

HUNTSMAN

Enriching lives through innovation

Advanced Materials

High-Performance Materials for the Aerospace Industry

Adhesives, Syntactics and Laminating Systems Selector Guide

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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:

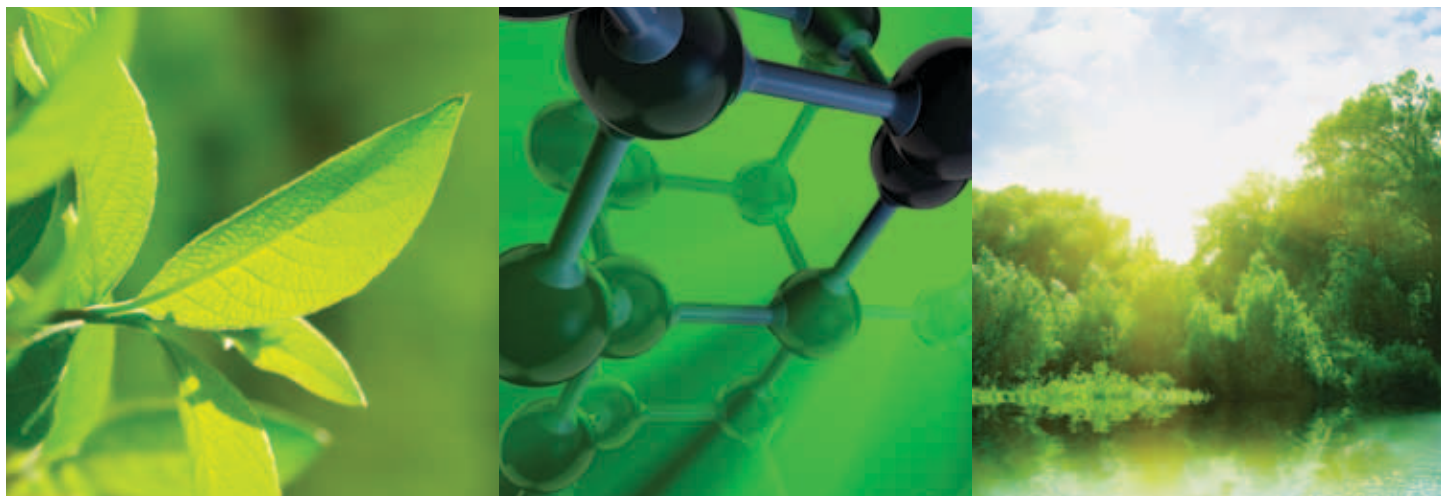
- Aerospace & Defense
- Construction
- Consumer-DIY
- Electrical Engineering
- Electronics
- Paint & Coatings
- Sport & Leisure
- Wind Energy

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



Aerospace Market

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 / Sikorsky SS-9587 Type 2 / Embraer MEP 10-051 / Gulfstream GMS 4005 Type I SCN7 CLB FMI, AML 4005 / Allied PCS5606 / HUREL-Hispano HS/DFO-010.

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 / 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® 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 350°F (177°C). Designed for fabricating and reinforcing composite structures. Qualified to Boeing BMS 5-28, Type 27 / Airbus/Coasa RP1021209 Issue 2.



Syntactics (Typical Properties)

