Advanced Materials

High-Performance Materials for the Aerospace Industry

Adhesives, Syntactics and Laminating Systems Selector Guide

Huntsman
Enriching lives through innovation

Krayden, Inc.
Authorized Distributor
1-800-448-0406
About Huntsman Advanced Materials

Huntsman Advanced Materials is a leading global supplier of synthetic and formulated polymer systems for customers requiring high-performance materials which outperform the properties, functionality and durability of traditional materials. Over 2,300 associates at 13 locations worldwide work to fulfill this promise every day.

We enjoy a long heritage of pioneering technological excellence and offer a unique and wide range of innovative and tailor-made solutions to over 9,000 customers in more than 90 different countries. We maintain leading positions in our key markets through product differentiation, technical support and customer focus. The primary markets we serve include:

- Aerospace & Defense
- Construction
- Consumer-DIY
- Electrical Engineering
- Electronics
- Paint & Coatings
- Sport & Leisure
- Wind Energy

Huntsman’s Commitment to REACH & Sustainability

Huntsman is committed to supporting global health, safety and environmental efforts, including new REACH regulations. We have teams of experts in each business area to coordinate our response to complex REACH requirements and continue to work with customers to ensure that their applications are REACH compliant. We have also established web-based portals for customers and suppliers as a conduit through which we communicate REACH-related updates.

In addition to our REACH activities, Huntsman is dedicated to Sustainable Chemistry. We have established a strategic business unit wholly devoted to developing new chemistries and processes that can help address the world’s most pressing environmental needs. By leveraging our core competencies, we can produce sustainable products that benefit our customers, consumers and the planet as a whole.

To learn more, please visit www.huntsman.com/reach
Huntsman Advanced Materials is a leading global supplier of advanced, high-performance materials for the fabrication, assembly and repair of interior and exterior aircraft components. For over 60 years, leading aerospace companies have turned to Huntsman Advanced Materials for innovations in syntactics, adhesives and laminating systems.

Huntsman’s versatile adhesives and syntactics are used by aircraft manufacturers who serve commercial airlines and general aviation throughout the world. The adhesives and syntactics are qualified to Boeing, Airbus, Goodrich, Gulfstream, Bombardier, Bell, Rohr and other OEM specifications and are included as approved repair materials in Structural Repair Manuals and Service Bulletins. 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
- Toughened
- Flexibility
- Low coefficient of thermal expansion
- High resistance to corrosion and fatigue
- Flame retardancy
- Halogen-free formulations
- Noise and vibrational damping
Syntactics, Adhesives and Laminating Systems

Huntsman Advanced Materials supplies the aerospace market with a full range of lightweight, durable syntactics as well as high-strength epoxy and polyurethane adhesives and epoxy laminating systems. Each of the materials in the Huntsman aerospace product line is formulated to meet the specific handling and performance requirements of aircraft manufacturers as well as repair and modification facilities.

Ultra-Low Density, Two-Component Syntactics

Epocast® 1628 A/B
Flame Retardant Syntactic
Trowellable and extrudable pale yellow epoxy paste with good compressive strength that can be sanded or machined after a room-temperature cure. Used for honeycomb edge reinforcing. Qualified to Boeing BMS 5-28, Type 28.

Epocast® 1629 A/B
Rapid-Setting Syntactic
Flame-retardant, easy-to-spread light tan epoxy paste with good slump resistance. Sands and machines readily after a room temperature cure. Used for edge reinforcement of honeycomb. Qualified to Boeing BMS 5-28, Type 9 / Mitsubishi M1074, Type / Raytheon BS 23818, Class 1, Type 1.

Low-Density, Two-Component Syntactics

Araldite® 252
High-Temperature Syntactic
Gap-filling, sandable light blue epoxy paste that cures at room temperature. Used for reinforcing and edge filling honeycomb sandwich structures. Huntsman standard certification.

Epocast® 169 A/946
Pourable Syntactic
Easy to use, reddish-brown epoxy syntactic suitable for core filling and reinforcing honeycomb. Qualified to Sikorsky SS 9440.

Epocast® 169 A/9615
Carvable, Wood-Like Syntactic
General-purpose reddish-brown epoxy semi-paste with good dimensional stability under changing humidity conditions. Cures at room temperature to a carvable, wood-like material. Used for core filling and honeycomb reinforcement. Qualified to Sikorsky SS 9587, Type 1 / Mitsubishi M1129 Class A.

Epocast® 169 A/9646
High-Strength Syntactic
Pourable reddish brown epoxy that cures at room temperature to a wood-like material that can be carved, sanded and machined. Dimensionally stable under changing humidity conditions, it is ideal for core filling and honeycomb reinforcement. Huntsman standard certification.
Epocast® 1617 A/B
Flame Retardant Syntactic
Low-density, room-temperature cure, off-white epoxy paste produces flame retardant, high-strength edge seals on honeycomb composite structures. Qualified to ROHR RMS 027, Type 5, Class 3 / Boeing BMS 5-28, Type 17 / Bombardier SMS 41, Type 3, Issue 6 / Gamesa Aeronautica GMS 124047 Issue 3 / Alenia MDL08055.

