3M

Scotch-Weld™

Surface Insensitive Instant Adhesives

SI100 • SI1500 • SI Gel

Technical Data **January, 2015**

Product Description

3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives bond rough, porous, contaminated, and acidic substrates including wood, cardboard, veneer, fabric, cork, and leather.

Specific Features

- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI100 is a low viscosity product that will bond a wide variety of materials including plastic, rubber, wood, paper, leather, and metals with a very fast cure speed. It is recommended for use on close-fitting parts and smooth, even surfaces.
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI1500 is a surface insensitive cyanoacrylate that has high viscosity and has excellent gap filling capabilities. It relies less on surface moisture for cure speed than standard cyanoacrylates.
- 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive SI Gel is a fast curing, very high viscosity, gap filling cyanoacrylate. Its gel formation can be used for bonding poorly mating components and for porous substrates such as china and other ceramics 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™ Surface Insensitive Instant Adhesives		
	SI 100	**SI 1500**	**SI Gel**
Color	Clear	Clear	Clear
Base	Ethyl Hybrid	Ethyl Hybrid	Ethyl Hybrid
Appearance	Liquid	Liquid	Liquid
Specific Gravity (g/ml)	1.06	1.08	1.10
Viscosity (cps)	71 - 95 [1a]	1200 - 1650 [1b]	100,000 – 150,000 [1c]
Time to Handling Strength (sec)*	3 - 11	15 - 24	6 - 23
Time to full cure (hr)	24	24	24

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

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	3M™ Scotch-Weld™ Surface Insensitive Instant Adhesives		
	SI 100	**SI 1500**	**SI Gel**
Temperature Range (°F)	-65 to 180	-65 to 180	-65 to 180
Gap Fill (in)	0.006	0.008	0.020
	Overlap Shear Strength (psi) [1]		
Steel [2]	2109	1694	2510
Stainless Steel [2]	2266	2311	3239
Aluminum [2]	1689	1766	2652
ABS	914 [3]	1005 [3]	1337 [3]
Polycarbonate	755 [3]	667 [3]	916 [3]
PVC	1096 [3]	1053 [3]	1764 [3]
Nylon	321	283	956
Polypropylene [4]	728 [3]	763 [3]	1109 [3]
Silicone Elastomer [5]	105 [3]	104 [3]	105 [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)	**SI100**	**SI1500**	**SI Gel**
72	100	100	100
167	75	99	84
212	59	88	41
257	10	48	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. After curing, 3M™ Scotch-Weld™ Surface Insensitive Instant Adhesive bonds are suitable for use up to about 180°F (82°C).
3. 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™ Surface Insensitive Instant Adhesives can be expected to have a shelf life of 12 months 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.
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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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