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 Uncured Physical Properties

Attribute Name	Value
Base	Nitrile Rubber
Net Weight	0.87 — 0.90 kg/L

Typical Physical Properties

Attribute Name	Temperature	Value
Color		Light Tan (we and dry)
Solids Content by Weight		31 — 37 %
Carrier Solvent		Acetone
Coverage		456 ft²/gal [1]
Bonding Range		Up — 40 min [2]
Flash Point		-15 °C [3]
Viscosity	27 °C	2000 — 4000 cP [4]

[1] @ 27 g/m² (2.5 g/ft²) dry
[2] 10 mil (0.25 mm) wet film 2 surfaces
[3] Closed Cup
[4] Brookfield RVF #3 sp @ 10 rpm

Typical Performance Characteristics

180° Peel Adhesion

Substrate: Canvas to Steel

Dwell Time	Temperature	Value
24 h	23 °C	29 N/cm
72 h	23 °C	45 N/cm
120 h	23 °C	41 N/cm
168 h	23 °C	48 N/cm
2 week	23 °C	54 N/cm
3 week	23 °C	53 N/cm
3 week	-34 °C	31 N/cm

Dwell Time	Temperature	Value
3 week	66 °C	12 N/cm
3 week	82 °C	6.1 N/cm

Overlap Shear Strength

Substrate: Aluminum to Aluminum
Dwell Time: 30 min
Environmental Condition: +700 kPa (+100 psi)

Temperature	Test Condition	Value
121 °C		3.2 MPa
177 °C	-55 °C (-67 °F)	21 MPa
177 °C	-34 °C (-30 °F)	17 MPa
177 °C	23 °C	9.0 MPa
177 °C	66 °C (150 °F)	6.2 MPa
177 °C	82°C (180 °F)	4.4 MPa
177 °C	93 °C (200 °F)	4.2 MPa

Handling/Application Information

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.

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

DeVilbiss JGA, MSA: 777 Air Cap, FX Fluid Tip, 65 psi, 16 CFM, 5fl oz/min
Binks No. 95 or 2001: 63PB, 63BSS, 65 psi, 16.5 CFM, 6fl oz/min

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.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original, unopened packaging, out of direct sunlight. Lower temperatures cause increased viscosity of a temporary nature. For best performance, use this product within 24 months from date of manufacture.

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

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 the product. For information, please contact your local 3M Office. You can click or scan QR code to see contact detail or visit www.3M.com Important Information: All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law. Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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