Epocast® 1618 D/B
Fast-Setting Syntactic
Flame-retardant, low-flow, extrudable, off-white epoxy syntactic with good compressive strength that cures at room temperature. Suitable for insert potting in honeycomb structures. Qualified to Boeing BMS 5-28, Type 18, Class 1.

Epocast® 1619 A/B
Extrudable Syntactic
Flame-retardant, off-white epoxy syntactic that can withstand exposure to water, fungus and most aircraft fluids. Used for insert potting. Qualified to Boeing BMS 5-28, Type 19.

Epocast® 1626 A/B
Toughened Syntactic
Low-flow, brown viscous epoxy paste that retains strength and resists cracking when exposed to impact, vibration and environmental aging. Used for core filling, edge sealing and fastener potting in honeycomb structures. Qualified to Boeing BMS 5-28, Type 26 / Bell Textron 299-947-097, Type 5.

Epocast® 1626 C1/D2
Impact-Resistant Syntactic
Toughened, viscous brown epoxy paste that can resist cracking even when exposed to impact and vibration. Used for core filling, edge sealing, bushing and fastener potting in honeycomb structures. Qualified to Boeing BMS 5-28, Type 26, Class 2 / Spirit SMS 116201, Type 3.

Epocast® 1633 A/B
Fast Repair Syntactic
Extrudable, flame-retardant, halogen-free epoxy syntactic that sets in two to five minutes and exhibits high compressive strength. Available in different colors. Qualified to Boeing BMS 5-28, Type 18, Class 2.

Epocast® 1638 A/B
Fast-Setting Syntactic
Flame-retardant, extrudable off-white epoxy syntactic with high compressive strength. Contains no antimony trioxide. Used for honeycomb reinforcement including fastener potting and edge filling. Huntsman standard certification.
Medium-Density, Two-Component Syntactics

**CG 1305 A/B**
High-Strength Syntactic
Flame-retardant, pourable off-white epoxy syntactic that cures at room temperature. Used for reinforcing high-stress areas in honeycomb and other potting applications. Qualified to Boeing BMS 5-28, Type 7, Class 1 / Spirit SMS 116201, Type 1.

**Epocast® 1652 A/B**
High-Temperature Syntactic
High-strength, light-tan epoxy syntactic that exhibits good elevated temperature performance after a room-temperature cure. Used for core filling and splicing honeycomb composite structures. Qualified to Grumman GM 4006, Type 1, Cl B FM1 / Vought VM 4006, Type 1 CLD FM1 / Pratt & Whitney CPW 505.

**Epocast® 89537 A/B**
Glass Fiber-Reinforced Syntactic
Sag-resistant, flame retardant, gray epoxy paste that performs at temperatures of up to 350°F (177°C) after a room-temperature cure. Designed for reinforcing fasteners and attachments, core splicing and edge reinforcing. Qualified to Boeing BMS 5-28, Type 7, Class 2 / Lockheed Martin STM M1069 / Airbus Espana I+D-N-200-Z-18.115/2.

High-Density, Two-Component Syntactics

**Epocast® 1656 A/B**
Long Work Life Syntactic
Light-tan epoxy syntactic that maintains good physical performance characteristics at elevated temperatures of up to 350°F (177°C) after curing at 77°F (25°C). Used for core splicing and strengthening radii and corners in reinforced plastic structures. Qualified to Grumman GM 4006, Type 1, Class B FM1 / Vought VM 4006, Type 1 CLD FM1 / Spirit SMS 116201, Type 1.

**Epocast® 1635 A/B**
High-Strength Syntactic
High-performance, aluminum-filled blue-gray syntactic that exhibits outstanding compressive strength and dynamic fatigue resistance under load at elevated temperatures. Ideal for refilling mis-drilled holes in composite parts. Qualified to Boeing BMS 5-28, Type 31.

**Epocast® 1636 A/B**
Flame Retardant Syntactic
Flame-retardant, pourable gray epoxy syntactic with high strength and a long work life. Easy to handle and machine after a room-temperature cure. Used for reinforcing honeycomb structures. Qualified to Boeing BMS 5-28, Type 6 / Gulfstream GMS 4005, Type 1, Class C FMII SCN 7.
Low-Density, One-Component Syntactics

Epocast® 1610-A1
Flame Retardant Syntactic
Non-flow, off-white epoxy syntactic with a 30-day work life at room temperature. Requires elevated temperature cure and can be co-cured with composites in 90 minutes. Used for insert potting and blocks in honeycomb panels. Qualified to Boeing BMS 5-28, Type 10 / C & D Aerospace CDM212-00 Type 13.

Epocast® 1661
Heat-Resistant Syntactic
Off-white, one-component, frozen epoxy paste that requires an elevated-temperature cure. Used for insert potting, edge filling and reinforcing honeycomb core. Qualified to Pratt & Whitney PWA 36757.

Medium-Density, One-Component Frozen Syntactics

Epocast® 1614 A1
High-Compressive Strength Syntactic
Thixotropic, reddish-brown structural epoxy syntactic with high-compressive strength. Requires an elevated temperature cure. Used for reinforcing honeycomb core and panel edges for high-service temperatures. Also available in a pre-formed, cured insert – Eposert™ Syntactic Insert. Qualified to Boeing BMS 5-28 Type 14 Class 1 & 2 / Boeing MMS 347 Type II ADD 1 / ROHR RMS 027, Type XII / Sikorsky SS 9587 Type III / Vought 207-8-417 / Pratt & Whitney PWA 452 / HAWKER EN-106G309 ISS 3 / Lockheed Martin STM M1067 Type 1 & Type 2 / Others see page 12.

