

June, 2018

3M™ Scotch-Weld™ One-Part Epoxy Adhesive 6101 Off-White

Product Description

3M™ Scotch-Weld™ One-Part Epoxy Adhesive 6101 Off-White (AHS 1831) is a one-part epoxy exhibiting a low temperature cure or fast high temperature cure with long room temperature pot life. It is flexible and toughened resulting in high impact performance.

Product Features

- One-part with stability at room temperature
- Low temperature cure and fast cure options
- Excellent impact resistance
- Plastic Bonding

Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Uncured Physical Properties

| Property | Values | Notes | Test Condition |
|-------------------|-------------------------|---|------------------|
| Components | 1-Part | | |
| Color | Off-White | | |
| Viscosity | 50,000 cP | Cone and Plate, RT, 5Hz, 25mm SS plates, 0.0989 rad cone | |
| Viscosity | 30,000 cP | Brookfield spindle #27 50RPM | |
| UV Tracer | Yes | | |
| Halogens (Cl, Br) | Targeted for compliance | Per IEC 61249-2-21 | |
| Pot Life | >4 weeks | Time to double viscosity measure by cone and plate rheometer. | Room Temperature |

Typical Mixed Physical Properties

| Property | Values | Test Condition | Notes |
|-----------|---------|----------------|---|
| Cure Time | ≈20 min | 149°F(65°C) | Time to 90% cure by differential scanning calorimetry (DSC). Includes ramp time to temperature. |
| Cure Time | ≈3 min | 194°F(90°C) | Time to 90% cure by differential scanning calorimetry (DSC). Includes ramp time to temperature. |

Typical Performance Characteristics

| Property | Values | Method | Notes |
|------------------|--------|-----------|--|
| Tensile Strength | 27 MPa | ASTM D638 | Type V dogbone. Jaw separation 2 in/min, tested at 25°C / 50%RH. |

Table continued on next page

Typical Performance Characteristics (continued)

| Property | Values | Method | Notes |
|----------------------|---------|-----------|--|
| Tensile Impact on AL | 2.4 J | | Tensile impact strength is measured on grit blasted aluminum samples with an Instron™ CEAST 9340 Drop Tower. The specimens are prepared by bonding a square coupon to a larger square coupon with a hole cut out of the middle, known as a window. The bond area is 279 mm ² . The bond thickness is 125 μm with a 2.5 mm bond width around the perimeter of the square coupon. The drop test is run with a 22kN impact probe, drop height 115mm, and 10Kg of additional mass added. The energy required to debond the coupon in tensile mode is reported in J. |
| Elongation | 100 % | ASTM D638 | Type V dogbone. Jaw separation 2 in/min, tested at 25°C / 50%RH. |
| Young's Modulus | 300 MPa | ASTM D638 | Type V dogbone. Jaw separation 2 in/min, tested at 25°C / 50%RH. |

| Overlap Shear Strength | Substrate |
|------------------------|---|
| 32 Mpa | Al to Al |
| 23 Mpa | Al to SUS |
| 6 Mpa | Al to PC/ABS |
| 10 Mpa | Al to PC |
| 15 Mpa | Al to 30% Glass Filled PC (Lexan®) |
| 9 Mpa | Al to 50% Glass Filled Polyamide (Kalix®) |

Property: Overlap Shear Strength

Test Condition : Room Temperature

notes: Overlap shear strength was measured using a 0.5" x 1.0" bond area at 150 μm (6 mil) thickness. Jaw separation rate was 0.1 in/min for metals and 2 in/min for mixed metal to plastics. Tests were conducted at 25°C / 50% RH. Aluminum was etched and stainless steel was grit blasted prior to bonding. Plastic and stainless steel were cleaned with IPA prior to bonding. Thickness of aluminum substrates was 0.0625in.

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Typical Performance Characteristics (continued)

| Overlap shear strength after environmental aging for 72 hrs | | Test Condition | Substrate | Failure mode |
|---|--------|--|--------------|--------------|
| 32 Mpa | | Control, Room Temperature | Al to Al | |
| 6 Mpa | | Control, Room Temperature | Al to PC/ABS | SF |
| 31 Mpa | 100 %* | Thermal Cycle, -40°F(-40°C) to 185°(85°C); 36 thermal cycles | Al to Al | |
| 4 Mpa | 66 %* | Thermal Cycle, -40°F(-40°C) to 185°(85°C); 36 thermal cycles | Al to PC/ABS | SF |
| 29 Mpa | 91 %* | Heat and Humidity Soak, 149°(65°C) / 90%RH | Al to Al | |
| 8 Mpa | 133 %* | Heat and Humidity Soak, 149°(65°C) / 90%RH | Al to PC/ABS | SF |

Property: Overlap shear strength after environmental aging for 72 hrs

notes: *% adhesion retention relative to control SF - Plastic substrate failure

Available Sizes

Packaging: 30 mL syringes

Handling/Application Information

Application Ideas

- Mobile device bonding
- Wearable electronic device bonding
- Electronic Assembly

Application Techniques

- Dispensing
- Jetting
- Screen or stencil printing

Directions for Use

Thaw for one to two hours at room temperature before using. Do not heat syringe above 27°C when warming.

Storage and Shelf Life

The shelf life of 3M™ One-Part Epoxy Adhesive 6101 Off-White is 18 months from the date of manufacture when stored in the original packaging materials and stored at -20°C (-4°F).

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Safety Data Sheet: Consult Safety Data Sheet before use.

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References

1. Safety Data Sheet

Url: https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=6101 Off-White

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