AEROPASTE® 1100

AeroPaste® 1100 is a 300°F – 350°F (149°C – 177°C) curing one-part paste adhesive with superior bonding performance. This adhesive provides high strength and toughness with excellent hot/wet performance. AeroPaste® 1100 is thixotropic, slump resistant, and easy to use in manual or automated processes.

AeroPaste® 1100 is designed for rapid assembly of metal and composite structures.

Features and Benefits

- Superior static and dynamic properties, high impact energy resistance
- High strength, high toughness and exceptional hot/wet performance
- Excellent bondline thickness tolerance
- Can be cured between 300°F – 355°F (149°C - 180°C)
- Service temperature of 285°F(140°C) dry and 250°F(121°C) hot/wet
- 1K-paste, no pre-mix required
- Thixotropic, slump resistant, and easy to use (manual or automation)
- Long working time
- Designed for rapid assembly of metal and composite structures

PHYSICAL PROPERTIES

Property	Value	Test Method
Color	Light Red (pinkish red)	
Tg onset, °F (°C)	Dry: 291°F (144°C) Wet(1): 271°F (133°C)	ASTM D7028
Viscosity at 85°F (30°C), P	6789 poise	ASTM D4473
Minimum Viscosity, P	190 poise, at 289°F(143°C)	ASTM D4473
Vertical slump at 75°F (24°C)	Zero slump (with 0.375 inch thick paste beads)	Internal test method
Density	1.35 gram/cc	ASTM D1875

(1) Wet = After 1000 hours at 160°F (70°C) and 85% RH

PRODUCT AVAILABILITY

Packaging Sizes	1 Quart (0.95 L) Can 1 Gallon (3.8 L) Can 6 oz (0.18 L) Semco Tube

PRODUCT VARIATIONS

AeroPaste® 1100 is available in the following variant:

- AeroPaste 1100GB Variant containing 3.5mil (0.0889mm) glass beads

STORAGE

Shelf life will depend on storage conditions and frequency of use

Shelf Life	12 month when stored at -18°C /0°F
Shop Life	15 days at ambient RT

MECHANICAL PROPERTIES [1][2]

Property	Test Temperature	Value	Substrate	Test Method
Single Lap Shear, psi (MPa)	-67°F (-55°C) 75°F (24°C) 250°F (121°C) 300°F (149°C)	4930 (34) 6670 (46) 4060 (28) 2320 (16)	2024-T3 Bare Aluminum Surface Prep: FPL/PAA Primer: BR® 6747-1NC	ASTM D1002
Floating Roller Peel, lb/in (N/25 mm)	-67°F (-55°C) 75°F (24°C) 250°F (121°C)	45 (200) 61 (272) 64 (285)	2024-T3 Bare Aluminum Surface Prep: FPL/PAA Primer: BR® 6747-1NC	ASTM D3167
Composite bonding Single Lap Shear, psi (MPa)	-67°F (-55°C) 75°F (24°C) 185°F (85°C) 250°F (121°C)	4884 (34) 6184 (43) 4848 (33) 4033 (28)	Secondary Bonded Pre-Cured CYCOM® 977-2 Tape Surface Prep: Polyester dry Peel Ply	ASTM D1002
Composite bonding G1c Fracture Toughness, in-lb/in^2 (J/m^2)	75°F (24°C)	16.2 (2840)	Secondary Bonded Pre-Cured CYCOM® 977-2 Tape Surface Prep: FM® 3500 EZP Peel Ply	ASTM D5528

(1) AeroPaste® 1100 press-cure or oven-cure cycle: Heat to 300°F (149°C) at ramp 3°F/min (1.7°C/min), hold at 300°F (149°C) for 120 minutes under pressure 5 psi to 20 psi (0.04 MPa – 0.14 MPa).
(2)Adhesive bondline thickness is 10 mils (0.25 mm) controlled by 10 mil glass beads

HOT/WET MECHANICAL PROPERTIES [1][2]