Product	OEM Specifications	Consistency at 77°F	Gel Time, min at 77°F	Mix Ratio (R:H by Weight)	Suggested Cure Schedule °F	Max Service Temp °F	Compressive Strength, psi at 77°F	Density, g/cc	Flame Retardant	Color	Packaging
Ultra-Low Density, Two-Component Syntactics											
Epocast® 1628 A/B	Boeing BMS 5-28 Ty 28	Extrudable paste	65 (60 gram mass)	100:25	7 days at 77° F or 5 hrs at 125° F	Not Determined	2,800	0.50	Yes	Pale yellow	Working packs
Epocast® 1629 A/B	Boeing BMS 5-28 Ty 9 / Mitsubishi M1074 Ty 2 / Raytheon BS 23818 Cl 1 Ty 1	Paste	70 (75 gram mass)	100:50	7 days at 77°F or 5 hrs at 125° F	Not Determined	3,000	0.48	Yes	Light tan	Working packs
Low-Density, Two-Component Syntactics											
Araldite® 252	Huntsman standard certification	Non-flow paste	60 (100 gram mass)	100:40	3 days at 77°F or 2 hrs at 160°F	176	5,200	0.65	Yes	Light blue	Working packs
Epocast® 169 A/ 9615	Sikorsky SS9587 Ty 1 / Mitsubishi M1129 Cl A	Semi-paste	90-120 (100 gram mass)	100:50	24 hrs at 75°F or 2 hrs at 150°F	Not Determined	2,000	0.68	No	Red-brown	Working packs
Epocast® 169 A/ 9646	Huntsman standard certification	Pourable	25-40 (50 gram mass)	100:35	24 hrs at 75°F or 2 hrs at 150°F	Not Determined	8,000	0.68	No	Red-brown	Working packs
Epocast® 169 A/ 946	Sikorsky SS-9440	Pourable	10-15 (50 gram mass)	100:20	12 hrs at 75°F or 1-3 hrs at 150°F	Not Determined	3,500	0.68	No	Red-brown	Working packs
Epocast® 1617 A/B	Boeing BMS 5-28 Ty 17 / ROHR RMS 027 Ty 5 Cl 3 / Bombardier SMS 41 Ty 3 Iss 6 / Gamesa GMS 124047 Iss 3 / Alenia MDL08055	Paste	60-90 (50 gram mass)	100:20	7 days at 77°F or 5 hrs at 125°F	Not Determined	5,500	0.70	Yes	Off-white	Working packs
Epocast® 1618 D/B	Boeing BMS 5-28 Ty 18 Cl 1	Paste	15 (57 gram mass)	100:14	7 days at Room Temp or 5 hrs at 125°F	Not Determined	5,000	0.70	Yes	Off-white	6 oz Semkits®, working packs and pail kits
Epocast® 1619 A/B	Boeing BMS 5-28 Ty 19	Semi-paste	20-50 (50 gram mass)	100:25	7 days at Room Temp or 5 hrs at 125°F	Not Determined	5,500	0.70	Yes	Off-white	50g & 125g jar kits and working packs
Epocast® 1626 A/B	Boeing BMS 5-28 Ty 26 / Bell Textron 299-947-097 Ty 5	Paste	60 (50 gram mass)	100:29	7 days at 77°F * or 2 hrs at 160°F	Not Determined	NA	0.65	No	Brown	6 oz & 20 oz Semkits® and working packs
Epocast® 1626 C1/ D2	Boeing BMS 5-28, Ty 26, Cl 2 / Spirit SMS 116201, Ty 3	Paste	12 (67 gram mass)	100:54	7 days at 77°F * or 2 hrs at 160°F	Not Determined	NA	0.69	No	Brown	400 ml cartridge
Epocast® 1633 A/B	Boeing BMS 5-28 Ty 18 Cl 2	Paste	5-12 (37 gram mass)	100:50	3 Days at 77°F or 5 hrs at 120°F or 2 hrs at 150°F	Not Determined	6,500	0.73	Yes	Light blue (available in different colors)	200 ml & 50ml cartridge
Epocast® 1638 A/B	Huntsman standard certification	Paste	12-25 (50 gram mass)	100:13	24 hrs at Room Temp or 5 hrs at 120°F	Not Determined	7,600	0.70	Yes	Off-white	Working packs
Medium-Density, Two-Component Syntactics											
CG 1305 A/B	Boeing BMS 5-28, Ty 7, Cl 1 / Spirit SMS 116201, Ty 1	Pourable	>60 (60 gram mass)	100:20	7 days at 77°F * or 1 hr at 350°F	350	9,000	0.90	Yes	Off-white	50g & 500g jar kits, 6 oz Semkits® and working packs
Epocast® 1652 A/B	Grumman GM 4006 Ty 1 Cl B FM1 / Sikorsky SS-9587 Ty 2 / Embraer MEP 10-051 / Gulfstream GMS 4005 Ty 1 Cl B FM1 SCN7 / Allied PCS5606 / Martin STM-P-M134 / HUREL-Hispano HS/DFO-010	Semi-paste	30-60 (100 gram mass)	100:12	7 days at 77°F * or 2-3 hrs at 150°F	350	8,000	0.80	No	Light tan	6 oz Semkits® and working packs
Epocast® 1656 A/B	Grumman GM 4006 Ty 1 Cl B FM 1 / Vought VM 4006 Ty 1 CLD FM1 / Pratt & Whitney CPW 505	Paste	50-90 (100 gram mass)	100:12	7 days at 77°F or 2-3 hrs at 150°F	350	8,000	0.80	No	Light tan	Working packs
Epocast® 89537 A/B	Boeing BMS 5-28 Ty 7 Cl 2 / Lockheed Martin STM M1069 / Airbus Espana I+D-N-200-Z-18.115/2	Soft paste	70 (100 gram mass)	100:18.5	7 days at 77°F or 1 hr at 350°F	350	8,800	0.90	Yes	Gray	Working packs
High-Density, Two-Component Syntactics											
Epocast® 1635 A/B	Boeing BMS 5-28 Ty 31	Soft paste	>60 (100 gram mass)	100:23	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® 1636 A/B	Boeing BMS 5-28 Ty 6 / Gulfstream GMS 4005 Ty 1 Cl C FMII SCN 7 AML 4005	Pourable	120 (50 gram mass)	100:80	7 days at 77°F* or 1 hr at 350°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 CDM212-00 Ty 13	Non-flow paste	30 days after thaw	N/A	1 hr at 260°F	Not Determined	2,400	0.50	Yes	Off-white	Working packs and pails
Epocast® 1661	Pratt & Whitney PWA 36757	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	Patties
Medium-Density, One-Component Frozen Syntactics											
Epocast® 1614 A1	Boeing BMS 5-28 Ty 14 Cl 1 & 2 / Boeing MMS 347 Ty II / ROHR RMS 027, Ty XII / Sikorsky SS 9587 TY III / Vought 207-8-417 / Pratt & Whitney PWA 452 / HAWKER EN-106G309 ISS 3 / Lockheed Martin STM M1067 TY 1 & TY 2 / Others	Extrudable 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	6 oz 12 oz & 20 oz cartridge and patties
High-Density, One-Component Frozen Syntactics											
Epocast® 938-A2	Boeing BMS 5-28 Ty 12, Cl 1 & 2 / Boeing BMS 5-28 TY 13 / ROHR RMS 027 Ty XIII / Spirit SMS 116201 Ty 2 / Vought VM4006 Ty II Cl B FM 1 AM 2	Extrudable 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
Epocast® 1627-2	Boeing BMS 5-28 Ty 27 / Airbus/Coasa RP1021209 ISS 2	Extrudable paste	24 hrs after thaw	N/A	1hr at 350°F	350	30,000	1.80	No	Gray	6 oz & 32 oz cartridge and patties

