 23±2°C  I  CTE: Coefficient of Thermal Expansion  I  1: for RT curing
<table>
<thead>
<tr>
<th>Flame retardant properties</th>
<th>Available in</th>
<th>Key characteristics / applications</th>
<th>Packaging / Supply form</th>
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<tr>
<td>One-component pre-mix frozen syntactic</td>
<td>Epocast® 1614-A1</td>
<td>BMS 5-28, type 14, classes 1 and 2</td>
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<tr>
<td>Two-component syntactic</td>
<td>Araldite® 1641-A/B</td>
<td>ASNA 4072, issue A</td>
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<tr>
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<td>Araldite® 1644-A/B</td>
<td>AIMS 10-03-001</td>
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<tr>
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<td>Epocast® 1661</td>
<td>PWA 36757-2</td>
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<tr>
<td></td>
<td>Epocast® 1626-C1/D2</td>
<td>BMS 5-28, type 26, SMS 116201, type 3</td>
<td>RT</td>
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<tr>
<td></td>
<td>Epocast® 169-A/9615</td>
<td>SS-9587, type 1</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Epocast® 167-A/B</td>
<td>BMS 5-28, type 1</td>
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class post-cure will improve performance
## Syntactics

### Medium density

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Work life</th>
<th>Curing class¹</th>
<th>Typical service temperature</th>
<th>Typical compressive strength</th>
<th>Density</th>
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<tbody>
<tr>
<td>Conditions</td>
<td></td>
<td>RT</td>
<td>RT</td>
<td></td>
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<tr>
<td>Norms</td>
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<td>ASTM D-695</td>
</tr>
<tr>
<td>Unit</td>
<td>min</td>
<td>°C</td>
<td>°C</td>
<td>MPa</td>
<td>g/cm³</td>
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</table>

**Two-component syntactic**

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Work life</th>
<th>Curing class¹</th>
<th>Typical service temperature</th>
<th>Typical compressive strength</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epocast® 1656-A/B</strong></td>
<td>GM 4006, type 1, class B</td>
<td>50 - 90</td>
<td>RT</td>
<td>120</td>
<td>55</td>
<td>0.80</td>
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<tr>
<td><strong>Epocast® 1652-A/B</strong></td>
<td>GM 4006, type 1, class B, SS-9587, type 2, GMS 4005</td>
<td>30 - 60</td>
<td>RT</td>
<td>180</td>
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<tr>
<td><strong>Epocast® 89537-A/B</strong></td>
<td>BMS 5-28, type 7, class 2</td>
<td>70</td>
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<tr>
<td><strong>CG 1305-R/H</strong></td>
<td>BMS 5-28, type 7, class 1</td>
<td>&gt; 60</td>
<td>RT</td>
<td>180</td>
<td>60</td>
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### High density

<table>
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<tr>
<th>Product designation</th>
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<td>MPa</td>
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**One-component pre-mix frozen syntactic**

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Work life</th>
<th>Curing class¹</th>
<th>Typical service temperature</th>
<th>Typical compressive strength</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epocast® 938-A2</strong></td>
<td>BMS 5-28, type 12, classes 1 and 2, type 13, RMS 027, type X, SMS 116201</td>
<td>18 h</td>
<td>120 - 180</td>
<td>180</td>
<td>150</td>
<td>&lt; 1.4</td>
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<tr>
<td><strong>Epocast® 927-1</strong></td>
<td>RMS 027, type XV</td>
<td>&gt; 24 h</td>
<td>120 - 180</td>
<td>180</td>
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<td>1.15</td>
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<tr>
<td><strong>Epocast® 1627-2</strong></td>
<td>BMS 5-28, type 27</td>
<td>24 h</td>
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<td>180</td>
<td>200</td>
<td>1.80</td>
</tr>
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</table>