Property	Test Temperature	Conditioning	Value	Substrate	Test Method
Single Lap Shear, psi (MPa)	75°F (24°C)	None (Dry, baseline) 3 Days in Boiling Water 14 Days at 160°F (71°C), 100%RH 42 Days at 167°F (75°C), 95%RH	6110 (42.1) 5060 (34.9) 6310 (43.5) 6210 (42.8)	2024-T3 Bare Aluminum Surface Prep: FPL/PAA Primer: BR® 6747-1NC	ASTM D1002
	185°F (85°C)	None (Dry, baseline) 3 Days in Boiling Water 14 Days at 160°F (71°C), 100%RH 42 Days at 167°F (75°C), 95	5580 (38.5) 4770 (32.9) 5280 (36.4) 5130 (35.4)		
	212°F (100°C)	None (Dry, baseline) 3 Days in Boiling Water 14 Days at 160°F (71°C), 100%RH 42 Days at 167°F (75°C), 95	5180 (35.7) 4190 (28.9) 4500 (31.0) 4090 (28.2)		
	250°F (121°C)	None (Dry, baseline) 3 Days in Boiling Water 14 Days at 160°F (71°C), 100%RH 42 Days at 167°F (75°C), 95	4100 (28.3) 3250 (22.4) 3440 (23.7) 3630 (25.0)		

(1) AeroPaste® 1100 press-cure cycle: Heat to 300°F (149°C) at ramp 3°F/min (1.7°C/min), hold at 300°F (149°C) for 120 minutes under pressure 5 psi to 20 psi (0.04 MPa – 0.14 MPa).
(2) Adhesive bondline thickness is 10 mils (0.25 mm) controlled by 10 mil glass beads.

TITANIUM BONDING PROPERTIES (1)(2)

Property	Test Temperature	Conditioning	Value	Substrate
Single Lap Shear, ASTM D1002	75°F (24°C)	None (Dry, baseline) 3 Days in Boiling Water	7980 (55) 7690 (53)	Titanium alloy Ti-6Al-4V Surface Prep: CAA Primer: BR® 6747-1NC
	185°F (85°C)	None (Dry, baseline) 3 Days in Boiling Water	5800 (40) 5370 (37)	
	212°F (100°C)	None (Dry, baseline) 3 Days in Boiling Water	5510 (38) 4930 (34)	

(1) AeroPaste® 1100 press-cure cycle: Heat to 300°F (149°C) at ramp 3°F/min (1.7°C/min), hold at 300°F (149°C) for 120 minutes under pressure 5 psi to 20 psi (0.04 MPa – 0.14 MPa).
(2) Adhesive bondline thickness is 10 mils (0.25 mm) controlled by 10 mil glass beads.

BONDED COMPOSITE G1C PROPERTIES (1)(2)(3)(4)

Property	Test Temperature	Bondline Thickness	Value	Test Method
G1c Fracture Toughness, in-lb/in^2 (J/m^2)	75°F (24°C)	10 mil (0.25 mm) 20 mil (0.51 mm) 40 mil (1.02 mm)	16.2 (2840) 16.2 (2829) 15.4 (2700)	ASTM D5528

(1)Secondary Bonded to Pre-Cured CYCOM® 977-2 UD Tape laminate
(2) Surface Prep: FM® 3500 EZP Peel Ply
(3)AeroPaste® 1100 press-cure cycle: Heat to 300°F (149°C) at ramp 3°F/min (1.7°C/min), hold at 300°F (149°C) for 120 minutes under pressure 5 psi to 20 psi (0.04 MPa – 0.14 MPa).
(4) Adhesive bondline thickness controlled by glass beads.