* Cure 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**

Dark gray, halogen-free epoxy adhesive designed for aerospace applications requiring flame retardant properties. Particularly suitable for PE foam-to-phenolic GRP bonding in cargo areas. Meets FAR 25.853, AIMS 10-04-006 and AITM 3.0005. Huntsman standard certification.

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.

Qualified to Boeing BMS 5-126, Type II, Class 1 GR B / Pratt & Whitney TS10430.

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 A5-001 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)

Product	OEM Specifications	Mix Ratio, Ritt By Weight	Mixed Viscosity cP at 77°F	Gel Time, min at 77°F	Suggested Cure Schedule °F	Max Service Temp °F	Lap Shear Strength, psi, al/al		T-Peel, pli	Flame Retardant	Color	Packaging
							77°F	180°F				
Epoxy Adhesives												
Araldite® AV 8504/TDT 177-27	Huntsman standard certification	100:50	Semi-paste	15 (150 gram mass)	15 hrs at 77°F or 30 mins at 140°F or 10 mins at 212°F	200	1,850	900	N/A	No	Black	50 ml & 200 ml cartridge
Araldite® EP 1000 A/B	Huntsman standard certification	100:43	30,000	40 (20 gram mass)	7 days at 77°F or 3 hrs at 77°F + 3 hrs at 160°F	250	5,000	3,500	17	No	Translucent	50 ml & 200 ml cartridge
Araldite® 1570 FST A/B	Airbus AIMS 10-04-006	100:87.8	Paste	140 (100 gram mass)	48 hrs at 73°F	Not Determined	2,600	400	N/A	Yes	Dark gray	200 ml cartridge
Epibond® 104 A/B	Huntsman standard certification	100:10	Paste	30-40 (100 gram mass)	3 days at 77°F or 1 hr at 150°F	150	2,500	800+	N/A	No	Off-white	Working packs
Epibond® 156 A/B	Huntsman standard certification	100:60	Soft paste	20-50 (100 gram mass)	3 days at 77°F or 1-3 hrs at 150°F	200	2,000	1,950	N/A	No	Off-white	Working packs
Epibond® 420 A/B	Boeing BMS 5-107 Cl 1	100:40	Semi-paste	60 (100 gram mass)	7 days at 77°F or 1 hr at 250°F	150	4,500	500	N/A	No	Blue-green	50 ml cartridge and working packs
Epibond® 1210 A/B	Sundstrand CM 34.40-38-01	100:65	Semi-paste	50-75 (100 gram mass)	48 hrs at 77°F or 2 hrs at 150°F	Not Determined	2,500	500	N/A	No	Tan	Working packs
Epibond® 1210 A/ 9615 A	Lockheed Martin LAC 30-4639-0100	100:65	Paste	50-75 (100 gram mass)	48 hrs at 77°F or 3 hrs at 150°F	Not Determined	2,500	No Data	N/A	No	Tan	Working packs
Epibond® 1210 A/ 9861	Lockheed Martin LAC 30-4639-0200 / Loral 23-P12027-0003 / Spectrolab 044418	100:20	Semi-paste	35-60 (100 gram mass)	48 hrs at 77°F or 1-2 hrs at 150°F	250	2,800	2,500	N/A	No	Tan	Working packs
Epibond® 1217 A/B	Boeing HMS 16-1068 CL 8B / Kearfott Y105A053-101 / MD Helicopters MDM 16-1068 CL 8B	100:100	Paste	4-8 (50 gram mass)	1-2 hrs at 77°F	Not Determined	2,500	500	N/A	No	Translucent	50 ml cartridge, 6 oz tubes and working packs
Epibond® 1534 A/B	Boeing BMS 5-126, Ty II, Cl 1 GR B / Pratt & Whitney TS10430	100:100	2,000	120 (100 gram mass)	3 days at 77°F or 20-30 mins at 250°F	Not Determined	3,000	575	N/A	No	Amber	Working packs
Epibond® 1536 A/B	Boeing BMS 5-126, Ty III, Cl 1 GR B	100:100	2,500	120 (100 gram mass)	3-5 days at 77°F or 20-30 mins at 250°F	Not Determined	3,000	550	N/A	No	Amber	Working packs
Epibond® 1539 A/B	Boeing BMS 5-126, Ty VI, Cl 1 GR B	100:95	Paste	120 (100 gram mass)	24 hrs at 77°F or 20-30 mins at 250°F	150	2,500	800	N/A	No	Amber	Working packs