**Two-component syntactic**

<table>
<thead>
<tr>
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<tr>
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<th>Medium density</th>
<th>Syntactics</th>
<th>High density</th>
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<td>&gt; 24 h</td>
<td>120 - 180</td>
</tr>
<tr>
<td>Epocast® 1627-2</td>
<td>BMS 5-28, type 27</td>
<td>24 h</td>
<td>120 - 180</td>
</tr>
<tr>
<td>Epocast® 1511-A/B</td>
<td>BMS 5-28, type 3</td>
<td>40 - 60</td>
<td>RT</td>
</tr>
<tr>
<td>Epocast® 1636-A/B</td>
<td>BMS 5-28, type 6</td>
<td>120</td>
<td>RT</td>
</tr>
<tr>
<td>Epocast® 1635-A/B</td>
<td>BMS 5-28, type 31</td>
<td>&gt; 60</td>
<td>RT</td>
</tr>
</tbody>
</table>

**Others**: Eposert® = Preformed, cured syntactics. Other Eposert types can be made available on request.

**RT**: Room Temperature = 23±2°C

**CTE**: Coefficient of Thermal Expansion

1: for RT curing class post-cure will improve performance

*will improve performance*
# Adhesives

## Epoxy adhesives

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Mixed viscosity</th>
<th>Work life</th>
<th>Curing class</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conditions</strong></td>
<td>RT</td>
<td>RT</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Norms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unit</strong></td>
<td>mPa.s</td>
<td>min °C</td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

### One-component

- **Araldite® 204**  
  - ABR 2-0048, issue 1  
  - Mixed viscosity: 3,500,000  
  - Curing class: 120

### Two-component

- **Araldite® 1570 FST A/B**  
  - AIMS 10-04-006  
  - Mixed viscosity: 300,000  
  - Work life: 60  
  - Curing class: RT

- **Araldite® 2011**  
  - AIMS 10-04-020  
  - Mixed viscosity: viscous liquid  
  - Work life: 100  
  - Curing class: RT

- **Araldite® 2013**  
  - ABR 5-1158, issue 2  
  - Mixed viscosity: paste  
  - Work life: 65  
  - Curing class: RT

- **Araldite® 2015**  
  - ABR 2-0181  
  - Mixed viscosity: non-sag paste  
  - Work life: 35  
  - Curing class: RT

- **Araldite® 420-A/B**  
  - ASNA 4125, issue B  
  - Mixed viscosity: viscous liquid  
  - Work life: 60  
  - Curing class: RT

- **Araldite® AV 138M-1/HV 998**  
  - MSRR 9332  
  - Mixed viscosity: thixotropic  
  - Work life: 35  
  - Curing class: RT

- **Epibond® 1217-A/B**  
  - HMS 16-1068, CL 8B  
  - Mixed viscosity: paste  
  - Work life: 4 - 8  
  - Curing class: RT

- **Epibond® 420-A/B**  
  - BMS 5-107  
  - Mixed viscosity: semi-paste  
  - Work life: 70  
  - Curing class: RT

- **Epibond® 8543-C/B**  
  - BMS 5-123, type 1, class 3  
  - Mixed viscosity: non-sag paste  
  - Work life: 3  
  - Curing class: RT

- **Epibond® 1539-A/B**  
  - BMS 5-126, type 6, class 1  
  - Mixed viscosity: paste  
  - Work life: 120  
  - Curing class: RT

- **Epibond® 1534-A/B**  
  - BMS 5-126, type 2, class 1  
  - Mixed viscosity: paste  
  - Work life: 2,000  
  - Curing class: RT

- **Epibond® 1536-A/B**  
  - BMS 5-126, type 3, class 1  
  - Mixed viscosity: paste  
  - Work life: 2,500  
  - Curing class: RT

- **Epibond® 104-A/B**  
  - BS 201  
  - Mixed viscosity: paste  
  - Work life: 30 - 40  
  - Curing class: RT

- **Epibond® 1210-A/9615A**  
  - LAC 30-4639-0100  
  - Mixed viscosity: paste  
  - Work life: 50 - 75  
  - Curing class: RT

