3M

Scotch-Weld™

Plastic and Rubber Instant Adhesives

PR40 • PR100 • PR600 • PR1500 • PR Gel

Technical Data **April, 2016**

Product Description

3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesives are designed to give exceptional performance on difficult-to-bond plastic and rubber substrates. These adhesives may be bonded to like substrates or in combination with metal or composite substrates. Superior performance is achieved on materials such as heavily plasticized PVC, EPDM, ABS, Nylon, Santoprene®, and Viton®.

Specific Features

- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR40 is a low viscosity cyanoacrylate adhesive which bonds close-fitting plastic or rubber parts quickly and with high strength.
- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR100 is a general purpose, low viscosity bonder for rubber or plastic surfaces.
- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR600 is a medium viscosity cyanoacrylate with some gap-filling capability. It will bond many common substrates including plastics and rubbers.
- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR1500 is a high viscosity cyanoacrylate that can be used on plastic or rubber parts that do not fit well together. It has excellent gap-filling characteristics and will not wick into unwanted areas.
- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR Gel is a fast curing, very high viscosity, gap-filling cyanoacrylate. Its gel formulation is suitable for bonding poorly mating components and for porous substrates and can be used on vertical surfaces as it will not drip or slump.

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Typical Uncured Physical Properties

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

	3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesives				
	PR40	**PR100**	**PR600**	**PR1500**	**PR Gel**
Color	Clear	Clear	Clear	Clear	Clear
Base	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid
Appearance	Liquid	Liquid	Liquid	Liquid	Liquid
Specific Gravity (g/ml)	1.06	1.06	1.07	1.08	1.10
Viscosity (cps)	20 - 45[1]	70-110 [1]	500-700 [2]	1,200 - 1,700 [3]	100,000 – 150,000 [4]
Time to Handling Strength (sec)*	<15	<20	<35	<45	<25
Full Cure time (hr)	24	24	24	24	24

[1] Cone-Plate viscosity, CP75 at 3000/s shear rate; [2] Cone-Plate viscosity, CP75 at 100/s shear rate, [3] Cone-Plate viscosity, CP50 at 100/s shear rate, [4] Brookfield viscosity, Spindle TC @ 2.5 rpm; * On EPDM. Time to handling is substrate dependent.

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Temperature Range (°F)	-65 to 180	-65 to 180	-65 to 180	-65 to 180	-65 to 180
Gap Fill (in)	0.004	0.006	0.006	0.008	0.020

	Overlap Shear Strength[1] (psi)				
	PR40	**PR100**	**PR600**	**PR1500**	**PR Gel**
Steel [2]	2000	2100	2100	2100	2200
Stainless Steel [2]	-	2700	2800	2950	3100
Aluminum [2]	-	2223	2326	2387	2400
ABS	900 [3]	950[3]	1200[3]	1400 [3]	1050 [3]
Polycarbonate	660 [3]	750 [3]	750 [3]	700 [3]	900 [3]
PVC	-	1750 [3]	1750 [3]	1000 [3]	1750 [3]
Nylon	-	850	900	600	950
Polypropylene [4]	-	1100 [3]	1050 [3]	600 [3]	1100 [3]
Silicone Elastomer [5]	-	100 [3]	100 [3]	100 [3]	100 [3]

[1] ASTM D-1002 [2] Grit blasted [3] Substrate failure [4] Primed with AC77 [5] Primed with AC79

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Hot Strength

	Percent of Initial Strength				
Temp (F)	**PR40**	**PR100**	**PR600**	**PR1500**	**PR Gel**
72	100	100	100	100	100
167	81	89	83	76	84
212	80	54	52	64	41
257	53	16	14	15	13

Handling Information

Surface Preparation

For optimum strength structural bonds, paint, oxide films, oils, dust, mold release agents, and all other surface contaminants must be completely removed. However, the amount of surface preparation depends on the required bond strength and the environmental aging resistance desired by the user. Typical quick surface preparation would include wiping with a clean solvent (such as isopropyl alcohol*), abrading the surface with a clean fine abrasive, and then wiping again with a clean solvent to remove loose particles.

Directions for Use

1. Ensure that parts are clean, dry, and free from oil and grease.
2. An instant adhesive activator may be required if there are bonding gaps or porous substrate surfaces, if substrates are low surface energy plastics (e.g., polyethylene, polypropylene) or if substrates have acidic surfaces (e.g., paper, leather).
3. Bond speed is typically very fast so ensure that parts are properly aligned before dispensing.
4. Product is normally hand applied from the bottle. Apply sparingly to one surface and press parts firmly together until handling strength is achieved. As a general rule, as little cyanoacrylate as possible should be used. Over application will result in slower cure speed and lower bond strength.

Cured Bond Characteristics

1. Full bond strength will typically be achieved within a 24 hour cure time.
2. Low humidity or low temperature conditions will slow down the cure rate.
3. After curing, 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive bonds are suitable for use up to about 180°F (82°C).
4. Cyanoacrylate bond resistance to most oils and solvents is excellent. Long term humidity, moisture, or water immersion may affect the strength of a cured cyanoacrylate bond depending on the substrates and the bond gap. Testing is recommended to evaluate the effect.

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

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Storage

For short term storage (<30 days), keep adhesive in a cool (60°F to 80°F [16°C to 27°C]), dry place out of direct sunlight. Keep containers tightly covered and free of moisture. Refrigeration (40°F [4°C]) gives optimum long term storage stability.

Shelf Life

3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesives can be expected to have a shelf life of one year from the date of shipment from 3M when stored under refrigerated conditions.

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

This product was manufactured under a quality system registered to ISO 9001:2000 standards.

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