Hysol® EA 9380

Epoxy Paste Adhesive

Description
Hysol EA 9380 is a low temp curing two-part adhesive that can be applied to large parts via a controlled meter mix operation or via dual cartridge static mixer kits. Hysol EA 9380 offers the strength, toughness and high temp resistance of heat curing film adhesives with greater flexibility and ease of use.

Features	Benefit
Low temp curing two-part adhesive	Long assembly times
Meter mixable	Facilitates automated application
High strength, toughness and high temp resistance	Film type properties in paste form
Prebond humidity resistant	No surface carbonation

Uncured Adhesive Properties

	Part A	Part B	Mixed
Color	Black	White	Grey
Mix Ratio			
by volume	100	50	
by weight	100	55	
Density, mixed g/cc	0.97	0.99	0.974
Viscosity, Poise/Pa.s @ 85°F/30°C (1)	1,800/180	2,150/215	1.,600/160
Working Life @ 75°F, hours (2)			3
Surface Carbonation			None
Vertical Slump @ 75°F & 0.12 in thick, in			0.4 inches / 10 mm
Shelf life @ 0°F/-18°C	1 year	1 year	
@ <40°F/4°C	1 year	1 year	
@ 77°F/25°C	4 months	1 year	

Footnotes:
1) Measured using parallel plate rheometry. Measurements made at 10 radians/second.
2) Time available for part assembly with retention of complete adhesive properties, measured in 0.016/0.4 mm thick layer

Handling
Mixing - This product requires mixing two components together just prior to application to the parts to be bonded. Complete mixing is necessary. The temperature of the separate components prior to mixing is not critical, but should be close to room temperature (77°F/25°C).

Mix Ratio	Part A	Part B
By Weight	100	55
By Volume	100	50

Note: Volume measurement is not recommended for structural applications unless special precautions are taken to assure proper ratios.

Application

Mixing - Combine Part A and Part B in the correct ratio and mix thoroughly. Heat build-up during or after cure is normal. Maximum temperature recorded in a 1 lb / 450 g mass was 100°F/38°C.

Applying - Bonding surfaces should be clean, dry and properly prepared. For optimum surface preparation consult the Hysol Surface Preparation Guide. Material may pre-heated to 86°F/30°C to improve flow when dispensing from dual cartridge containers.

Curing - This adhesive may be cured at temperatures at or above 160°F/70°C. The recommended range is 160°F/70°C to 175°F/80°C for 240 minutes.

Cleanup - It is important to remove excess adhesive from the work area and application equipment before it hardens. Acetone and many common industrial solvents are suitable for removing uncured adhesive. Consult your supplier's information pertaining to the safe and proper use of solvents.

Bond Strength Performance

Tensile Shear Strength

Tensile lap shear strength tested per EN2243-1 after curing 4 hour @ 160°F/70°C. Adherends are 2024-T3 clad aluminum.

	Typical Results	
Test Temperature, °F/°C	**psi**	**MPa**
-67/-55	4,650	32
77/25	5,350	37
180/82	4,200	29
250/121	2,500	17

Floating Roller Peel

Floating roller peel tested per EN2243-2 after curing 4 hours @ 160°F/70°C. Adherends are 2024-T3 clad aluminum.

Floating Roller Peel @ 77°F/25°C, (lb/in) / (N/25 mm)	50 / 220

Compressive Properties

Compressive Strength @ 77°F/25°C	11,300 psi	78 MPa
Compressive Modulus @ 77°F/25°C	355 ksi	2950 MPa
Shore D Hardness @ 77°F/25°C	77	
Tg dry	200°F	93°C
Tg wet	225°F	108°C

Service Temperature

Service temperature is defined as being the onset of the glass transition using a 4 hour @ 160°F/70°C cure. The service temperature is 200°F/93°C.

Henkel QC Acceptance Testing

This data sheet provides users with typical properties obtained from this adhesive. These values are not meant to be used to develop aerospace QC acceptance testing. Users interested in establishing values and tests for routine QC acceptance should request the Henkel Aerospace Specification, which provides detail test methods and values used to certify this adhesive.

Bulk Resin Properties

Cure, hrs	4 @ 160°F/70°C
Degree of Cure, %	80-85
Tg, onset, as cured	200°F/93°C
Saturated @ 160°F/70°C & 85% RH	225°F/108°C
% H_2O Absorbed, w/w	4.0

Film Comparisons

	Hysol EA 9380	**Hysol EA 9628**	**Hysol EA 9696**
Form	Paste	Supported Film	Supported Film
Film Weight, psf	--	0.06	0.06
Support Fabric	None	Non-woven	Non-woven
Cure, hrs	4 @ 160°F/70°C	1.5 @ 235°F/113°C	1 @ 250°F/120°C
Adherends	2024-T3 Clad, Phosphoric Acid Anodize, BR127 Primed	2024-T3 Bare, Phosphoric Acid Anodize, BR127 Primed	2024-T3 Bare, Phosphoric Acid Anodize, BR127 Primed
Tensile Shear, psi/MPa, as cured			
-67°F/-55°C	4,650 / 32	5,500 / 37.9	6,700 / 46.2
77°F/25°C	5,350 / 37	5,800 / 40.0	6,300 / 43.5
180°F/82°C	4,200 / 29	5,100 / 35.2	4,550 / 31.8
250°F/120°C	2,500 / 17	2,100 / 14.5	2,200 / 15.2
Environmentals, Shear @ 180°F/82°C, psi / 2,000 hr 160°F/70°C @ 85% RH	3,900 / 26.9	2,650 / 18.3	2,750 / 19.0
Bell Peel, (lb/in) / (N/25mm) @ 75°F/25°C	50 / 220	55 / 240	80 / 350
Tg,			
As Cured	210°F/99°C	230°F/110°C	225°F/107°C
Water Saturated, 160°F/70°C @ 85% RH	220°F/104°C	180°F/82°C	200°F/93°C

Handling Precautions

Do not handle or use until the Material Safety Data Sheet has been read and understood.
For industrial use only.

General:
As with most epoxy based systems, use this product with adequate ventilation. Do not get in eyes or on skin. Avoid breathing the vapors. Wash thoroughly with soap and water after handling. Empty containers retain product residue and vapors, so obey all precautions when handling empty containers.

PART A
CAUTION! This material may cause eye and skin irritation or allergic dermatitis. It contains epoxy resins.
PART B
WARNING! This material causes eye and skin irritation or allergic dermatitis. It contains amines.

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