- **Epibond® 1210-A/B**  
  - LAC 40-4093, class B  
  - Mixed viscosity: soft paste  
  - Work life: 50 - 75  
  - Curing class: RT

- **Epibond® 1544-A/C**  
  - BMS 5-126, type 4, class 1, grade 2  
  - Mixed viscosity: semi-paste  
  - Work life: 10  
  - Curing class: RT

- **Epibond® 156-A/B**  
  - Mixed viscosity: soft paste  
  - Work life: 20 - 50  
  - Curing class: RT

- **Epibond® 1559-1-A/B**  
  - Mixed viscosity: qualification in progress  
  - Work life: 70,000  
  - Curing class: 6

- **Epibond® 1210-A/9861**  
  - LAC 30-4639-0200  
  - Mixed viscosity: semi-paste  
  - Work life: 35 - 60  
  - Curing class: RT

- **Epibond® 1565-A/B**  
  - Boeing D800-10411-1, PPD6-1  
  - Mixed viscosity: 25,000  
  - Work life: 720  
  - Curing class: 177

- **Epibond® 100 A/B**  
  - Mixed viscosity: Thixotropic  
  - Work life: 110  
  - Curing class: 90

- **Epibond® 8000 FR A/B**  
  - Mixed viscosity: Thixotropic  
  - Work life: 55  
  - Curing class: RT

---

1: for RT curing class post-cure will improve performance  
2: packaging not qualified  
RT: Room Temperature = 23±2°C  
PS: Polystyrene  
PC: Polycarbonate
<table>
<thead>
<tr>
<th>Typical service temperature</th>
<th>Typical lap shear strength (Al/Al)</th>
<th>Available in</th>
<th>Key characteristics / applications</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>90°C</td>
<td>15</td>
<td>10</td>
<td>• • foaming</td>
<td></td>
</tr>
<tr>
<td>60°C</td>
<td>15</td>
<td>5</td>
<td>• • self extinguishing adhesive: FAR/JAR/CS 25, app. F, part 1 and 5</td>
<td></td>
</tr>
<tr>
<td>60°C</td>
<td>25</td>
<td>8</td>
<td>• • tough</td>
<td></td>
</tr>
<tr>
<td>60°C</td>
<td>20</td>
<td>5</td>
<td>• • non sagging up to 5 mm</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>20</td>
<td>10</td>
<td>• • non sagging up to 10 mm, tough</td>
<td></td>
</tr>
<tr>
<td>70°C</td>
<td>35</td>
<td>5</td>
<td>• • tough adhesive</td>
<td></td>
</tr>
<tr>
<td>120°C</td>
<td>15</td>
<td>15</td>
<td>• • low out-gassing, gap-filling properties, high chemical resistance, good fatigue behaviour</td>
<td></td>
</tr>
<tr>
<td>65°C</td>
<td>15</td>
<td>3</td>
<td>• • translucent, fast setting</td>
<td></td>
</tr>
<tr>
<td>65°C</td>
<td>25</td>
<td>n.a.</td>
<td>• • tough adhesive, good peel strength</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>15</td>
<td>3</td>
<td>• • fast setting, 1:1 mixing ratio</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>15</td>
<td>5</td>
<td>• • high performance composite bonding</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>20</td>
<td>5</td>
<td>• • good properties in the presence of distilled water, salt water, JP-4, hydraulic fluids, etc</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>15</td>
<td>5</td>
<td>• • 1:1 mixing ratio, specifically formulated for bonding GFRP together or to other materials</td>
<td></td>
</tr>
<tr>
<td>90°C</td>
<td>15</td>
<td>5</td>
<td>• • good gap-filling properties, high compressive strength</td>
<td></td>
</tr>
<tr>
<td>90°C</td>
<td>15</td>
<td>n.a.</td>
<td>• • ideal for spacecraft applications with low out-gassing</td>
<td></td>
</tr>
<tr>
<td>90°C</td>
<td>15</td>
<td>2</td>
<td>• • flexible bond line</td>
<td></td>
</tr>
<tr>
<td>90°C</td>
<td>20</td>
<td>n.a.</td>
<td>• • self-extinguishing, early green strength, gap-filling properties</td>
<td></td>
</tr>
<tr>
<td>120°C</td>
<td>15</td>
<td>15</td>
<td>• • good electrical properties</td>
<td></td>
</tr>
<tr>
<td>120°C</td>
<td>20</td>
<td>n.a.</td>
<td>• • structural adhesive</td>
<td></td>
</tr>
<tr>
<td>150°C</td>
<td>20</td>
<td>15</td>
<td>• • ideal for spacecraft applications with low out-gassing</td>
<td></td>
</tr>
<tr>
<td>170°C</td>
<td>7</td>
<td>n.a.</td>
<td>• • long work life, high temperature performance</td>
<td></td>
</tr>
<tr>
<td>150°C</td>
<td>34</td>
<td>26</td>
<td>• • high temperature, long working time structural adhesive for composite bonding</td>
<td></td>
</tr>
<tr>
<td>80°C</td>
<td>27</td>
<td>9</td>
<td>• • structural adhesive for interior applications. FR &amp; FST meeting requirements of FAR 25.853</td>
<td></td>
</tr>
</tbody>
</table>
## Adhesives

