



Technical Data Sheet

3M™ Nitrile High Performance Plastic Adhesive 1099

Product Features

- 3M™ Nitrile High Performance Plastic Adhesive 1099 is a medium viscosity grade for most brush or flow applications.
- Fast drying.
- Provides strong, flexible bonds.
- Resists weathering, water, fuels, oil and plasticizers.
- Bonds vinyl extrusions and sheeting. (May stain light colored vinyls).
- Also bonds fabrics, foams and many plastics. (Not recommended for polyolefin plastic bonding).
- May be heat cured to obtain superior physical properties.

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 Physical Properties

| Property | Values | Additional Information |
|--|-------------------------|------------------------|
| Solids Content by Weight | 31 to 37 % | |
| Color | Light Tan (wet and dry) | |
| Flash Point | 0 °F | View |
| Notes: Closed Cup | | |
| Flash Point | -18 °C | View |
| Notes: Closed Cup | | |
| Carrier Solvent | Acetone | |
| Coverage | 456 sq ft/gal | View |
| Notes: @ 2.5 g/ft ² dry wt. | | |
| Viscosity | 2000 to 4000 cP | View |

Notes: Brookfield RVF #3 sp @ 10 rpm






Bonding Range Up to 40 min [View](#) 

Notes: 10 mil wet film 2 surfaces


Typical Uncured Physical Properties


| Property | Values | Additional Information |
|------------|-------------------|------------------------|
| Base | Nitrile Rubber | |
| Net Weight | 7.3 to 7.5 lb/gal | |


Typical Performance Characteristics


| Property | Values | Additional Information |
|--|-----------|--|
| 180° Peel Adhesion | 264 oz/in | View  |
| Dwell/Cure Time: 24.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |
| 180° Peel Adhesion | 416 oz/in | View  |
| Dwell/Cure Time: 72.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |
| 180° Peel Adhesion | 376 oz/in | View  |
| Dwell/Cure Time: 120.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |
| 180° Peel Adhesion | 440 oz/in | View  |
| Dwell/Cure Time: 168.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |
| 180° Peel Adhesion | 496 oz/in | View  |
| Dwell/Cure Time: 2.0 Dwell Time Units: week Temp C: 23C Temp F: 72F Environmental Condition: 50%RH | | |

Substrate: Canvas to Steel


| | | |
|--|-----------|--|
| 180° Peel Adhesion | 480 oz/in | View  |
| Dwell/Cure Time: 3.0 Dwell Time Units: week Temp C: 23C Temp F: 72F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |


| | | |
|--|-----------|--|
| 180° Peel Adhesion | 280 oz/in | View  |
| Dwell/Cure Time: 3.0 Dwell Time Units: week Temp C: -34C Temp F: -29F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |

| | | |
|---|-----------|---|
| 180° Peel Adhesion | 112 oz/in | View  |
| Dwell/Cure Time: 3.0 Dwell Time Units: week Temp C: 66C Temp F: 150F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |

| | | |
|---|----------|--|
| 180° Peel Adhesion | 56 oz/in | View  |
| Dwell/Cure Time: 3.0 Dwell Time Units: week Temp C: 82C Temp F: 180F Environmental Condition: 50%RH Substrate: Canvas to Steel | | |

| | | |
|--|-------------------------|--|
| Overlap Shear Strength | 2989 lb/in ² | View  |
| Dwell/Cure Time: 30.0 Dwell Time Units: min Temp C: 177C Temp F: 300F Environmental Condition: +100 psi Test Condition: -67°F(-55°C) Substrate: Aluminum to Aluminum | | |

| | | |
|--|-------------------------|--|
| Overlap Shear Strength | 2409 lb/in ² | View  |
| Dwell/Cure Time: 30.0 Dwell Time Units: min Temp C: 177C Temp F: 300F Environmental Condition: +100 psi Test Condition: -30°F(-34°C) Substrate: Aluminum to Aluminum | | |

| | | |
|--|-------------------------|--|
| Overlap Shear Strength | 1306 lb/in ² | View  |
| Dwell/Cure Time: 30.0 Dwell Time Units: min Temp C: 177C Temp F: 300F Environmental Condition: +100 psi Test Condition: Room Temperature Substrate: Aluminum to Aluminum | | |

Overlap Shear Strength

897 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: min
Temp C: 177C
Temp F: 300F
Environmental Condition: +100 psi
Test Condition: 150°F(66°C)
Substrate: Aluminum to Aluminum

Overlap Shear Strength

643 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: min
Temp C: 177C
Temp F: 300F
Environmental Condition: +100 psi
Test Condition: 180°F(82°C)
Substrate: Aluminum to Aluminum

Overlap Shear Strength

607 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: min
Temp C: 177C
Temp F: 300F
Environmental Condition: +100 psi
Test Condition: 200°F(93°C)
Substrate: Aluminum to Aluminum

Overlap Shear Strength

467 lb/in²View 

Dwell/Cure Time: 30.0
Dwell Time Units: min
Temp C: 177C
Temp F: 300F
Environmental Condition: +100 psi
Test Condition: 250°F(121°C)
Substrate: Aluminum to Aluminum

Storage and Shelf Life

Store product at 60-80°F (16-27°C) for maximum storage life. Higher temperatures can reduce normal storage life. Lower temperatures can cause increased viscosity of a temporary nature. Rotate stock on a “first in-first out” basis.

