High Performance Industrial Plastic Adhesives
4693 • 4693H

Technical Data **January, 2017**

Features

- 3M™ High Performance Industrial Plastic Adhesive 4693: low viscosity grade for spray or brush application.
- 3M™ High Performance Industrial Plastic Adhesive 4693H: high viscosity grade in collapsible tubes for flow applications.
- Clear, elastomeric adhesives with high immediate bond strength, long tack range and contact bond properties.
- Exhibit outstanding bond strength to many metals and many plastics such as ABS, glass filled polyester, polypropylene, linear polyethylene and hi-impact styrene.
- Dries to a tough, flexible and transparent film with good resistance to water and aging.

Note: Not recommended for use on plasticized vinyl. Use on plasticized vinyl may result in poor adhesion or bonds that deteriorate over time.

Typical Physical Properties

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

Product	3M™ High Performance Industrial Adhesives	
	4693	4693H
Base	Synthetic Elastomer	Synthetic Elastomer
Color	Light Amber	Light Amber
Solvent	Clyclohexane, acetone	Clyclohexane, acetone
Net Weight (approx.)	6.6 - 7.0 lbs./gal.	6.8 - 7.2 lbs./gal.
Flash Point	1°F (-17°C) c.c.	1°F (-17°C) c.c.
Solids Content (approx.)	By wt., 24-28%	By wt., 38-43%
Coverage (typical)	308 $ft.^2$/gal. @ 2.5 gms./$ft.^2$ dry wt.	457 $ft.^2$/gal. @ 2.5 gms./$ft.^2$ dry wt.
Viscosity (approx.)	175 - 275 cps	1800 - 3000 cps
Brookfield Viscometer	RVF #2 sp @ 20 rpm @ 80°F (27°C)	RVF #4 sp @ 20 rpm @ 80°F (27°C)

Handling/Application Information

Surface Preparation: Surfaces must be dry and free of dust, dirt, grease, oil, mold release materials or other contaminants. For best results, temperature of adhesive should be at least 65°F (18°C).

Application

Porous Surface: Brush, spray or flow an even coat of adhesive to both surfaces. Very absorbent materials may require more than one coat. Bond while adhesive is tacky. Join surfaces with firm pressure.

Handling/Application Information *(continued)*

Non-Porous Surface: Brush, spray or flow an even coat of adhesive to both surfaces. To achieve a satisfactory bond, adhesive must be force dried @ 180°F (82°C). Bond with firm pressure while warm.

Drying Time: Drying time depends on temperature, humidity, air movement and porosity of the materials bonded. When brushing, wait a minimum of 10 minutes. Bonds can be made up to 60 minutes. Sprayed bonds may be made almost immediately and up to 60 minutes.

Heat Reactivation: Adhesive may be heat reactivated by raising the glueline temperature to 180°F (82°C).

Cleanup: Excess adhesive may be removed with a solvent such as 3M™ Solvent No. 2*****

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

Application Equipment Suggestions

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:** A 2:1 divorced design pump is suggested. All material hoses should be nylon or PVA lined. Packings and glands in contact with the adhesive should be PTFE lined.

2. **Spray (Air Atomized):**

   Production Type Spray Equipment

Spray Gun	Air Cap	Fluid Tip	Air Pressure	Approximate Air Requirement*	Fluid Flow
DeVilbiss JGA	777	FX	80 psi	25 CFM	8 fl. oz./min.
Binks No. 95 or 2001	66 PH	63A	80 psi	25 CFM	9 fl. oz./min.
Low Volume Spray Equipment					
DeVilbiss JGA	45	E	25 psi	3½ CFM	8-9 fl. oz./min.
Binks No. 95 or 2001	66 SE	66	25 psi	6 CFM	8-9 fl. oz./min.

*3 H.P. Compressor for intermittent use.
5 H.P. Compressor for continuous use.
**To 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.

3. **Hoses:** All material hoses should be nylon or PVA lined. If product is sprayed, use functioning spray booth.

4. **Brush/Roller:** Typical brushes/rollers designed for oil-based paint may be used.

Typical Performance Characteristics

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

180° Peel Strength @ RT
(after aging 1-2 days @ RT and 1 day @ 120°F (49°C)

Canvas to:	Value lb/in width	Canvas to:	Value lb/in width
Aluminum	23	Polyester, filled	21
Steel	22	Polyethylene, linear	11
ABS	20	Polypropylene	19
Acrylic	18	PVC, Hi-impact	20
Nylon 6	19	Styrene, Hi-impact	21
Phenolic Board	20		

Creep Resistance
Canvas/Canvas
(after aging 1-2 days @ RT and 1 day @ 120°F (49°C) 500 gram wt. applied in peel)

Test Temp.	Creep in 2 hrs. (inches)
160°F (71°C)	0

Storage

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.

Shelf Life

When stored at the recommended temperature in the original, unopened container this product has a shelf life of 15 months from date of shipment.

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 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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ISO 9001:2000

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