Epibond® 1539 A/B-10	Boeing BMS 5-25, Ty 2, Gr 1	100:89	Paste	120 (50 gram mass)	24 hrs at 77°F or 20-30 mins at 250°F	150	2,500	800	N/A	No	Blue	Working packs
Epibond® 1544 A/C	Boeing BMS 5-126 Ty IV Cl 1 GR B	100:13	Semi-paste	10 (50 gram mass)	18 hrs at 77°F or 1 hr at 150°F	Not Determined	2,600	No Data	N/A	Yes	Off-white	Working packs
Epibond® 1544 A-71/D	Boeing BMS 5-126 Ty IV Cl 4 GR B / Heath Tecna HMS A5-001 Ty 1 Cl 1	100:13	Semi-paste	20 (50 gram mass)	24 hrs at 77°F or gel at room temp + 1 hr at 150°F	Not Determined	2,600	No Data	N/A	Yes	White	Working packs
Epibond® 1544 A-82/D	Boeing BMS 5-126 Ty IV Cl 4 GR B / Gamesa GMS 124050 Iss 3	100:13	Semi-paste	20 (50 gram mass)	24 hrs at 77°F or gel at room temp + 1 hr at 150° F	Not Determined	2,600	No Data	N/A	Yes	Beige	6 oz Semkits® and working packs
Epibond® 1559-1 A/B	Huntsman standard certification	100:100	Semi-paste	4-10 (50 gram mass)	24 hrs at 77°F or 30 mins at 160°F	Not Determined	2,700	No Data	N/A	Yes	Light gray	50 ml & 200 ml cartridge
Epibond® 1565 A/B	Boeing D800-10411-1 (PDD 6-1)	100:40	25,000	12 hrs (100 gram mass)	3 hrs at 200°F or 1 hr at 350°F	350	1,000	No Data	N/A	No	Dark amber	Working packs
Epibond® 8543 C/B	Boeing BMS 5-123 Ty 1, Cl 3	100:100	Non-sag paste	3 (20 gram mass)	30-60 mins at 77°F or 60-120 mins at 45°F	Not Determined	2,000	500	N/A	No	Gray	50 ml cartridge and working packs
Fastweld™ 10	Huntsman standard certification	100:100	160,000	3-4 (85 gram mass)	4 hrs at 77°F	Not Determined	2,800	No Data	N/A	No	Gray	9 oz tubes, 50 ml cartridge and 5-gal pails
Polyurethane Adhesives												
Uralane® 5754 A/B	Huntsman standard certification	100:50	600	12-18 (100 gram mass)	8 days at 77°F or 2 hrs at 150°F	Not Determined	600	175	30	No	Clear	Working packs
Uralane® 5759 G/D	Boeing BMS 5-105 Ty 3	100:19	Paste	4-8 (100 gram mass)	48 hrs at 77°F or 4 hrs at 160°F	Not Determined	700	300	10	Yes	Off-white	400 ml cartridge
Uralane® 5772 A/B	Huntsman standard certification	100:23	Semi-paste	15-20 (100 gram mass)	7 days at 75°F or 16 hrs at 150°F	180	2,100	650	50	No	Dark amber	Working packs
Uralane® 5773 A/B	Huntsman standard certification	100:42	Semi-paste	25-45 (50 gram mass)	5-7 days at 75°F or 16 hrs at 150°F	250	2,500	900	35	No	Dark amber	Working packs
Uralane® 5774 A/C	Boeing BMS 5-105 Ty 5 / Heath Tecna HMS A4-001 Ty 1 Cl 2 / Navy NWC78A151 / Gulfstream GAA 100BN1 / Army 11472611	100:55	Semi-paste	15-25 (100 gram mass)	7 days at 77°F or 1-2 hrs at 200°F	180	2,200	1,300	35	Yes	Beige	50 ml & 200 ml cartridge and working packs
Uralane® 5776 A/B	Navy 5675396 / Navy WS 9087	100:40	Semi-paste	35-45 (100 gram mass)	5-7 days at 77°F or 4 hrs at 150°F or 1.5 hrs at 200°F	Not Determined	800	240	28	No	Olive/Tan	Working packs
Uralane® 5779 A/B	Boeing BMS 5-105 Ty VI / Heath Tecna HMS A4-001 Ty 1 Cl 3	100:98	Non-sag paste	8-15 (100 gram mass)	7 days at 75°F or 4 hrs at 150°F	Not Determined	1,200	No Data	10	No	White	50 ml cartridge
Uralane® 5779 A80/B	Boeing BMS 5-105 Ty 6	100:98	Non-sag paste	8-15 (100 gram mass)	7 days at 75°F or 4 hrs at 150°F	Not Determined	1,200	No Data	10	No	Beige	50 ml cartridge