When stored at the recommended conditions in the original, unopened container this product has a shelf life of 24 months from date of manufacture.

Bottom Matter

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Handling/Application Information

Application Equipment

Note: Appropriate application equipment can enhance adhesive performance. We suggest the following application equipment for the user's evaluation in light of the user's particular purpose and method of application.

1. Pumping:

3M™ Nitrile High Performance Plastic Adhesive 1099, 1099-L*

5 Gallon or less dispensing system:

Pressure pot 100 psi operating pressure. Fluid hose should be nylon lined.

55 Gallon dispensing system:

Pump – 2:1 ratio, double acting, ball type checks, bung mounting, divorced design.

*Synthetic materials such as packings, seals and hose lines must be resistant to the solvent in these adhesives. nylon, compar, and PTFE lined or coated parts are suggested.

2. Spray:

Plastic Adhesive 1099-L: Production

Type Spray Equipment

Note: This adhesive is not recommended for airless spraying.

12-3 H.P. Compressor for intermittent use.

4 H.P. Compressor for continuous use.

2To Measure Fluid Flow: Pressurize fluid source only; pull trigger; flow material into measuring device for 60 seconds, increase or decrease fluid source pressure to obtain desired fluid flow.

All material hoses should be nylon or PVA lined.

3. Brush/Roller: Typical brushes designed for oil based paints may be used.

Directions for Use

1. Surface Preparation: Remove all dust, dirt, oil, grease, wax, loose paint, etc.

Wiping with methyl ethyl ketone (MEK)* or 3M™ Citrus Base Cleaner* will aid in preparing the surface for bonding.

2. Application Temperature: For best results, the temperature of the adhesive and surfaces should be at least 65°F (18°C).

3. Application: Stir well before using.

Porous Surface(s): Brush, flow or spray a thin, even coat of adhesive to one or both surfaces. Coating both surfaces is preferred since it gives greater strength and permits longer open time before bonding. Very absorbent materials may require more than one coat. Bond while adhesive is still wet or aggressively tacky. Join surfaces with firm pressure.

Non-Porous Surface(s): Brush, flow or spray a thin, even coat of adhesive to both surfaces. Allow adhesive to dry until tacky. Join surfaces with firm pressure.

4. Drying Time: Drying time depends on temperature, humidity, air movement, and porosity of the materials bonded. Greater immediate strength may be obtained by heat or solvent reactivation. See Reactivation below.

5. Reactivation: To solvent reactivate, coat both surfaces with adhesive. Allow to dry tack-free. Lightly wipe one surface with a solvent such as methyl ethyl ketone (MEK).* Complete bond within 30 seconds.

To heat reactivate, coat both surfaces with adhesive. Allow adhesive to dry completely. Reactivate by heating one or both surfaces to a minimum of 180°F (82°C). Assemble immediately (while hot), using firm pressure to ensure contact.

6. Curing: 3M™ Nitrile High Performance Plastic Adhesive 1099 and 1099-L may be heat cured to obtain superior properties. Cure assembled parts at time and temperature listed using 100 psi pressure on the bond line.

Temperature of Bondline Time for Minimum Cure

200°F (93°C) 120 minutes

240°F (116°C) 40 minutes

280°F (138°C) 12 minutes

320°F (160°C) 8 minutes

360°F (182°C) 5 minutes

400°F (204°C) 2 minutes

7. Cleanup: Excess adhesive may be removed with methyl ethyl ketone (MEK)* or acetone,* preferably while adhesive is still wet.

*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow manufacturer's precautions and directions for use.

References

| Property | Values |
|-----------------------|---|
| 3m.com Product Page | https://www.3m.com/3M/en_US/p/d/b40069407/ |
| Safety Data Sheet SDS | https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=1099 |

Family Group

Link Tags:

- 1099
- 1099-L

| Products | Solids Content by Weight | Color |
|----------|--------------------------|-------------------------|
| 1099 | 31 to 37 % | Light Tan (wet and dry) |
| 1099-L | 22 to 26 % | N/A |

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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 or (651) 737-6501.

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