

March, 2015

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.



3M™ Nitrile High Performance Plastic Adhesive 1099

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		Notes	Test Condition
Color	Light Tan (we and dry)			
Solids Content by Weight	31 to 37 %			
Flash Point	0 °F	-18 °C	Closed Cup	
Solvent	Acetone			
Coverage	456 sq ft/gal		@ 2.5 g/ft ² dry wt.	
Viscosity	2000 to 4000 cP		Brookfield RVF #3 sp @ 10 rpm	80°F(27°C)
Bonding Range	Up to 40 min		10 mil wet film 2 surfaces	

Typical Uncured Physical Properties

Property	Values
Base	Nitrile Rubber
Net Weight	7.3 to 7.5 lb/gal

Typical Performance Characteristics

180° Peel Adhesion	Dwell/Cure Time	Test Condition
264 oz/in	1 day @ Room Temperature	Room Temperature
416 oz/in	3 days @ Room Temperature	Room Temperature
376 oz/in	5 days @ Room Temperature	Room Temperature
440 oz/in	7 days @ Room Temperature	Room Temperature
496 oz/in	2 wk @ Room Temperature	Room Temperature
480 oz/in	3 wk @ Room Temperature	Room Temperature
280 oz/in	After 3 wk @ Room Temperature	-30°F(-34°C)
112 oz/in	After 3 wk @ Room Temperature	150°F(66°C)
56 oz/in	After 3 wk @ Room Temperature	180°F(82°C)

Property: 180° Peel Adhesion
Substrate: Canvas to Steel

Typical Performance Characteristics (continued)

Overlap Shear Strength	Test Condition
2989 lb/in ²	-67°F(-55°C)
2409 lb/in ²	-30°F(-34°C)
1306 lb/in ²	Room Temperature
897 lb/in ²	150°F(66°C)
643 lb/in ²	180°F(82°C)
607 lb/in ²	200°F(93°C)
467 lb/in ²	250°F(121°C)

Property: Overlap Shear Strength
 Dwell/Cure Time: 300°F(177°C) for 30 min with 100 psi pressure on the bondline.
 Substrate: Aluminum to Aluminum

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

Spray Gun	Air Cap	Fluid Tip	Air Pressure	Approximate Air Requirement ¹	Fluid Flow ²
DeVilbiss JGA, MSA	777	FX	65 psi	16 CFM	5 fl. oz./min.
Binks No. 95 or 2001	63PB	63BSS	65 psi	16½ CFM	6 fl. 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.

Handling/Application Information (continued)

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.

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.

Trademarks

3M is a trademark of 3M Company.

References

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

	1099	1099-L
Color	Light Tan (we and dry)	Light Tan (we and dry)
Solids Content by Weight (%)	31 to 37	22 to 26

3M™ Nitrile High Performance Plastic Adhesive 1099

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.

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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