

3M Science. Applied to Life.™

# Technical Data Sheet

## 3M™ Scotch-Weld™ One-Part Epoxy Adhesive 6102 Black

V-5 | English-US
**Last Revision Date:** October, 2026
**Supersedes:** February, 2026

Additional Info

Regulatory Info/SDS

## Product Description

3M™ Scotch-Weld™ One-Part Epoxy Adhesive 6102 Black is a one-part epoxy exhibiting a low temperature cure with long room temperature pot life and low viscosity. 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
- Shear-thinning Viscosity
- Excellent impact resistance
- Bonds a variety of plastics and metals

## 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

| Attribute Name | Test Method | Value |
|---|---|---|
| Color | | Black |
| Components | | 1-Part |
| UV Tracer | | No |
| Density - Liquid | ASTM D1875 | 1.29 g/mL [1] |
| Pot Life | ASTM D7867 | 4 weeks [2] |
| Halogens (Cl, Br) | | Representative samples have been tested and meet the chlorine and bromine content requirements of IEC 61249-2-21 [3] |

[1] Measured by Helium gas pycnometer at 23°C

[2] Determined by meeting minimum application viscosity requirements of the adhesive over time @ 23°C

[3] Per IEC 61249-2-21

Temperature: 25 °C
Test Method: ASTM D7867

| Attribute Name | Test Condition | Value |
|---|---|---|
| Viscosity - Cone and Plate | 0.1 Hz | 730 Pa·s [1] |
| Viscosity - Cone and Plate | 1 Hz | 160 Pa·s [1] |
| Viscosity - Cone and Plate | 10 Hz | 41 Pa·s [1] |
| Thixotropic Index | 0.1 Hz / 1 Hz | 4.6 [1] |
| Thixotropic Index | 1 Hz / 10 Hz | 3.9 [1] |

[1] 40mm, 2.0°, 50um truncation cone and Peltier plate. 60s pre-shear at 100 Hz. 5 min flow ramp form 0.01 to 100 Hz @ 25°C

## Typical Cure Profiles

Temperature: 65 °C
Test Method: ASTM D4473

| Attribute Name | Value |
|---|---|
| Time to Double Complex Viscosity | 4.4 min [1] |
| Time to 1,000 Pa.s Complex Viscosity | 5.7 min [1] |
| Time to 0.1 MPa Storage Modulus | 6.4 min [1] |
| Time to 1 MPa Storage Modulus | 6.9 min [1] |
| Time to 80% Storage Modulus Max | 9.7 min [1] |

[1] Parallel Plate Rheometer: Isothermal - 25mm parallel plate, 1 Hz

Substrate: Etched Aluminum
Temperature: 65 °C
Test Condition: 23 °C
Test Method: ASTM D1002, ISO 4587

| Attribute Name | Dwell Time | Value |
|---|---|---|
| Time to Handling Strength | | 15 min [1] |
| Time to Cure | | 20 min [2] |
| Overlap Shear Strength | 15 min | 29 MPa [3] |
| Overlap Shear Strength | 20 min | 32 MPa [3] |
| Overlap Shear Strength | 60 min | 39 MPa [4] |

[1] 2mm thick substrate. Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Dwell time refers to time coupons are exposed to condition in oven. Time to consistent >50 psi (0.34 MPa) overlap shear strength. Tested 5±1 minutes out of oven.

[2] 2mm thick substrate. Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Dwell time refers to time coupons are exposed to condition in oven. Time to 80% overlap shear full strength

[3] 2mm thick substrate. Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Temperature refers to dwell time coupons are exposed to condition in oven. Coupons are tested 5±1 minutes after removing from oven. Pull rate 10 mm/min.

[4] 2mm thick substrate. Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Temperature refers to dwell time coupons are exposed to condition in oven. Coupons are tested 24 hours after removing from oven. Pull rate 10 mm/min.

## Typical Cured Characteristics

Temperature: 23 °C (73 °F)

| Attribute Name | Test Method | Value |
|---|---|---|
| Density - Cured Solid | ASTM D1875 | 1.37 g/mL [1] |
| Volume Shrinkage | ASTM D1875 | 5.2 % [1] |
| Peak Stress | ASTM D638, ISO 527 | 25 MPa [2] |
| Young's Modulus | ASTM D638, ISO 527 | 610 MPa [2] |
| Shore D Hardness | ASTM D2240 | 72 [3] |
| Poisson's Ratio | ASTM D638, ISO 527 | 0.4 [2] |
| Toughness | ASTM D638, ISO 527 | 12 J/m³ [2] |
| Elongation at Break | ASTM D638, ISO 527 | 71 % [2] |
| Notched Izod Impact | ASTM D256-10 | 102 J/m [4] |
| Notched Izod Impact @ -20°C | ASTM D256-10 | 70 J/m [4] |

[1] Measured by Helium gas pycnometer

[2] 0.5mm film cured at 65°C for 1 hour. Conditioned for >5 days in 23°C/50%RH. Die cut type IV dog bone. 100mm/min pull rate. Digital Image Correlation (DIC) used for strain measurements.