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 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.

Epocast® 54 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.

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 °C). 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)

Product	OEM Specifications	Mix Ratio pbw	Mixed Viscosity cP at 77°F	Gel Time, min at 77°F	Suggested Cure Schedule °F	Nominal Service Temp °F	Laminate Compressive Strength, psi at 77°F	Color	Packaging
Epocast® 50 A1 / 946	Boeing BMS 8-201 Ty IV / Embraer MEP 22-011	100:15	2,400	20 (100 gram mass)	5 days at 77°F or 2 hrs at 170°-200°F	Not Determined	>45,000	Amber	Working packs
Epocast® 50 A1 / 9816	Boeing BMS 8-201 Ty III / Embraer MEP 22-011	100:14	2,400	65 (100 gram mass)	5 days at 77°F or 2 hrs at 170°-200°F	Not Determined	>45,000	Amber	Working packs
Epocast® 52 A/B	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	100:41	5,500	60 (100 gram mass)	3 hrs at 150°F or 2 hrs at 200°F	350	Not Determined	Blue	Working packs
Epocast® 54 A/B	Airbus IPS 04-27-001-01 Iss 1	100:15	8,000	15-25 (100 gram mass)	5 days at 77°F or 2 hrs at 150°-200°F	Not Determined	49,000	Light amber	Working packs
Araldite® 501	Douglas HMS 16-1115 Ty III	100:15	3,500	90 at 73°F (100 gram mass)	7 days at 77°F or 16 hrs at 113°F or 2 hrs at 158°F	180	Not Determined	Blue	Working packs
Araldite® LY 5052 / Aradur® 5052	Huntsman standard certification	100:38	500-700	110-160 (100 gram mass)	Multiple cure schedules - refer to TDS	180	Not Determined	Pale yellow	Drums

