service chimie

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: 33.01.64.30.89.22 • : 33.01.64.30.87.49
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Fiche technique

TECHNICAL DATA SHEET

AEROPASTE® 1006

PASTE ADHESIVE

AEROPASTE® 1006

AeroPaste® 1006 is a two-part, low-temperature-curing paste adhesive designed for out-of-autoclave structural bonding and rapid assembly applications. AeroPaste® 1006 paste adhesive provides high strength, high toughness and excellent hot/wet properties with flexible curing schedules and ease of use.

Typical applications for AeroPaste® 1006 include structural bonding of metals and composites, as well as repair applications.

Features and Benefits

- Service temperature of 250°F (121°C) dry and 180°F (82°C) hot/wet
- Good combination of shear and peel properties
- Vertical slump resistant and designed for automated dispensing
- High glue line thickness tolerance

CHARACTERISTICS

Table 1 | Physical Properties

Shelf Life	12 months at or below 75°F (24°C) from date of shipment	
Shop Life	4.5 hours mixed at 75°F (24°C)	
Mix Ratio, [A:B]	By weight	100 to 45
	By volume	2 to 1
Density	Part A Part B Mixed Cured	9.18 lb/gal (1.10 g/cc) 8.26 lb/gal (0.99 g/cc) 8.76 lb/gal (1.05 g/cc) 8.76 lb/gal (1.05 g/cc)
Viscosity at 75°F (24°C)	Part A Part B Initial Mixed	810 poise (81 Pa·s) 200 poise (20 Pa·s) 400 poise (40 Pa·s)
Tg[1] ASTM D 7028	Tg Dry	252°F – 255°F (122°C – 124°C)
	Tg Wet[2]	248°F – 252°F (120°C – 122°C)
Vertical Slump at 75°F (24°C)[3]	Paste thickness: 0.375 in (9.53 mm)	0.140 in (3.56 mm)

[1] Cured at 200°F (93°C) for 120 minutes.

[2] Wet Conditioning: 14 days at 160ºF (71°C) and 100% RH

[3] Performed on a substrate of 0.063 in (1.60 mm) aluminum plate, FPL etched.

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Table 2 | Product Availability

Color	Part A Part B Mixed Cured	Dark Blue Yellow Green Green
Packaging Sizes	0.25 gal (0.95 L) 1.00 gal (3.79 L) 5.00 gal (18.9 L)	

PROPERTIES

Metal Bonding

Table 3 | Bond Gap Tolerance Using Glass Beads and Shim Wires at 80 mils (2.0 mm) with BR® 127 Primer

Property	Test Temperature	Bond Gap, mils (mm)				Substrate
		10 (0.25)	20 (0.51)	40 (1.0)	80 (2.0)	
Wide Area Lap Shear ASTM D 3165	°F (°C)	psi (MPa)				0.064 in (1.63 mm) 2024-T3 bare Aluminum, PAA- treated
	75 (24) 180 (82) 250 (121)	5200 (35.9) 3740 (25.8) 2670 (18.4)	4300 (29.6) 2700 (18.6) 1800 (12.4)	2870 (19.8) 2870 (19.8) 1310 (9.0)	2670 (18.4) 2840 (19.6) 1520 (10.5)	
Floater Roller Peel ASTM D 3167	°F (°C)	lb/in (kN/m)				0.025 in (0.63 mm) and 0.064 in (1.63 mm) 2024-T3 bare Aluminum, PAA- treated
	75 (24) 180 (82) 250 (121)	55 (9.6) - -	48 (8.4) 102 (17.9) 54 (9.5)	43 (7.5) 63 (11.0) 59 (10.3)	- - -	

AeroPaste® 1006 oven cure: Heat to 200°F (93°C) at 3°F (1.7°C), hold at 200°F (93°C) for 120 minutes .