High-Density, One-Component Frozen Syntactics

Epocast® 938-A2
Flame Retardant Syntactic
Extrudable off-white epoxy syntactic with high compressive strength at elevated temperature after full cure. Used for reinforcing honeycomb core sandwich structures. Qualified to Boeing BMS 5-28 Type 12, Class 1 & 2 / Boeing BMS 5-28 Type 13 / ROHR RMS 027 Type XIII / Spirit SMS 116201 Type 2 / Vought VM4006 Type II Class B Form 1 Amend 2.

Epocast® 1627-2
Low CTE Syntactic
High-performance, extrudable gray epoxy syntactic with outstanding compressive strength at temperatures of up to 350ºF (177ºC). Designed for fabricating and reinforcing composite structures. Qualified to Boeing BMS 5-28, Type 27 / Airbus/Coasa RP1021209 Issue 2.
### Syntactics (Typical Properties)

<table>
<thead>
<tr>
<th>Product</th>
<th>OEM Specifications</th>
<th>Consistency at 77°F</th>
<th>Gel Time, min at 77°F</th>
<th>Mix Ratio (R:H by Weight)</th>
<th>Suggested Cure Schedule °F</th>
<th>Max. Service Temp °F</th>
<th>Compressive Strength, psi at 77°F</th>
<th>Density, g/cc</th>
<th>Flame Retardant</th>
<th>Color</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ultra-Low Density, Two-Component Syntactics</strong></td>
<td></td>
<td></td>
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<tr>
<td>Epocast® 1628 A/B</td>
<td>Boeing BMS 5-28 Ty 26</td>
<td>Extruded paste</td>
<td>80-80 (gram mass)</td>
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<td>7 days at 77°F or 1 hr at 125°F</td>
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<td>0.55</td>
<td>Yes</td>
<td>Pale yellow</td>
<td>Working packs</td>
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<tr>
<td>Epocast® 1629 A/B</td>
<td>Boeing BMS 5-28 Ty 3</td>
<td>Paste</td>
<td>70 (50 gram mass)</td>
<td>100:70</td>
<td>7 days at 77°F or 1 hr at 125°F</td>
<td>Not Determined</td>
<td>3,000</td>
<td>0.48</td>
<td>Yes</td>
<td>Light tan</td>
<td>Working packs</td>
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</tbody>
</table>

| **Low-Density, Two-Component Syntactics** | | | | | | | | | |
| Araldite® 252 | | Non-flow paste | 80 (100 gram mass) | 100:80 | 3 days at 77°F or 1 hr at 160°F | 176 | 5,200 | 0.65 | Yes | Light blue | Working packs |
| Epocast® 1635 A/B | Sikkens SS2557 Ty 1 / Mitsubishi M129 C1 A | Semi-paste | 80-120 (100 gram mass) | 100:80 | 24 hrs at 75°F or 2 hrs at 150°F | Not Determined | 2,000 | 0.68 | No | Red-brown | Working packs |
| Epocast® 1637 A/B | | Paste | 25-40 (gram mass) | 100:25 | 24 hrs at 75°F or 2 hrs at 150°F | Not Determined | 8,000 | 0.68 | No | Red-brown | Working packs |
| Epocast® 1645 A/B | | Paste | 10-15 (gram mass) | 100:10 | 12 hrs at 75°F or 1-3 hrs at 150°F | Not Determined | 3,500 | 0.68 | No | Red-brown | Working packs |
| Epocast® 1671 A/B | Boeing BMS 5-28 Ty 17 / ROHR RMS 202 Ty 5 C3 / Bombardier SMI 41 Ty 3 | Paste | 60-90 (50 gram mass) | 100:60 | 7 days at 77°F or 1 hr at 125°F | Not Determined | 5,500 | 0.70 | Yes | Off-white | Working packs |
| Epocast® 1681 D/B | Boeing BMS 5-28 Ty 18 C1 | Paste | 15 (57 gram mass) | 100:15 | 7 days at Room Temp or 5 hrs at 125°F | Not Determined | 5,000 | 0.70 | Yes | Off-white | Working packs |
| Epocast® 1683 A/B | Boeing BMS 5-28 Ty 19 | Paste | 20-60 (50 gram mass) | 100:20 | 7 days at Room Temp or 5 hrs at 125°F | Not Determined | 5,500 | 0.70 | Yes | Off-white | Working packs |
| Epocast® 1685 A/B | Boeing BMS 5-28 Ty 26 / Bell Textron 299-947-029 Ty 5 | Paste | 60 (50 gram mass) | 100:60 | 7 days at 77°F or 1 hr at 160°F | Not Determined | NA | 0.65 | Yes | Brown | Working packs |
| Epocast® 1686 C1/ D2 | Boeing BMS 5-28, Ty 3 C2 / Spirit SMI 156201, Ty 5 | Paste | 13 (87 gram mass) | 100:13 | 7 days at 77°F or 1 hr at 160°F | Not Determined | NA | 0.69 | No | Red-brown | 450 ml cartridge |
| Epocast® 1688 A/B | Boeing BMS 5-28 Ty 18 C1 | Paste | 5-12 (7 gram mass) | 100:5-12 | 3 days at 77°F or 5 hrs at 125°F | Not Determined | 6,500 | 0.73 | Yes | Light blue (available in different colors) | 200 ml & 504 cartridge |
| Epocast® 1689 A/B | Boeing BMS 5-28 Ty 18 C1 | Paste | 12-25 (50 gram mass) | 100:12-25 | 24 hrs at Room Temp or 5 hrs at 125°F | Not Determined | 7,600 | 0.70 | Yes | Off-white | Working packs |