### Polyurethane adhesives

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Mixed viscosity</th>
<th>Work life</th>
<th>Curing class¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>RT</td>
<td>RT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>mPa.s</td>
<td>min</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Uralane® 5754-A/B</td>
<td>6 000</td>
<td>12 - 18</td>
<td>RT</td>
<td></td>
</tr>
<tr>
<td>Uralane® 5759-G/D</td>
<td>BMS 5-105, type 3</td>
<td>paste, sprayable</td>
<td>4 - 8</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5772-A/B</td>
<td>GD 0-73668, type 1</td>
<td>semi-paste</td>
<td>15 - 20</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5773-A/B</td>
<td>GD 0-73668, type 2</td>
<td>semi-paste</td>
<td>25 - 45</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5774-A/C</td>
<td>BMS 5-105, type 5, AIMS 10-04-001, LES 1359</td>
<td>semi-paste</td>
<td>15 - 25</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5776-A/B</td>
<td>BS 201</td>
<td>semi-paste</td>
<td>35 - 45</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5779-A/B</td>
<td>BMS 5-105, type 6</td>
<td>non-flow paste</td>
<td>8 - 15</td>
<td>RT</td>
</tr>
<tr>
<td>Uralane® 5779-A80/B</td>
<td>BMS 5-105, type 6</td>
<td>non-flow paste</td>
<td>8 - 15</td>
<td>RT</td>
</tr>
</tbody>
</table>

¹: for RT curing class post-cure will improve performance

RT: Room Temperature = 23±2°C

PS: Polystyrene
PC: Polycarbonate

### Laminating systems for manufacturing, maintenance and repair

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Selected specifications</th>
<th>Typical mixed viscosity</th>
<th>Work life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>RT</td>
<td>RT</td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>mPa.s</td>
<td>min</td>
<td>°C</td>
</tr>
<tr>
<td>Epocast® 50-A1/946</td>
<td>BMS 8-201, type 4</td>
<td>2 400</td>
<td>20</td>
</tr>
<tr>
<td>Epocast® 50-A1/9816</td>
<td>BMS 8-201, type 3</td>
<td>2 400</td>
<td>65</td>
</tr>
<tr>
<td>Epocast® 54-A/B</td>
<td>AIMS 04-27-000-01</td>
<td>8 000</td>
<td>15 - 25</td>
</tr>
<tr>
<td>Araldite® LY 5052 / Aradur® 5052</td>
<td>AIMS 08-01-001, AIMS 08-02-001</td>
<td>800</td>
<td>130</td>
</tr>
<tr>
<td>Araldite® 501-A/B</td>
<td>ASNA 4047, issue B</td>
<td>3 500</td>
<td>90</td>
</tr>
<tr>
<td>Epocast® 35-A/ 927</td>
<td>BMS 8-214</td>
<td>7 000</td>
<td>4 - 5</td>
</tr>
<tr>
<td>Epocast® 52-A/B</td>
<td>AIMS 08-01-002-01, AIMS 08-02-002-01, BMS 8-301, AMS 2980</td>
<td>5 500</td>
<td>≥ 3.5 h</td>
</tr>
</tbody>
</table>