Table 4 | Effect of Cure Cycle with BR® 127 Primer

Property	Test Temperature	Cure Cycle			Substrate
		200°F (93°C) for 2 hours	180°F (82°C) for 4 hours	160°F (71°C) for 6 hours	
Wide Area Lap Shear ASTM D 3165	°F (°C)	psi (MPa)			0.064 in (1.63 mm) 2024-T3 bare Aluminum, PAA- treated
	75 (24) 180 (82) 250 (121)	5200 (35.9) 3660 (25.2) 2670 (18.4)	5210 (35.9) 3800 (26.2) 2390 (16.5)	5000 (34.5) 3650 (25.2) 1650 (11.4)	
Floating Roller Peel ASTM D 3167	°F (°C)	lb/in (kN/m)			0.025 in (0.63 mm) and 0.064 in (1.62 mm) 2024-T3 bare Aluminum, PAA- treated
	75 (24) 180 (82) 250 (121)	55 (9.6) 67 (11.7) 50 (8.8)	64 (11.2) - -	80 (14.0) - -	

AeroPaste® 1006, Glue Line Thickness (GLT) = 10 mil (0.25 mm)

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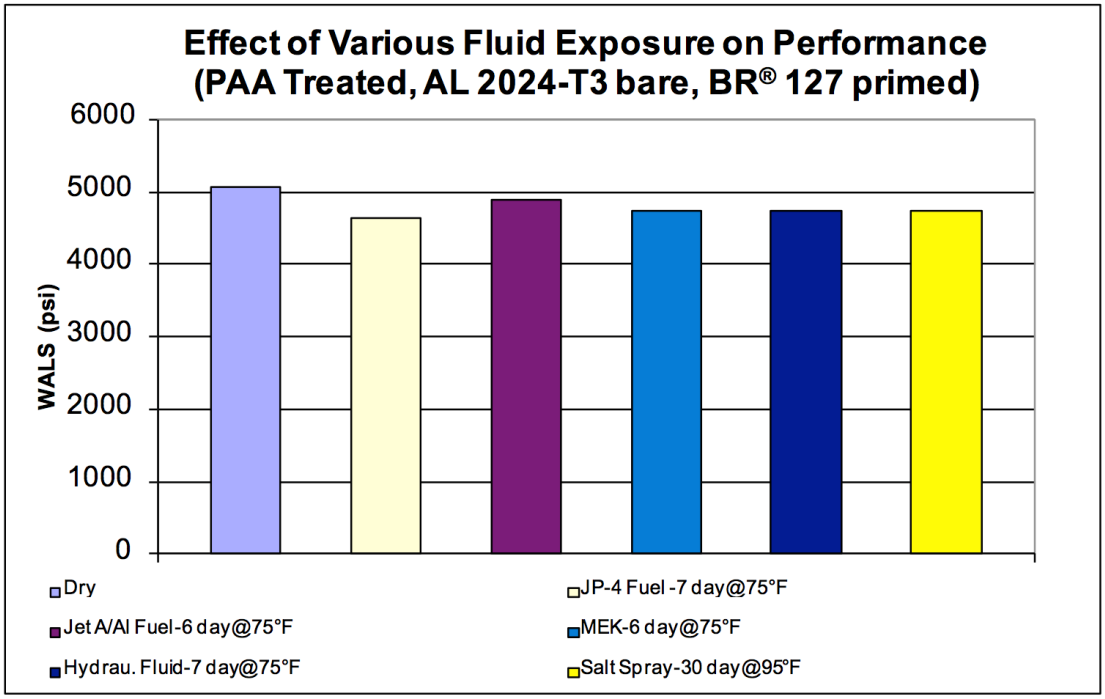

Figure 1 | Fluid Exposure Performance

Composite Bonding

Table 5 | Composite Bonding

Property	Test Condition	Cure Cycle 200°F (93°C) for 2 hours	Substrate
Wide Area Lap Shear ASTM D 3165	°F (°C)	psi (MPa)	20 plies of Torayca® 3900-2/ T800H unidirectional tape
	75 (24) 180 (82) 180 (82)/ wet[1] 250 (121)	5110 (35.2) 3760 (25.9) 4010 (27.6) 2560 (17.7)	
G_{IC} Fracture Toughness ASTM D 5528	°F (°C)	in-lb/in² (kJ/m²)	CYCOM® 970/ T300 unidirectional tape
	75 (24)	5.8 (0.88)	

[1] Wet conditioning: Water saturation for 30 days at 120°F (49°C), 100% RH.