| **Medium-Density, Two-Component Syntactics** | | | | | | | | | |
| CIG 1305 A/B | Boeing BMS 5-28, Ty 7 / Spirit SMI 15401, Ty 1 | Poured | >80 (gram mass) | 100:80 | 7 days at 77°F or 1 hr at 200°F | 350 | 9,000 | 0.80 | Yes | Off-white | Working packs |
| Epocast® 1652 A/B | Grumann G40 4065 Ty 1 / 9 FM 1 / Sikkens SS2587 Ty 2 / Commers MB-10-025 / Gulfstream GMS 4005 Ty 1 / CEM FM 1 / SCN7 / Allied FC5305 / Martin STM-P-M134 / HURL-El-Horseman H512D01-010 | Semipaste | 40-40 (100 gram mass) | 100:40 | 7 days at 77°F or 2 hrs at 150°F | 350 | 8,000 | 0.80 | No | Light tan | Working packs |
| Epocast® 1655 A/B | Grumann G40 4065 Ty 1 / 9 FM 1 / Sikkens SS2587 Ty 2 / Behr & Whitney CPV 905 | Paste | 50-50 (100 gram mass) | 100:50 | 7 days at 77°F or 2 hrs at 150°F | 350 | 8,000 | 0.80 | No | Light tan | Working packs |
| Epocast® 85937 A/B | Boeing BMS 5-28 Ty 3 C2 / Lockheed Martin STM 10169 / Airbus España I+D-N-200-2-115/12 | Soft paste | 70 (100 gram mass) | 100:70 | 7 days at 77°F or 1 hr at 200°F | 350 | 8,800 | 0.80 | Yes | Gray | Working packs |

| **High-Density, Two-Component Syntactics** | | | | | | | | | |
| Epocast® 1685 A/B | Boeing BMS 5-28 Ty 31 | Soft paste | >100 (gram mass) | 100:100 | 7 days at 77°F or 2.5 hrs at 200°F | 350 | 15,000 | 1.80 | No | Blue-gray | 50 ml cartridge and working packs |
| Epocast® 1686 A/B | Boeing BMS 5-28 Ty 6 / Gulfstream GMS 4005 Ty 1 / CEM FM 1 / SCN7 | Poured | 120 (50 gram mass) | 100:120 | 7 days at 77°F or 1 hr at 200°F | 350 | 15,000 | 1.72 | Yes | Gray | Working packs |

| **Low-Density, One-Component Frozen Syntactics** | | | | | | | | | |
| Epocast® 1610-A1 | Boeing BMS 5-28 Ty 10 / C&D Aerospace CCM1212-00 Ty 13 | Non-poured paste | 30 days after thaw | N/A | 1 hr at 200°F | 350 | 2,400 | 0.50 | Yes | Off-white | Working packs and pallets |
| Epocast® 1661 | Pratt & Whitney PWA 2817 | Paste | 8 hrs (100 gram mass) after thaw | N/A | 1 hr at 350°F or 1.5 hrs at 250°F | 350 | 9,000 | 0.60 | No | Off-white | Pallets |

| **Medium-Density, One-Component Frozen Syntactics** | | | | | | | | | |
| Epocast® 1614 A1 | Boeing BMS 5-28 Ty 14 C1 & 2 / Boeing MMS 947 TY II / ROHR RMS 202 Ty 11 X / Sikkens SS 9467 TY II / Boeing BMS 452 / HARKEN EN-10662303 ISS 3 / Lockheed Martin STM-M001 TY 2 / Others | Paste | 8 hrs after thaw | N/A | 1 hr at 350°F or 1.5 hrs at 250°F | 350 | 14,500 | 0.75 | Yes | Red-brown | Working packs |

| **High-Density, One-Component Frozen Syntactics** | | | | | | | | | |
| Epocast® 938-A2 | Boeing BMS 5-28 Ty 12, 16 & 18 / Boeing BMS 5-28 XS Ty II / Spirit SMC 116101 Ty 2 / Boeing/Umico 4140 Ty 1 / BFM 1 FM 1 AM 2 | Extruded paste | 18 hrs (100 gram mass) after thaw | N/A | 1 hr at 350°F or 1.5 hrs at 250°F | 350 | 22,000 | <1.40 | Yes | Off-white | 6 oz & 12 oz cartridge and working packs |
| Epocast® 1627-X | Boeing BMS 5-28 Ty 27 / Airbus/Coasa R/PT121200 ISS 2 | Extruded paste | 24 hrs after thaw | N/A | 1 hr at 350°F | 350 | 30,000 | 1.80 | No | Gray | 6 oz & 32 oz cartridge and pallets |

* Certain may be accelerated with heat.
Epoxy Adhesives

Araldite® AV 8504/TDT 177-27 Thixotropic Adhesive
Fast curing, meter/mix dispensable black epoxy adhesive that produces high-strength, resilient bond lines on a variety of substrates. Well suited for panel pin bonding. Huntsman standard certification.

