Plexus® HA1803

Two-component Hybrid & Flexible Adhesive

Product Description

Plexus® HA1803 is two-component hybrid flexible adhesives with a unique combination of high elongation, high peel and shear strength. It provides a flexible bonding with feature of a wide range of dissimilar materials, including metals, engineering composites, thermoplastics (PMMA, ABS, PA66 and PC), glass, etc. Plexus® HA1803 has a working time of approximately 3-4 minutes and achieve a handling strength in approximately 15-25 minutes. It also has other following features:

- Withstand severe thermal shock.
- Good ageing resistance and low moisture absorption.
- Does not contain solvent.
- Be particularly suitable for bonding materials with different CTE.

Product Characteristics

Chemical Class	Hybrid
Appearance(mixed)	Grey
Viscosity	Moderate
% Solids by Volume	100
Shelf life, mos	6
Service temperature, ºC	-40~130

Typical Properties of Uncured Materials

Part A	
Appearance	Black
Specific gravity@25 ºC	1.04
Viscosity@25 ºC, cP	110,000
Part B	
Appearance	White
Specific gravity@25 ºC	1.14
Viscosity@25 ºC, cP	30,000
Mixed	
Mix ratio, by vol, A to B	100:50
Mix ratio, by wt, A to B	100:55
Working time @ 25ºC, mins	3-4
Fixture time @ 25ºC, mins	15-25

Typical Cured Properties

The samples were prepared and cured at 25 ºC for 168 hours

Density(cured), g/cm^3	1.08
Hardness, Shore A	83
Tensile strength, MPa	7.8
Elongation at break, %	300
Lap Shear Strength, MPa/Failure Mode	
AL/AL	8.5/CF
GS/GS	9.0/CF
NS/NS	8.4/CF
CS/CS	8.1/CF
SS/SS	8.2/CF
AL6061/AL6061	8.0/CF
AL3003/AL3003	9.0/CF
SMC1/SMC1	6.0/SF
SMC2/SMC2	6.6/CF
PC/PC	6.0/CF
PMMA/PMMA	6.3/CF
PVC/PVC	6.7/CF
PA66/PA66	6.0/CF
ABS/ABS	8.0/CF
PET/PET	6.8/CF
PBT/PBT	7.0/CF
Glass/Glass	8.0/CF
Copper/Copper	8.0/CF
PP/PP (Plasma Treated)	5.5/CF

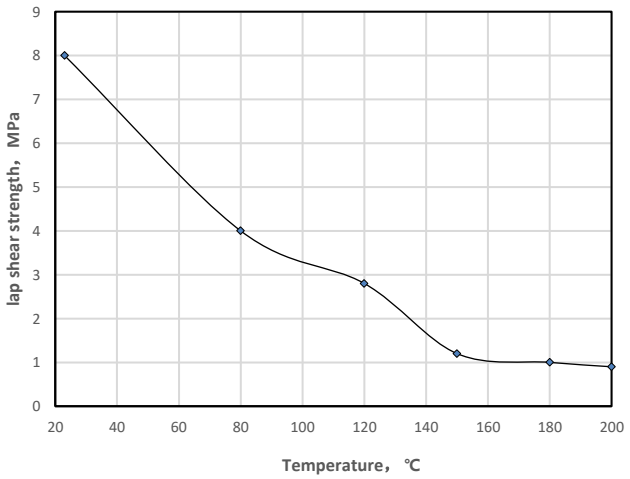
T-Peel Strength, N/mm/Failure Mode

SS/SS	17/CF
AL/AL	11/CF
AL3003/AL3003	13/CF
GS/GS	14/CF

Lap Shear Strength at Different Temperatures

The samples were prepared and cured at 25 ºC for 168 hours followed by 180 ºC for 1 hours, then tested after dwelled at 25 ºC for another 4 hours

AL6061/AL6061	8.0/CF



Lap shear strength at different temperatures(AL6061/AL6061)

Plexus® HA1803

Environmental & Chemical Exposure Test on AL6061

The samples were prepared and cured at 25 °C for 168 hours, then test lap shear strength after putting in different exposure conditions for 500 hours unless otherwise noted.

Condition	MPa/Failure Mode
Standard Curing Process	8.0/CF
High Temperature (90°C)	8.8/CF
Thermal Shock (-40-80°C)	8.9/CF
Damp Heat (85°C & 85% R.H.)	8.7/CF
Salt Spray	8.5/CF
40°C Water	7.5/CF
Boiling Water (3 hours)	7.5/CF

TYPICAL CURING PROCESS

Important: The cure of **Plexus® HA1803** can be affected and accelerated by elevated temperatures, typical curing process recommend as curing for 24 hours @25 °C followed by 4 hours @60 °C.

STRENGTH AFTER AGING

The lap shear strength of bonded aluminum and aluminum will retain ≥7 MPa after coupons cured for 168 hours at 25 °C and then aged by thermal shock from -40~80 °C.

PROCESSING

The surfaces must be dry, degreased and dust free. The treatment may be varied according the substrate (solvent, paper sanding, degreasing, Corona treatment, cold plasma, etc.): consult with the technical service.

Mix well until the colors are homogenous (Different colors of A&B are designed to help judgment) with required static mixer. Apply mixed adhesive directly to the surface, then assemble with mating part within recommended working time (2-4 minutes). Apply firm pressure between mating parts to minimize any gap and ensure good contact, and then cure the sample as cure condition describes.

PRECAUTIONS

Please refer to the appropriate material safety data sheet (MSDS) prior to using this product.

STORAGE

The product is sensitive to moisture in the air. Store the unopened product in a cool, dry, well ventilated location away from sources of moisture and heat. Optimal storage temperatures should range between 10 °C (50 °F) and 30 °C (86 °F). Product removed from the containers during use should not be returned to original containers in order to avoid potential contamination.

CONVERSIONS

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
μm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

WARRANTY

ITW will replace any material found to be defective. Because the storage, handling and application of this material are beyond our control, we can accept no liability for the results obtained.

NOTE

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For technical assistance, please call: 86-021-54265119

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