¹: for RT curing class post-cure will improve performance

RT: Room Temperature = 23±2°C

### FST system for interior part manufacturing

<table>
<thead>
<tr>
<th>Product designation</th>
<th>Process</th>
<th>Mixed viscosity</th>
<th>Curing class</th>
<th>Tg</th>
<th>Tensile Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>RT</td>
<td>RT</td>
<td>DMA, 2 K/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norm</td>
<td></td>
<td>ISO 6721</td>
<td>ISO 527</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>mPa.s</td>
<td>°C</td>
<td>°C</td>
<td>MPa</td>
<td></td>
</tr>
<tr>
<td>Araldite® FST 40002 / 40003</td>
<td>RTM, Infusion</td>
<td>700 - 800</td>
<td>120 - 180</td>
<td>270 - 280</td>
<td>2 900 - 3 100</td>
</tr>
</tbody>
</table>
### Polyurethane adhesives

<table>
<thead>
<tr>
<th>Typical service temperature</th>
<th>Typical lap shear strength (Al/Al)</th>
<th>Available in</th>
<th>Key characteristics / applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT, 80°C</td>
<td>EU, US</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Uralane®

- **5754-A/B**
  - Typical service temperature: 8°C, 12°C, 18°C
  - Work life: RT
  - Curing class: 1
  - Typical service temperature: 80°C
  - 4 kPa, 1 h
  - Ideal for PS, PC, acrylic, without surface preparation

- **5759-G/D**
  - Typical service temperature: 4°C, 8°C
  - Work life: RT
  - Curing class: 3
  - Typical service temperature: 80°C
  - 5 kPa, 2 h
  - Sprayable adhesive, for most plastics, flame retardant

- **5772-A/B**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 1
  - Typical service temperature: 120°C
  - 15 kPa, 2 h
  - High peel strength

- **5773-A/B**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 2
  - Typical service temperature: 120°C
  - 25 kPa, 45°C, 7 h (at 120°C)
  - Heat-resistant bonds between materials with different thermal expansion coefficients

- **5774-A/C**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 5
  - Typical service temperature: 80°C
  - 15 kPa, 10 h
  - High peel strength, impact resistant, flame retardant

- **5776-A/B**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 6
  - Typical service temperature: 80°C
  - 5 kPa, 2 h
  - High peel strength

- **5779-A/B**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 6
  - Typical service temperature: 70°C
  - 8 kPa, n.a.
  - UV & humidity resistant, flame retardant, 1:1 mixing ratio, white colour

- **5779-A80/B**
  - Typical service temperature: 0°C, 7°C (at 120°C)
  - Work life: RT
  - Curing class: 6
  - Typical service temperature: 70°C
  - 8 kPa, n.a.
  - UV & humidity resistant, flame retardant, 1:1 mixing ratio, beige colour

#### Epocast®

- **50-A1/946**
  - Typical service temperature: 2°C
  - Work life: 400°C
  - Curing class: 4
  - Typical service temperature: 90°C
  - Easy-to-handle, for the production of flame-retardant composites

- **50-A1/9816**
  - Typical service temperature: 2°C
  - Work life: 65°C
  - Curing class: 3
  - Typical service temperature: 90°C
  - Easy-to-handle, for the production of flame-retardant composites

- **54-A/B**
  - Typical service temperature: 8°C, 0°C
  - Work life: 15 to 25°C
  - Curing class: 8
  - Typical service temperature: 90°C
  - Good high-temperature properties