Araldite® EP 1000 A/B Nano-Toughened Adhesive
Translucent epoxy adhesive paste that can withstand exposure to aviation fuels and hydraulic fluids. Features very high lap shear strength at temperatures up to 250°F (121°C). Well suited for bonding metals, composites and dissimilar materials. Huntsman standard certification.

Araldite® 1570 FST A/B Flame-Retardant Adhesive

Epibond® 104 A/B Non-Flow Paste Adhesive
Gap-filling, sag-resistant, off-white epoxy paste that provides good adhesion on metals, plastics and rubber. Suitable for edge sealing and vibration dampening. Huntsman standard certification.

Epibond® 156 A/B “Wipe-on” Paste Adhesive
Easy-to-apply, off-white epoxy paste with good electrical properties and adhesion. Particularly suitable as pore filler for composite, plastic and wood surfaces. Huntsman standard certification.

Epibond® 420 A/B Toughened Adhesive
Durable, tough, high-strength, blue-green epoxy adhesive suitable for a wide variety of metal, honeycomb and composite bonding applications. Qualified to Boeing BMS 5-107, Class 1.

Epibond® 1210 A/B Multi-Purpose Adhesive
Non-flow, room-temperature cure, tan epoxy adhesive with a long work life. Its low outgassing properties make it particularly suitable for spacecraft applications. Qualified to Sundstrand CM34.40-38-01.

Epibond® 1210 A/9615 A Multi-Purpose Adhesive
Versatile, tan epoxy adhesive that cures at room temperature and can withstand exposure to jet fuel and water. For bonding metal, wood, glass, ceramics and plastics. Qualified to Lockheed Martin LAC 30-4639-0100.

Epibond® 1210 A/9861 Multi-Purpose Adhesive
Non-flow, room-temperature cure tan epoxy adhesive with a long work life. Its low outgassing properties make it particularly suitable for spacecraft applications. Suitable for bonding metal, wood, glass, ceramics and some plastics. Faster curing than Epibond® 1210 A / 9615 A adhesive. Qualified to Lockheed Martin LAC 30-4639-0200 / Loral 23-P12027-0003 / SpectroLab 044418.

Epibond® 1217 A/B Fast-Setting Adhesive
Fast-cure, high-strength translucent epoxy suitable for joining steel, aluminum, wood, ceramics and plastic substrates. Qualified to Boeing HMS 16-1068, Class 8B / Kearfott Y105A053-101 / MD Helicopters MDM 16-1068 CL 8B.

Epibond® 1534 A/B Composite Repair Adhesive
High-performance amber epoxy adhesive that can withstand exposure to distilled water, salt water, jet fuel and hydraulic fluids. For bonding fiberglass-reinforced polyesters, metals and dissimilar substrates.

Epibond® 1536 A/B Plastic Bonding Adhesive
High-strength amber epoxy adhesive with a two-hour work life, suitable for bonding composite panels together and joining other materials. Qualified to Boeing BMS 5-126, Type III, Class 1 GR B.

Epibond® 1539 A/B Composite Repair Adhesive
High-strength, amber epoxy adhesive for bonding polyesters, fiberglass-reinforced plastics and metals. Qualified to Boeing BMS 5-126, Type VI, Class 1 GR B.

Epibond® 1539 A/B-10 Composite Repair Adhesive
High-strength, blue epoxy adhesive for bonding polyesters, fiberglass-reinforced plastics and metals. Qualified to Boeing BMS 5-25 Type 2, Gr 1.

Epibond® 1544 A/C Flame Retardant Adhesive
Low-flow, gap-filling, off-white epoxy adhesive that develops early green strength. For bonding dissimilar materials including plastics, metals and composite laminates used in aircraft interiors that must meet FAR 25.853. Qualified to Boeing BMS 5-126, Type IV, Class 1 GR B.

Epibond® 1544 A-71/D Flame Retardant Adhesive
Low-flow, gap-filling white epoxy adhesive that develops early green strength. For joining dissimilar materials including plastics, metals and composite laminates used in aircraft interiors that must meet FAR 25.853. Qualified to Boeing BMS 5-126 Type IV Class 4 GR B / Heath Tecna HMS AS-001 Type 1 Class 1.
Epibond® 1544 A-82/D
Flame Retardant Adhesive
Low-flow, gap-filling beige epoxy adhesive that develops early green strength. For joining dissimilar materials including plastics, metals and composite laminates used in aircraft interiors that must meet FAR 25.853. Qualified to Boeing BMS 5-126 Ty IV Cl 4 GR B / Gamesa GMS 124050 Iss 3.

Epibond® 1559-1 A/B
Fast-setting Adhesive
Flame retardant, fast-setting, light gray epoxy adhesive that develops handling strength in ten minutes (even at cold temperatures) and cures to the touch after one hour at 77°F (25°C). For floor panels and other interior parts that must comply with FAR 25.853. Huntsman standard certification.

Epibond® 1565 A/B
High-Temperature Adhesive
Dark amber thixotropic epoxy adhesive with excellent performance properties at temperatures up to 350°F (177°C). For bonding metals, glass, ceramics, wood and most plastics. Qualified to Boeing D800-10411-1 (PDD 6-1).

