



Scotch-Weld™

Instant Wood Adhesives and Surface Activator

Technical Data

April, 2007

Product Description

3M™ Scotch-Weld™ Instant Wood Adhesives and 3M™ Surface Activator are single component, room temperature-curing adhesives that provide remarkable cure speed and shear strength for demanding applications in the manufacture and repair of furniture, cabinets, and other wood products.

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.

	Thin	Medium	Thick
Color	Clear liquid	Clear - Slightly yellow liquid	Clear - Slightly yellow liquid
Viscosity @ 73°F (23°C)¹	10 cP	450 cP	2250 cP
Clamp Time @ 73°F (23°C)²	5 seconds	10 seconds	60 seconds
Time to Full Cure @ 73°F (23°C)³	24 hours	24 hours	24 hours

¹ Viscosity determined with Brookfield viscometer with spindle #1 @ 60 rpm (Thin), #2 @ 30 rpm (Medium) and #2 @ 6 rpm (Thick) at 77°F (25°C).

² Clamp time determined by measuring the time required for the adhesive to achieve 50 psi in overlap shear strength to aluminum.

³ Time to full cure defined as the time required for the adhesive to achieve a minimum of 80% of its ultimate overlap shear strength to aluminum.

Features

- Thin viscosity with very fast and very short time to handling strength; used for general furniture and cabinet assembly and veneer applications.
- Medium viscosity with short time to handling strength and with limited gap fill capability; also used for general furniture and cabinet assembly such as decorative molding attachment.
- Thick viscosity with longer time to handling strength; used for repair applications or applications with some repositionability of parts or on porous surfaces with additional gap filling capability.
- Instant wood adhesives have excellent adhesion to different woods and protective finishes, as well as other materials such as metals and laminates.
- Designed with different worklives and viscosities to fit a variety of applications and manufacturing processes.
- Easy to dispense without the need of applicator or mixing equipment.
- Sandable, stainable, and paintable.
- Bond dissimilar materials.

3M™ Scotch-Weld™ Instant Wood Adhesives and Surface Activator

Typical Adhesive Performance Characteristics

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

1. Overlap Shear (Ambient Conditions)

Overlap shear (OLS) strengths were measured in substantial accordance with the test method described in ASTM D1002. Specimens measuring 1 inch wide by 4 inches long were assembled with 1/2 inch overlap. The adhesives were allowed to reach full cure at ambient conditions, then pulled at a separation rate of 0.1 inch/minute at 73°F (23°C). The peak stress required to separate the specimens (in psi), along with the failure mode, are noted.

	Thin		Medium		Thick	
	psi	Failure Mode	psi	Failure Mode	psi	Failure Mode
Pine	400	SF/CF	450	SF	700	SF
Poplar	800	SF/CF	900	SF	1,350	SF
Oak	2,450	SF/CF	2,350	SF/CF	2,400	SF
Maple	850	SF	1,050	SF	1,350	SF
Medium Density Fiberboard (MDF)	250	CF	450	SF	400	SF
Plywood	600	CF	1,000	SF	1,050	SF
Particleboard	350	SF	300	SF	250	SF
Polyurethane Finish	200	AF	500	AF	600	AF
Polyacrylic Finish	500	CF	600	SF/AF	750	CF
Melamine	350	SF	400	SF	400	SF
High Pressure Laminate (HPL)	800	SF	900	SF	900	SF
Aluminum	1,700	AF	1,950	AF	2,700	AF
Steel	1,550	AF	2,850	AF	2,850	AF

SF = substrate failure (test material broke).

CF = cohesive failure (adhesive split).

AF = adhesive failure (adhesive removed cleanly from test material).

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**Typical Adhesive
Performance
Characteristics**
(continued)

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

2. Overlap Shear (Aged Conditions)

Overlap shear (OLS) strengths were measured as described on page 2, except the specimens were subjected to 30 days exposure to either 90°F (32°C) and 90% relative humidity (RH) or 150°F (66°C) dry heat. The peak stress required to separate the specimens (in psi), along with the failure mode, are noted.