- **501-A/B**
  - Typical service temperature: 3°C
  - Work life: 90°C
  - Curing class: 3
  - Typical service temperature: 120°C
  - Good mechanical strength

- **35-A/927**
  - Typical service temperature: 7°C
  - Work life: 4 to 5°C
  - Curing class: 7
  - Typical service temperature: 150°C
  - Good high-temperature properties

- **52-A/B**
  - Typical service temperature: 5°C
  - Work life: ≥ 3.5 h
  - Curing class: 5
  - Typical service temperature: 90°C
  - Good hot-wet strength, listed in PRI-QPL-AMS 2980 for composite repair, CACRC qualified (Commercial Aircraft Composite Repair Committee)

### Araldite®

- **FST 400002 / 400003**
  - Typical service temperature: 70°C, 90°C
  - Work life: 800°C, 100°C
  - Curing class: 2
  - Typical service temperature: 270°C, 280°C
  - Designed for structural interior applications, filler-free and halogen-free composite system, fast curing capability (ca 5 min / 150°C)

### Araldite® LY 5052 / Aradur® 5052

- **LY 5052 / 5052**
  - Typical service temperature: 80°C
  - Work life: 130°C
  - Curing class: 8
  - Typical service temperature: 100°C
  - Translucent, fast setting

### Araldite® 501-A/B

- **501-A/B**
  - Typical service temperature: 3°C
  - Work life: 90°C
  - Curing class: 3
  - Typical service temperature: 120°C
  - Good mechanical strength

### Epocast®

- **35-A/927**
  - Typical service temperature: 7°C
  - Work life: 4 to 5°C
  - Curing class: 7
  - Typical service temperature: 150°C
  - Good high-temperature properties

### Epocast®

- **52-A/B**
  - Typical service temperature: 5°C
  - Work life: ≥ 3.5 h
  - Curing class: 5
  - Typical service temperature: 90°C
  - Good hot-wet strength, listed in PRI-QPL-AMS 2980 for composite repair, CACRC qualified (Commercial Aircraft Composite Repair Committee)
With innovation

Every day, all over the world, our Technical Competence centers engage in intensive research and development focusing on one goal: to deliver innovative solutions by working hand-in-hand with our business partners. Together through a continual exchange of ideas, supported by an experienced team of sales and technical specialists, we strive to deliver innovative solutions.

We track both new market expectations and changing regulations. Protection of the environment, as well as health and safety are paramount concerns, playing an integral part in our development projects.

By providing certified technologies, combined with high quality and reliability, our chemists and experts bring enhanced value to our customers, ensuring their success.

With customer intimacy

We market a unique product portfolio and a broad range of forward-looking solutions for our customers. Customers and partners benefit from an advanced level of service in:

> product development and quality
> product trials in-house and with customers
> customer seminars and training
> trouble-shooting and problem-solving

Partnership with our customers is more than simply “putting them first”. It requires long-term commitment to forging close relationships that create synergies of knowledge, security and adaptability to create a successful, shared future.

With care

Sustainability is a fundamental part of our corporate and business strategy. We see a better world in which our innovations help reduce consumption of natural resources and improve the quality of life for people everywhere. We are identifying the long-term trends that affect our markets and looking to see how products and applications can play a part in supporting and providing solutions to the challenges those markets face.
We value your challenge
Huntsman Advanced Materials

Our Advanced Materials division is a leading global chemical solutions provider with a long heritage of pioneering technologically advanced epoxy, acrylic and polyurethane-based polymer products.

Our capabilities in high-performance adhesives and composites, delivered by more than 2,000 associates, serve over 2,000 global customers with innovative, tailor-made solutions and more than 1,500 products which address global engineering challenges.

Global presence – 13 manufacturing sites

Mobile Apps from Huntsman Advanced Materials

Download our mobile App and easily find the product to fulfill your need.