[3] 1 mm films stacked to 6 mm

[4] 3 mm thick sample

| Attribute Name | Test Method | Temperature | Test Condition | Value |
|---|---|---|---|---|
| Tg by DMA | ASTM D7028 | | 1 Hz | 42 °C [1] |
| Storage Modulus by DMA | ASTM D7028 | -20 °C | 1 Hz | 3100 MPa [1] |
| Storage Modulus by DMA | ASTM D7028 | 0 °C | 1 Hz | 2900 MPa [1] |
| Storage Modulus by DMA | ASTM D7028 | 25 °C | 1 Hz | 2300 MPa [1] |
| Storage Modulus by DMA | ASTM D7028 | 45 °C | 1 Hz | 100 MPa [1] |
| Storage Modulus by DMA | ASTM D7028 | 65 °C | 1 Hz | 22 MPa [1] |
| Storage Modulus by DMA | ASTM D7028 | 85 °C | 1 Hz | 21 MPa [1] |
| Storage Modulus by DMA | ASTM D4065 | 25 °C | 0.1 Hz | 680 MPa [2] |
| Storage Modulus by DMA | ASTM D4065 | 25 °C | 1 Hz | 1220 MPa [2] |
| Storage Modulus by DMA | ASTM D4065 | 25 °C | 10 KHz | 2710 MPa [2] |

[1] Cured as per recommended cure schedule. Conditioned to 23C/50%RH. 1Hz film tension DMA. Tg reported as peak of Tan Delta.

[2] Cured as per recommended cure schedule. Conditioned to 23C/50%RH. Multi-frequency incremental temperature sweep film tension DMA. Mastercurve constructed using time-temperature-superposition

## Typical Performance Characteristics

### Overlap Shear Strength

Test Condition: 1 hr at 65 °C + 24 hr at 23 °C
Test Method: ASTM D1002, ISO 4587

| Substrate | Value |
|---|---|
| Etched Aluminum | 39 MPa (Cohesive Failure ) [1] |
| Stainless Steel | 23 MPa (Adhesive Failure ) [2] |
| FR-4 | 36 MPa (Mixed Mode Failure ) [3] |
| PC/ABS Glass-filled | >11 MPa (Substrate Failure ) [3] |
| PC/Siloxane | 5 MPa (Adhesive Failure ) [3] |
| PBT Glass-filled | 13 MPa (Adhesive Failure ) [3] |
| Polyamide Glass-filled | 12 MPa (Adhesive Failure ) [3] |

[1] Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Pull rate: 10 mm/min.

[2] Bond dimensions: 12.7mm x 25.4mm x 0.15mm. Pull rate: 10 mm/min. Substrate grit blasted with AC130-2 3M Surface Treatment Solution.

[3] Bond dimensions: 6.35mm x 25.4mm x 0.15mm. Pull rate: 10 mm/min.

## Electrical and Thermal Properties

| Attribute Name | Test Method | Temperature | Test Condition | Value |
|---|---|---|---|---|
| Dielectric Strength | ASTM D149 | 25 °C | | 33 kV/mm [1] |
| Dielectric Constant (Dk) | ASTM D150 | 23 °C (73 °F) | 100 KHz | 4.79 |
| Dissipation Factor (Df) | ASTM D150 | 23 °C (73 °F) | 100 KHz | 0.009 |
| Volume Resistivity | ASTM D1257 | 23 °C (73 °F) | 500 V, 60 s | 1E+15 Ω-cm |

[1] Measured at 0.26 mm

## Handling/Application Information

### Directions for Use

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

### Application Techniques

- Dispensing
- Jetting
- Screen or stencil printing
- Molding

### Application Examples

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

## Storage and Shelf Life

Store product between -80° to -20 °C (-4 °F) in the original, unopened packaging. For best performance, use this product within 18 months from date of manufacture.

## Available Sizes

| Attribute Name | Value |
|---|---|
| Packaging | 30 mL syringe, 55mL cartridge, 591 mL cartridge |

## Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is commercially available from 3M. The commercially available product will have a COA specification established. The COA contains the 3M specifications and test methods for the products performance limits that the product will be supplied against. The 3M product is supplied to 3M COA test specifications and the COA test methods. Contact your local 3M representative for this product's COA.

This technical data sheet may contain preliminary data and may not match the COA specification limits and/or test methods that may be used for COA purposes.

## Automotive Disclaimer

**Select Automotive Applications:**
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

## Information

**Precautionary Information:** Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577

**Technical Information:** The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

**Product Selection and Use:** Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

**Warranty, Limited Remedy, and Disclaimer:** Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

**Limitation of Liability:** Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

**Disclaimer:** 3M industrial and occupational products are intended, labeled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labeled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit www.3M.com.

3M™ Industrial Adhesives and Tapes Division
3M Center, St. Paul, MN 55144-1000
3M.com/iatd

3M is a trademark of 3M Company
©3M 2026 (10/26)