90°F (32°C) and 90% RH	Thin		Medium		Thick	
Pine	400	AF	600	SF/AF	600	SF
Oak	1,250	SF/AF	1,950	SF/AF	1,800	AF
Plywood	1,300	SF	950	SF	1,050	SF
Polyurethane Finish	300	AF	550	AF	550	SF
Aluminum	450	AF	450	AF	850	AF

150°F (66°C)	Thin		Medium		Thick	
Pine	200	AF	1,100	SF/AF	950	SF/AF
Oak	1,150	SF/CF	1,850	SF/CF	1,900	SF/CF
Plywood	1,200	AF	1,050	SF	700	SF
Polyurethane Finish	150	AF	1,000	SF/AF	1,100	AF
Aluminum	1,000	AF	1,050	AF	2,000	AF

- SF = substrate failure (test material broke).
- CF = cohesive failure (adhesive split).
- AF = adhesive failure (adhesive removed cleanly from test material).

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Surface Preparation

To obtain optimum bond strength, all dust, oil, oxidation, mold release agents, loose debris, and all other surface contaminants must be completely removed. The following cleaning methods are suggested for common surfaces.

Wood:

1. Wipe free of dust and debris with clean rag.

Metal:

1. Remove grease, oil, and debris with clean rag using an oil-free solvent such as isopropyl alcohol (IPA), acetone, or methyl ethyl ketone (MEK).*
2. Sandblast or abrade using clean fine grit sandpaper or 3M™ Scotch-Brite™ Hand Pad 7447.
3. Wipe again with clean rag and solvent to remove loose particles.*

Plastic/Rubber:

1. Wipe with clean rag using IPA.*
2. Abrade using fine grit sandpaper or Scotch-Brite hand pad 7447.
3. Wipe again with clean rag using IPA to remove loose particles.*

Glass:

1. Wipe with clean rag using acetone or MEK.*

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

Directions for Use

1. Always use gloves to minimize skin contact with adhesive since adhesive is skin-bonder.
2. 3M™ Scotch-Weld™ Instant Wood Adhesives are supplied in the nozzle-tipped, plastic bottle. To use, simply remove the cap and pierce the tip of the applicator with pin and apply adhesive onto one part; porous substrates may require more adhesive. Next, join both parts and hold firmly in place (with fixture or clamp) until adhesive achieves handling strength.
3. Always store adhesive bottle upright to prevent spillage. Clear tip of dispensing nozzle by wiping outside of nozzle to remove excess adhesive with a folded non-cotton cloth or tissue. Recap bottle to keep tightly covered and to minimize moisture exposure. Store at 80°F (27°C) or lower and avoid direct exposure to sunlight.

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Surface Activator

3M™ Scotch-Weld™ Instant Adhesive Surface Activator is ideal to:

- (b) Provide an instantaneous bonding upon contact between the activator and the adhesive for applications in which an even faster set time is desired.
- (a) Facilitate curing when limited gap filling is involved.

Following are the typical physical properties of the surface activator.

Color:	Clear, colorless
Base Resin:	Amine
Carrier Solvent:	Acetone
Viscosity:	< 10 cp
Flashpoint:	-15°F (-26°C)

Usage Instructions: Wear gloves and take precautions as for handling instant wood adhesives.

Instant Bonding: Spray or brush activator on one surface to be bonded and let dry at least 30 seconds to allow acetone solvent to flash off. Next, apply instant wood adhesive to the other surface. Join parts and hold or clamp firmly in place until adhesive sets.

Limited Gap-Filled Curing: Dispense instant wood adhesive into crack or crevice on wood surface. Spray activator on top to coat and seal the adhesive. Upon contact with activator, adhesive starts curing or hardening up.

Storage

Store product in cool, dry area out of direct sunlight. Rotate on a “first in, first out” basis.

Shelf Life

3M™ Scotch-Weld™ Instant Wood Adhesives have a shelf life of 12 months and 3M™ Scotch-Weld™ Instant Adhesive Surface Activator has a shelf life of 24 months when stored in their original unopened containers at 80°F (27°C) or below.

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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.

Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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Printed in U.S.A.
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