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 5606 Epocast® 1652 A/B

Airbus

IPS 08-01-002-01 Issue 1 Epocast® 52 A/B
 IPS 04-27-001-01, Issue 1 Epocast® 54 A/B
 AIMS 10-04-006..... Araldite® 1570 FST A/B

Airbus/Coasa

RP1021209 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 1305 A/B
 BMS 5-28, Type 7, Class 2..... Epocast® 89537 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 12, Class 2..... 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,
 Uralane® 5779 A-80/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® 1536 A/B
 BMS 5-126, Type IV, Class 4 GR B..... Epibond® 1544 A/C,
 Epibond® 1544 A-71/D,
 Epibond® 1544 A-82/D
 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 Epibond® 1565 A/B
 HMS 16-1068, Class 8B..... Epibond® 1217 A/B
 Boeing/MESA HS5933 (A) 100-25..... Epocast® 1614 A1
 Boeing/MESA HS5933 (A) 150-100..... Epocast® 1614 A1
 Boeing/MESA HS5933 (A) 150-25..... Epocast® 1614 A1
 Boeing/MESA HS5933 (A) 150-35..... Epocast® 1614 A1
 MMS 347, Type II Epocast® 1614 A1

Bombardier

SMS41, Type 3, Iss 6..... Epocast® 1617 A/B

C & D Aerospace

CDM212-00, Type 13..... Epocast® 1610 A1

Douglas

HMS 16-1115 Type III..... Araldite® 501 A/B

Embraer

MEP 10-051 Epocast® 1652 A/B
 MEP 22-011 Epocast® 50 A1/946,
 Epocast® 50 A1/9816
 Embraer/Kawaski 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,
 Epocast® 1656 A/B

Gulfstream

GMS 4005, Type 1, Class B FMI SCN7 Epocast® 1652 A/B
 GMS 4005, Type 1, Class C FMII SCN 7..... Epocast® 1636 A/B
 GAA 100BN1 Uralane® 5774 A/C

Hawker de Havilland

EN-106G309, 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 3 Epibond® 1559 A/B

HUREL-Hispano

HS/DFO-010..... Epocast® 1652 A/B

Kearfott

Y105A053-101..... Epibond® 1217 A/B

Lockheed Martin

LAC 30-4639-0100 Epibond® 1210 A/9615
 LAC 30-4639-0200 Epibond® 1210 A/9861
 LAC 30-4639-0300 Epocast® 1210 A/9615
 STM M1067, Type 1 Epocast® 1614 A1
 STM M1067, Type 2 Epocast® 1614 A1
 STM M1069 Epocast® 89537 A/B

Loral

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

MD Helicopters

MDM 16-1068CL 8B..... Epibond® 1217 A/B

Mitsubishi

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

Navy

OS 9330A AMD 2 Epibond® 1210 A/9615
 5675396..... Uralane® 5776 A/B
 NWC 78A151 Uralane® 5774 A/C
 WS 9087 Uralane® 5776 A/B

Pratt & Whitney

CPW 505 Epocast® 1656 A/B
 PW 36757 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® 169 A/946
 SS-9587, Type 1 Epocast® 169 A/9615
 SS-9587, Type 2 Epocast® 1652 A/B

Spectrolab

0444418..... Epibond® 1210 A/9861

Spirit

SMS 116201, Type 1 CG 1305 A/B
 SMS 116201, Type 2..... Epocast® 938 A2
 SMS 116201, Type 3..... Epocast® 1626 C1/D2

Sundstrand

CM34.40-38-01 Epibond® 1210 A/B

Vought

VM 4006, Type 1 CLD FM1 Epocast® 1656 A/B
 207-8-417 Epocast® 1614 A1
 VM 4006, Type 2, CL B, FM1 AM2 Epocast® 938 A2

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