



Scotch-Weld™

Retaining Compound Anaerobic Adhesives

RT09 • RT20 • RT35 • RT38 • RT40 • RT41 • RT80

Technical Data

March, 2010

Product Description

3M™ Scotch-Weld™ Retaining Compound Anaerobic Adhesives are one-component anaerobic adhesives designed to secure cylindrical metal assemblies such as bearings on shafts, bushings, sleeves, housings, and keyways. They prevent loosening, corrosion and leakage caused by shock and vibration.

Specific Features

- 3M™ Scotch-Weld™ General Purpose Retaining Compound RT09 is a general-purpose, medium strength, removable, low viscosity retaining compound that prevents spin-out for rigid assemblies such as locking bushings and sleeves in housings or on shafts, bonding rotors to shafts, and as an augment to press fits.
- 3M™ Scotch-Weld™ High Temperature Retaining Compound RT20 is a medium-high strength, removable, high viscosity, high temperature (450°F) retaining compound suitable for securing bearings on shafts or in housings or in heat exchanger applications.
- 3M™ Scotch-Weld™ Slip Fit / Slow Cure Retaining Compound RT35 is a slower set, very high strength, medium viscosity retaining compound used to bond rigid cylindrical assemblies, eliminate backlash in worn assemblies, and lock bearing, bushing or sleeves on shafts or in housings. It also locks keys and splines, augments press fits, and can be used to prevent spin out such as when bonding rotors to shafts in fractional and subfractional horsepower motors.
- 3M™ Scotch-Weld™ General Purpose Retaining Compound RT38 is similar to Scotch-Weld RT35 except that it is a faster setting, high strength adhesive.
- 3M™ Scotch-Weld™ Pressure Fit / High Temperature Retaining Compound RT40 is similar to Scotch-Weld RT35 except that it is medium-high strength with a slightly thinner viscosity that sets up faster and has better heat resistance (up to 400°F).
- 3M™ Scotch-Weld™ Bearing Mount Retaining Compound RT41 is a medium strength, low viscosity retaining compound, for bonding cylindrical parts, with controlled strength to allow disassembly for servicing and bearing re-use. It is also designed to augment the strength of press fit assemblies.
- 3M™ Scotch-Weld™ Slip Fit / High Strength Retaining Compound RT80 is a fast fixture, high strength, medium viscosity retaining compound ideal for securing bearings, bushings, rotors to shafts or sleeves in housings. It is not recommended for extremely close or interference fits due to its medium viscosity. Scotch-Weld RT80 prevents corrosion and has good vibration resistance and gap filling.

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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™ Retaining Compound Anaerobic Adhesives						
	RT09	RT20	RT35	RT38	RT40	RT41	RT80
Color	Green	Green	Green	Green	Green	Yellow/Brown	Green
Chemistry Type	Dimethacrylate	Dimethacrylate	Dimethacrylate	Dimethacrylate/ Triacrylate	Dimethacrylate	Dimethacrylate	Dimethacrylate
Appearance	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid
Viscosity (cps)	120 - 150 ³	5,000 - 10,000 ⁴	1,500 - 2,500 ¹	1,800 - 3,300 ¹	400 - 800 ¹	400 - 600 ²	1,300 - 2,000 ⁶
Fixture Time (min)	10 - 30	30 - 40	10 - 60	10-15	10-15	15-20	5 - 15
Fixture Time with Activator (min)	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Full Cure Time (hr)	24	24	24	24	24	24	24

¹ Brookfield RVT #2 spindle @ 20 rpm and 25°C.

² Brookfield LVF #2 spindle @ 2.5 rpm and 25°C

³ Brookfield LVF #1 spindle @ 12 rpm and 25°C

⁴ Brookfield RVT #4 spindle @ 20 rpm and 25°C.

⁵ Brookfield T-bar D @ 0.5 rpm and 25°C.

⁶ Brookfield RVT #3 spindle @ 20 rpm and 25°C.

Typical Cured Physical Properties

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	3M™ Scotch-Weld™ Retaining Compound Anaerobic Adhesives						
	RT09	RT20	RT35	RT38	RT40	RT41	RT80
Color	Green	Green	Green	Green	Green	Yellow/Brown	Green
Strength	Medium	Medium-High	High	High	Medium High	Medium	Fast Fixture, High
Lap Shear Strength (psi)⁷	2,000 - 3,000	2,000 - 3,000	3,500 - 4,600	2,500 - 5,000	2,000 - 3,000	1,000 - 2,150	2,800 - 4,600
Temperature Range (°F)	-65 to 300	-65 to 450*	-65 to 300	-65 to 300	-65 to 400*	-65 to 300	-65 to 300
Maximum Gap Fill (in) (Diametral)	0.005	0.015	0.010	0.015	0.007	0.008	0.015

* Intermittent exposure

⁷ Reference ASTM D1002

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Handling Information

Directions for Use

3M™ Scotch-Weld™ Retaining Compound Anaerobic Adhesives are not recommended for use on most plastics due to potential cracking of plastic parts. Also, they are not recommended for use in systems that contain pure oxygen or an oxygen-rich environment, chlorine, or strong oxidizing substances.

For Assembly

1. Ensure parts are clean, dry and free from oil, grease and dirt. For best results, clean and dry parts with solvent or a 3M™ Scotch-Weld™ Anaerobic Activator. (Activator can also be used on inactive surfaces or to accelerate the cure on active surfaces.)

Note: Use of a Scotch-Weld Activator with Scotch-Weld Retaining Compound Anaerobic Adhesives may reduce bond strength depending on substrates and gap. Testing is recommended to evaluate the effect.

2. If not sure of surface type, always use activator. Refer to Material Surface Activity and Cure Speed section for more information.
3. Avoid touching the metal surfaces with the bottle tip since the metal ions may react with the adhesive upon contact and eventually may clog the bottle tip.
4. Apply a bead of adhesive onto the shaft and inside the collar where the contact area will finally be assembled. For larger parts use more adhesive. Assemble parts and rotate to spread adhesive evenly around contact area.
5. Allow assemblies to set for sufficient time so that handling strength or full cure will occur before further processing or testing.

For Disassembly

1. Apply localized heat (approximately 490°F) to bonded parts then disassemble while parts are still hot. Use extreme caution when working with heat sources (e.g. heat gun, flame, etc.).

Material Surface Activity and Cure Speed

Active (Fast) ←	→ Inactive (Slow)
<ul style="list-style-type: none">• Brass• Bronze• Commercial aluminum• Copper• Iron• Kovar®• Manganese• Monel®• Nickel	<ul style="list-style-type: none">• Anodized aluminum• Cadmium• Chemical black oxide• Galvanized steel• Gold• Inconel®• Magnesium• Magnetite steel• Plated parts• Pure aluminum• Silver• Stainless steel• Zinc

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Storage	Store product in cool, dry area out of direct sunlight.
Shelf Life	3M™ Scotch-Weld™ Retaining Compound Anaerobic Adhesives have a shelf life of twelve months when stored at 60° to 80°F (16° to 27°C) in the original unopened container.
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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