Epibond® 8543 C/B
Low-Temperature Cure Adhesive
Sag-resistant, fast-setting gray epoxy adhesive that cures in as little as two hours at temperatures as low as 45°F (7°C). For bonding metal and plastics. Qualified to Boeing BMS 5-123, Type 1, Class 3.

Fastweld™ 10
Fast-Setting Adhesive
Rapid-setting, two-component gray epoxy adhesive paste offering a convenient one-to-one mixing ratio by volume or weight. Produces strong bonds within a short time. Particularly suitable for bonding small parts and for repair work. Huntsman standard certification.

Polyurethane Adhesives

Uralane® 5754 A/B
Clear Adhesive
High peel strength polyurethane adhesive for producing clear bonds on acrylic and other polymers without requiring special surface preparation. For bonding plastics and metals used in interior aircraft assemblies and placards. Huntsman standard certification.

Uralane® 5759 G/D
Flame Retardant Adhesive
Thixotropic, sprayable, off-white polyurethane adhesive for applications requiring high-bond strength on engineering thermoplastics. For aircraft interior applications with stringent flammability requirements. Qualified to Boeing BMS 5-105, Type 3.

Uralane® 5772 A/B
Heat-Resistant Adhesive
Tough, dark amber polyurethane adhesive which can provide bonds with high shear and peel strengths between metals and dissimilar materials. Suitable for temperatures up to 250°F (121°C). Huntsman standard certification.

Uralane® 5773 A/B
High-Strength Adhesive
Durable, dark amber polyurethane adhesive with high peel strength at temperatures up to 250°F (121°C). For bonding metal substrates and thermoplastics. Huntsman standard certification.

Uralane® 5774 A/C
Thermoplastic-Bonding Adhesive
Flame retardant beige polyurethane adhesive that can be handled after four hours at room temperature. Produces tough, impact-resistant bonds on hard-to-join thermoplastics and on metal substrates. Qualified to Boeing BMS 5-105, Type 5 / Heath Tecna HMS A4-001 Type 1, Class 2 Amend F1 / Navy NWC78A151 / Gulfstream GAA 100BN1, Army 11472611.
### Adhesives, Two-Component Systems (Typical Properties)

<table>
<thead>
<tr>
<th>Product</th>
<th>OEM Specifications</th>
<th>Mix Ratio, Ritt By Weight</th>
<th>Mixed Viscosity (°P at 77°F)</th>
<th>Gel Time, min at 77°F</th>
<th>Suggested Cure Schedule °F</th>
<th>Max Service Temp °F</th>
<th>Lap Shear Strength, psi at 77°F</th>
<th>T-Peel, psi</th>
<th>Flame Retardant</th>
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### Polyurethane Adhesives

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<th>Product</th>
<th>OEM Specifications</th>
<th>Mix Ratio, Ritt By Weight</th>
<th>Mixed Viscosity (°P at 77°F)</th>
<th>Gel Time, min at 77°F</th>
<th>Suggested Cure Schedule °F</th>
<th>Max Service Temp °F</th>
<th>Lap Shear Strength, psi at 77°F</th>
<th>T-Peel, psi</th>
<th>Flame Retardant</th>
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### Typical Properties

- **Typical Properties**: Epoxy and Polyurethane adhesives are used in various industries for their excellent bonding properties. Here are some typical properties for the adhesives listed:

#### Epoxy Adhesives

- **General**: Epoxy adhesives are known for their high strength and durability. They are commonly used in aerospace, automotive, and construction applications.

#### Polyurethane Adhesives

- **General**: Polyurethane adhesives offer good adhesion to various substrates and are used in industries requiring flexibility and toughness, such as automotive and sports equipment.
Epoxy Laminating Systems

Epocast® 50 A1/946
High-Strength Epoxy
Flame-retardant, unfilled amber epoxy laminating system for the manufacture and repair of composite structures and for filament winding applications. Qualified to Boeing BMS 8-201, Type IV / Embraer MEP 22-011.

Epocast® 50 A1/9816
High-Strength Epoxy
Flame-retardant, unfilled amber epoxy. Good for repairing composite structures and for filament winding. Qualified to Boeing BMS 8-201, Type III / Embraer MEP 22-011.

Epocast® 52 A/B
High-Strength Repair Epoxy
Flame-retardant, fast-setting, unfilled light amber epoxy system that exhibits a high compressive strength and compressive modulus after curing. For repairing composite structures and for filament winding applications. Qualified to Airbus IPS 04-27-001-01, Issue 1.

Epocast® 54 A/B
High-Strength Epoxy
High-temperature, moderate-viscosity blue epoxy laminating system with good hot/wet strength, excellent resistance to aircraft fluids and moisture. Cures quickly at temperatures between 150°F (65°C) and 200°F (93°C). For repairing graphite and fiberglass composite components. Qualified to Airbus IPS 08-01-002-01 Issue 1 / Adam Aircraft S-00-040-36, Type 1 / Eurocopter ECS 0049 Part 1 / SAE Aerospace AMS 2980.

Araldite® 501
High-Temperature Epoxy
Unfilled blue epoxy system with good mechanical strength for repairing aircraft composite components. Suitable for temperatures up to 248°F (120 ºC). Qualified to Douglas HMS 16-1115 Type III.

