



Scotch-Weld™

Plastic and Rubber Instant Adhesives

PR5 • PR40 • PR100 • PR600 • PR600B • PR1500 • PR Gel

Technical Data

March, 2010

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®.

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- Specific Features**
- 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR5 is a very low viscosity, high-speed bonding cyanoacrylate formulated for plastics and rubbers. It is recommended for use on assemblies with very close-fitting parts and smooth, even surfaces. It can be used to wick into bonding gaps of assembled parts.
 - 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 (formerly SB04 or SB14) is a general purpose, low viscosity bonder for rubber or plastic surfaces. It has been tested and passed the requirements of Commercial Item Description A-A-3097, Type II, Class 2 (formerly MIL-A-46050C).
 - 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. It has been tested and passed the requirements of Commercial Item Description A-A-3097, Type II, Class 3 (formerly MIL-A-46050C).
 - 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR600B is a black version of 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR600.
 - 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR1500 (formerly SB16) 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. It has been tested and passed the requirements of Commercial Item Description A-A-3097, Type II, Class 3 (formerly MIL-A-46050C).
 - 3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesive PR Gel (formerly PR54) 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						
	PR5	PR40	PR100	PR600	PR600B	PR1500	PR Gel
Color	Clear	Clear	Clear	Clear	Black	Clear	Clear
Base	Ethyl	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid
Appearance	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Gel
Specific Gravity (g/ml)	1.05	1.06	1.06	1.07	1.07	1.08	1.10
Viscosity (cps)	2 - 6 ¹	34 - 44 ¹	80 - 120 ¹	510 - 660 ⁴	510 - 660 ⁴	1,275 - 1,650 ⁴	50,000 - 90,000 ² 7,000 - 20,000 ³
Time to Handling Strength (sec)	1 - 10	3 - 20	10 - 30	4 - 25	4 - 25	20 - 100	3 - 60
Full Cure Time (hr)	24	24	24	24	24	24	24

¹ ISO 3104/3105.

² Brookfield RVT, 'T-spindle' C @ 2.5 rpm.

³ Brookfield RVT, 'T-spindle' C @ 20 rpm.

⁴ Brookfield LVF, Spindle 3 @ 30 rpm.

Typical Cured Properties

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	3M™ Scotch-Weld™ Plastic and Rubber Instant Adhesives						
	PR5	PR40	PR100	PR600	PR600B	PR1500	PR Gel
Temperature Range (°F)	-65 to 180	-65 to 180	-65 to 180	-65 to 180	-65 to 180	-65 to 180	-65 to 180
Gap Fill (in)	0.002	0.004	0.006	0.006	0.006	0.008	0.020
Tensile Strength (psi)	2,900 ⁶	2,900 ⁶	4,900 ⁵	4,600 ⁵	–	2,900 ⁶	–
Overlap Shear Strength (psi)	–	–	3,100 ⁷	2,900 ⁷	–	–	2,900 ⁷

⁵ ASTM D2095.

⁶ ISO 6922 (grit-blasted steel).

⁷ ASTM D1002 (grit-blasted steel).

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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). At 180°F (82°C) the bonds will be approximately 70% of the strength at room temperature and at 212°F (100°C) about 50% of full strength.
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.

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.

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



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