MECHANICAL PROPERTIES AFTER EXPOSURE TO FLUIDS (1)(2)(3)(4)(5)

Property	Test Temperature	Conditioning	Value	Test Method
Single Lap Shear, psi (MPa)	75°F (24°C)	Dry 1000 Hours at 167°F (75°C), 85%RH 3 Day Soak in 180°F (82°C) Water 7 Day Soak in 167°F (75°C) JP-4 Jet Fuel 7 Day Soak in 160°F (70°C) Jet A/AI Fuel 7 Day Soak in 160°F (70°C) Skydrol Fluid 7 Day Soak in 160°F (70°C) Deicing Fluid 1 Day Soak in 104°F (40°C) Kerosene 1000 Hours in 95°F (35°C), 5% Salt Fog	5220 (36) 5370 (37) 5440 (37.5) 5370 (37) 5220 (36) 5080 (35) 5220 (36) 5080 (35) 5080 (35)	ASTM D1002

(1) Substrate: 2024-T3 Bare Aluminum
(2) Surface Prep: FPL/PAA
(3) Primer: BR® 127
(4) AeroPaste® 1100 press-cure cycle: Heat to 300°F (149°C) at ramp 3°F/min (1.7°C/min), hold at 300°F (149°C) for 120 minutes under pressure 5 psi to 20 psi (0.04 MPa – 0.14 MPa).
(5) Adhesive bondline thickness is 10 mils (0.25 mm) controlled by 10 mil glass beads

PROCESSING

AeroPaste® 1100 is compatible with various solvent-based and water-based primers. The following 121°C (250°F) curing primers from Syensqo Composite Materials are recommended for metal bond applications using AeroPaste® 1100:

- BR® 179 (non-chromated) solvent-based corrosion inhibiting primer
- BR® 6747-1NC (non-chromated) water-based corrosion inhibiting primer
- BR® 127 (chromated) solvent-based corrosion inhibiting primer

SURFACE PREPARATION

- Surfaces to be bonded should be clean, dry and properly prepared depending on the type of substrate material
- Consult your Syensqo Technical Service representative for information on surface preparation

BONDING PROCEDURE

Metal must be properly prepared before application of the adhesive.

Primed assemblies, which have been properly dried and wrapped with a protective covering such as kraft paper, may be stored at 75°F (24°C) for several weeks without fear of contamination or degradation of the final bond.

Applying paste adhesive uniformly to cover the bonding area. Use a proper spacer or glass beads to control the bondline thickness. After assembly of the details, apply either vacuum or pressure and cure, using the recommended cure cycle below.

RECOMMENDED CURE CYCLES

Cure Cycle 1	Apply contact pressure of 5 psi - 20 psi (0.04 MPa – 0.14 MPa). Heat from 75°F (24°C) to 250°F (121°C) at 2°F - 5°F (1°C - 2°C)/minute. Hold at 300°F (149°C) for 120 minutes. Cool under pressure below 140°F (60°C) at 2°F - 5°F (1°C - 2°C)/minute.

Alternative Cure Cycle 2	Apply contact pressure of 5 psi - 20 psi (0.04 MPa – 0.14 MPa). Heat from 75°F (24°C) to 355°F (180°C) at 2°F - 5°F (1°C - 2°C)/minute. Hold at 355°F (180°C) for 60 minutes. Cool under pressure below 140°F (60°C) at 2°F - 5°F (1°C - 2°C)/minute.

EXOTHERM

AeroPaste® 1100 adhesive is a reactive formulation which can undergo exothermic heat up during the curing process if incorrect curing procedures are followed. Great care must be taken to ensure that safe heating rates, dwell temperatures and lay-up/bagging procedures are followed. The risk of exotherm increases with material bulk and increasing cure temperature. It is strongly recommended that trials, representative of all the relevant circumstances, are carried out by the user to allow a safe cure cycle to be specified. It is also important to recognise that the model or tool material and its thermal mass, combined with the insulating effect of breather/bagging materials can affect the risk of exotherm in particular cases.

CLEAN UP

- It is important to remove any excess adhesive from the work area and application equipment before it hardens
- Excess uncured adhesive may be removed using most standard industrial solvents such as acetone and MEK

HEALTH & SAFETY

Please refer to the product SDS for safe handling, personal protective equipment recommendations and disposal considerations.