Araldite® LY 5052 / Aradur® 5052
Ambient-Curing Epoxy
Low-viscosity, easy-to-mix, high-strength, pale yellow epoxy system designed for complete impregnation of glass, carbon and aramid fibers used in filament winding, RTM, pressure molding and wet lay-up. Huntsman standard certification.

Laminating Systems (Typical Properties)

<table>
<thead>
<tr>
<th>Product</th>
<th>OEM Specifications</th>
<th>Mix Ratio pbw</th>
<th>Mixed Viscosity cP at 77°F</th>
<th>Gel Time, min at 77°F</th>
<th>Suggested Cure Schedule °F</th>
<th>Nominal Service Temp °F</th>
<th>Laminate Compressive Strength, psi at 77°F</th>
<th>Color</th>
<th>Packaging</th>
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<td>Epocast® 50 A1 / 946</td>
<td>Boeing BMS 8-201 Ty IV / Embraer MEP 22-011</td>
<td>100:15</td>
<td>2,400</td>
<td>20 (100 gram mass)</td>
<td>5 days at 77°F or 2 hrs at 170°-200°F</td>
<td>Not Determined</td>
<td>&gt;45,000</td>
<td>Amber</td>
<td>Working packs</td>
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<tr>
<td>Epocast® 50 A1 / 9816</td>
<td>Boeing BMS 8-201 Ty III / Embraer MEP 22-011</td>
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<td>2,400</td>
<td>65 (100 gram mass)</td>
<td>5 days at 77°F or 2 hrs at 170°-200°F</td>
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<td>&gt;45,000</td>
<td>Amber</td>
<td>Working packs</td>
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<td>Airbus IPS 08-01-002-01 Iss 1 / Adam Aircraft S-00-040-36 Ty 1 / Eurocopter ECS 0049 Part 1 / SAE Aero AMS 2980</td>
<td>100:41</td>
<td>5,500</td>
<td>60 (100 gram mass)</td>
<td>3 hrs at 150°F or 2 hrs at 200°F</td>
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<td>Light amber</td>
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<td>Douglas HMS 16-1115 Ty III</td>
<td>100:15</td>
<td>3,500</td>
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<td>7 days at 77°F or 16 hrs at 113°F or 2 hrs at 198°F</td>
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<td>Huntsman standard certification</td>
<td>100:38</td>
<td>500-700</td>
<td>110-180 (100 gram mass)</td>
<td>Multiple cure schedules - refer to TDS</td>
<td>180</td>
<td>Not Determined</td>
<td>Pale yellow</td>
<td>Drums</td>
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</table>
Huntsman Products by Specification

Adam Aircraft
S-00-040-36, Type 1 ................................................ Epocast® 52 A/B

Alenia
MDL08055 ............................................................. Epocast® 1617 A/B

Allied Signal
PCS 2560 ............................................................... Epocast® 1652 A/B

Airbus
IPS-38-01-002-01 Issue 1 ........................................ Epocast® 52 A/B
IPS-38-01-002-01 Issue 2 ........................................ Epocast® 52 A/B
AIMS 10-04-006 ...................................................... Araldite® 1570 FST A/B

Airbus/Coasa
RP102109 Issue 2 .................................................... Epocast® 1627-2

Airbus Espana
I+D-N-200-Z-18.115/2 ........................................ Epocast® 89537

Army
11472611 ............................................................. Uralane® 5774 A/C

Bell Helicopter
299-947-097, Type 5 ................................................ Epocast® 1626 A/B

Boeing
BMS 5-25, Type 2, Gr 1 ............................................. Epibond® 1539 A/B-10
BMS 5-28, Type 6 ..................................................... Epocast® 1636 A/B
BMS 5-28, Type 7, Class 1 ........................................ CG 1006 A/B
BMS 5-28, Type 7, Class 2 ........................................ Epibond® 8537 A/B
BMS 5-28, Type 9 ..................................................... Epocast® 1629 A/B
BMS 5-28, Type 10 ................................................... Epocast® 1610 A1
BMS 5-28, Type 12, Class 1 ........................................ Epocast® 938 A2
BMS 5-28, Type 13 ................................................... Epocast® 938 A2
BMS 5-28, Type 14, Class 1 ........................................ Epocast® 1614 A1
BMS 5-28, Type 14, Class 2 ........................................ Epocast® 1614 A1
BMS 5-28, Type 17 ................................................... Epocast® 1617 A/B
BMS 5-28, Type 18, Class 1 ........................................ Epocast® 1618 D/B
BMS 5-28, Type 18, Class 2 ........................................ Epocast® 1633 A/B
BMS 5-28, Type 19 ................................................... Epocast® 1619 A/B
BMS 5-28, Type 26 ................................................... Epocast® 1626 A/B
BMS 5-28, Type 26, Class 2 ....................................... Epocast® 1626 C1/D2
BMS 5-28, Type 27 ................................................... Epocast® 1627-2
BMS 5-28, Type 28 ................................................... Epocast® 1628 A/B
BMS 5-28, Type 31 ................................................... Epocast® 1635 A/B
BMS 5-105, Type 3 ................................................... Uralane® 5759 G/D
BMS 5-105, Type 5 ................................................... Uralane® 5774 A/C
BMS 5-105, Type 6 ................................................... Uralane® 5779 A/B,
BMS 5-107, Class 1 ................................................... Epibond® 420 A/B
BMS 5-123, Type I, Class 3 ........................................ Epibond® 8543 C/B
BMS 5-126, Type II, Class 1 GR B .............................. Epibond® 1534 A/B
BMS 5-126, Type III, Class 1 GR B ............................. Epibond® 1538 B/A
BMS 5-126, Type IV, Class 4 GR B ............................. Epibond® 1544 A/C,
BMS 5-126, Type VI, Class 1 GR B ............................. Epibond® 1539 A/B
BMS 8-201, Type III ................................................ Epocast® 50 A1/9816
BMS 8-201, Type IV ................................................ Epocast® 50 A1/946
D800-10411-1, PDD6-1 ........................................ Epocast® 1656 A/B
HMS-1068, Class 8B .............................................. Epibond® 1217 A/B
Boeing//MESA HS5933 (A) 100-25 ................................... Epocast® 1617 A/B