Peel ply surface treatment

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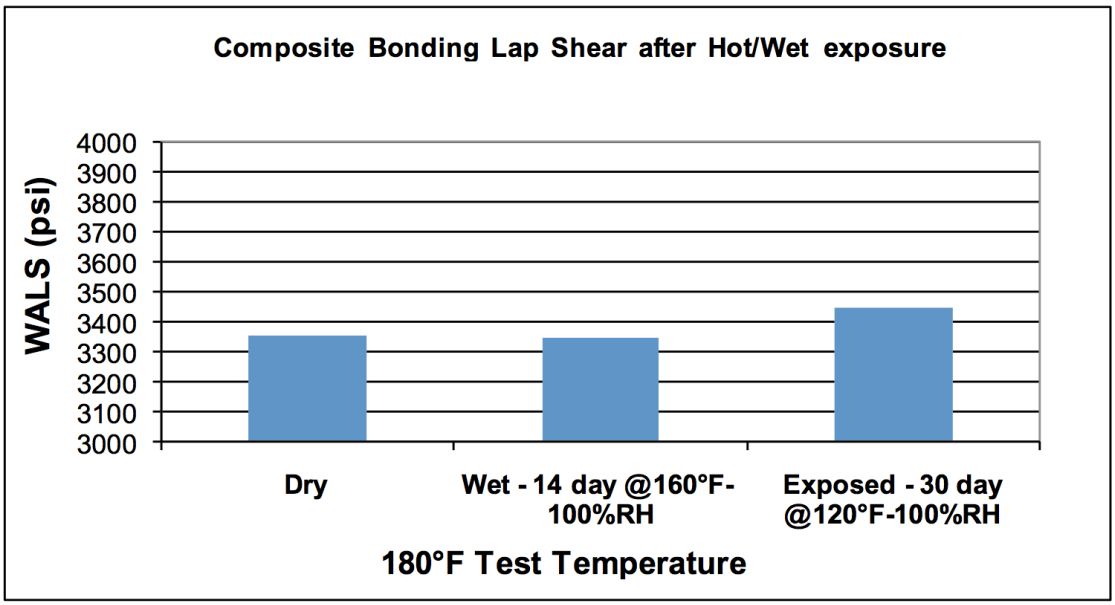

Figure 2 | Hot/Wet Exposure Performance

PROCESSING

Mixing

- Combine Part A and Part B in the correct ratio and mix thoroughly just prior to use
- Heat build-up during cure is normal

Note: Mixing quantities greater than 450 grams is not recommended as heat build-up and exotherm can occur. Actual temperature rise will vary based on paste amount and container size. Care should be taken to avoid high temperatures resulting from uncontrolled exothermic reactions.

Table 6 | AeroPaste® 1006 Exotherm Data

Peak exotherm tested per ASTM D 2471, AeroPaste 1006 Part A:B mix ratio = 100:45 (weight:weight)

Mass (mixed paste)	0.22 lb (100 g)	0.99 lb (450 g)	1.76 lb (800 g)
Time to Max. Temperature	24 hours+[1]	7 hours	5.5 hours
Max Temperature	75°F (24°C)	120°F (49°C)	264°F (129°C)
Total Temperature Rise[2]	0°F (0°C)	45°F (25°C)	189°F (105°C)

[1] Temperature rise not observed

[2] Total Temperature Rise = $Temperature_{Max}$ – Room Temperature

Note: Maximum temperature rise depends on both mass and shape for a given paste at fixed mix ratio.

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Recommended Cure Cycle

Cure Cycle	Apply contact pressure of 3 psi – 5 psi (0.021 MPa – 0.034 MPa). Heat from 75°F (24°C) to 200°F (93°C) at 2°F - 5°F (1°C - 2°C)/minute. Hold at 200°F (93°C) for 120 minutes. Cool under pressure below 140°F (60°C) at 2°F - 5°F (1°C - 2°C)/minute.

Alternative cure temperature between 160°F and 200°F (71°C and 93°C) possible. Consult your Solvay Technical Service representative for more information.

Surface Preparation

Bonding surfaces should be clean, dry and properly prepared depending on the type of substrate material. Consult your Solvay Technical Service representative for information on surface preparation.

Clean Up

It is important to remove 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.

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