Embraer
MEP 10-051 ........................................................... Epocast® 1652 A/B
MEP 22-011 ........................................................... Epocast® 50 A1/946,
Embraer/Kawasaki 190-38790-903 ................................ Epocast® 1614 A1

Eurocopter
ECS 0049, Part 1 .................................................... Epocast® 52 A/B

Gamesa Aeronautica
GMS 124050, Iss 3 ................................................... Epibond® 1544 A-82/D
GMS 124047, Iss 3 ................................................... Epocast® 1617 A/B

Grumman
GM 4006, Type 1, Class B FM1 ................................. Epocast® 1652 A/B,
GM 4006, Type 1, Class C FM1 ................................. Epocast® 1636 A/B

Gulfstream
GMS 4005, Type 1, Class B FM1 SCN7 ........................ Epocast® 1652 A/B
GMS 4005, Type 1, Class C FM1 SCN7 ......................... Epocast® 1636 A/B
GAA 1006N1 ........................................................... Uralane® 5774 A/C

Hawker de Havilland
EN-1066309, Iss 3 ................................................... Epocast® 1614 A1

Heath Tecna
HMS A4-001, Type 1, Class 2 ..................................... Uralane® 5774 A/C
HMS A4-001, Type 1, Class 3 ..................................... Uralane® 5779 A/B
HMS A5-001, Type 1, Class 1 ..................................... Epibond® 1544 A-71/D
HMS A5-001, Type 2, Class 1 ..................................... Epibond® 1559 A/B

HUREL-Hispano
HS/DSO-019 .......................................................... Epocast® 1652 A/B

Kearfott
Y105AD5-101 ........................................................ Epibond® 1217 A/B

Lockheed Martin
LAC-30-4039-0100 .................................................. Epibond® 1210 A/9615
LAC-30-4039-0200 .................................................. Epibond® 1210 A/9861
STM M1067, Type 1 ................................................ Epocast® 1614 A1
STM M1067, Type 2 ................................................ Epocast® 1614 A1
STM M1069 ............................................................. Epocast® 89637 A/B

Loral
23-P12027-0003 ..................................................... Epibond® 1210 A/9861

MD Helicopters
MMD 16-1068/C 8B ................................................ Epibond® 1217 A/B

Mitsubishi
M1074, Type 2 ....................................................... Epocast® 1629 A/B
M1129, Class A ....................................................... Epocast® 169 A/9615

Navy
50 9330/A AMD 2 .................................................. Epibond® 1210 A/9615
5675/A969 ............................................................. Uralane® 5776 A/B
NWC 78/A151 ........................................................ Uralane® 5774 A/C
WS 9537 ............................................................... Uralane® 5776 A/B

Pratt & Whitney
CPPW 505 ............................................................. Epocast® 1656 A/B
PW 3675 ............................................................... Epocast® 1661
PWA 452 ............................................................... Epocast® 1614 A1
TS10430 ............................................................... Epibond® 1534 A/B

Raytheon
BS 23818, Class 1, Type 1 ....................................... Epocast® 1629 A/B

ROHR
RMS 027, Type 5, Class 3 ....................................... Epocast® 1617 A/B
RMS 027, Type 12 .................................................. Epocast® 1614 A1
RMS 027, Type 13 .................................................. Epocast® 938 A2

SAE Aerospace
AMS 2980 ............................................................. Epocast® 52 A/B

Sikorsky
SS-9440 ............................................................... Epocast® 1659 A/946
SS-9587, Type 2 ..................................................... Epocast® 169 A/9615
SS-9587, Type 2 ..................................................... Epocast® 169 A/9615

SpectroLab
CM34-40-38-01 .................................................... Epibond® 1210 A/9861

Spirit
SMS 116201, Type 2 ................................................ Epibond® 1217 A/B

Thomson-CSF
CM34.40-38-01 .................................................... Epibond® 1210 A/9861

Vacuum Electronics
CB-10027-0003 .................................................... Epocast® 1217 A/B

Vought
VM 4006, Type 1 CLD FM1 ................................. Epocast® 1666 A/B
207-8-317 ........................................................... Epocast® 1614 A1
VM 4006, Type 2, CLB, FM1 AM2 ......................... Epocast® 938 A2