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Tyco Electronics manufacturers Raychem adhesives and sealants to accommodate a wide range of applications, materials, and environmental conditions.

Raychem adhesives include both thermosets and thermoplastics.

Thermosets are curable two-part epoxies or crosslinked elastomers.

Thermoplastics are hot-melt adhesives that flow when heated and set when cooled. They reflow when reheated to simplify component repair.

Tyco Electronics also manufactures Raychem products that include a thermoplastic adhesive or a mastic-type sealant for water holdout applications. The sealants adhere to non-oily substrates and can be removed where reentry is necessary.

Selection Guide



To determine the adhesive or sealant most compatible with a Raychem part, you must know the part's product type.

Use the Adhesive/Sealant Selection Table on page 5-4 to determine a Raychem part's product type and the adhesive/sealant compatible with that type.

Use the Adhesive/Sealant Product Characteristics Table (pages 5-2 and 5-3) to be sure the adhesive or sealant has the product characteristics your application requires.

To use the Selection Table, follow these four steps:

1. Under "Substrate Category," find the product material and product name/part number for the Raychem part.
2. Across the top of the table, find the part's product type and dash number.
3. At the intersection of the substrate category (product material/name/part number) and the product type (by designated dash number) you will find the part number for the most compatible adhesive for the Raychem part.
4. See the Adhesive/Sealant Product Characteristics Table to verify the characteristics of the adhesive/sealant you selected.

Note: Users should independently evaluate the suitability of the product for their application. Before ordering, check with Tyco Electronics for most current data.

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Japan: 81-44-900-5102
Singapore: 65-4866-151
UK: 44-1793-528171

Adhesive/Sealant Product Characteristics Tables

Product Type	Precoat Designation	Type	Operating Temperature Range	Product Designation	Available Form/ Packaging
Thermosets					
S-1006	—	Epoxy/ polyamide two-part paste	-55°C to 135°C [-67°F to 275°F]	S-1009 Kit 8	50-ml dual syringe
				S-1006 Kit A	Ten 3-gram packs
S-1009	—	Epoxy/ polymercaptan two-part paste	-55°C to 135°C [-67°F to 275°F]	S-1009 Kit A	Ten 3-gram packs
				S-1009 Kit 8	50-ml dual syringe
S-1255-04	—	One-part epoxy tape adhesive	-55°C to 200°C [-67°F to 392°F]	S-1255-04	Tape [3/4 in. x .020 x 100 ft.]
S-1125	—	Epoxy/polyamide two-part paste	-55°C to 150°C [-67°F to 302°F]	S-1125 Kit 1	Five 10-gram packs
				S-1125 Kit 2	Two 10-gram packs
				S-1125 Kit 3	One 100-gram pack
				S-1125 Kit 4	Five 10-gram packs
				S-1125 Kit 5	One 10-gram pack
				S-1125 Kit 8	50-ml dual syringe
	/225	Precoated latent-curing epoxy/polyamide	-75°C to 150°C [-103°F to 302°F]	Precoat only on -25 molded parts	—
Thermoplastics					
S-1017	/42	Hot-melt/ polyamide	-20°C to 60°C*** [-4°F to 140°F]	S-1017	Tape [1 in. x .010 in. x 50 ft.]
S-1030	/180	Hot-melt/ polyolefin	-80°C to 80°C [-112°F to 176°F]	S-1030	Tape [3/4 in. x .010 in. x 33 ft.]
S-1048	/86	Hot-melt, high performance	-55°C to 120°C [-67°F to 248°F]	S-1048	Tape [1 in. x .026 in. x 100 ft.]
S-1124	/164	Hot-melt/ elastomeric polymer	-55°C to 105°C [-67°F to 221°F]	S-1124	Tape [3/4 in. x .018 in.x 10 ft.]
S-1297	/97	Hot-melt/ polyamide adhesive	-20°C to 90°C] [-4°F to 194°F]	S-1297	Tape [1 in. x .010 in. x 10 ft.]
Sealants					
S-1278	—	Hot-melt grey butyl sealant	-40°C to 90°C [-40°F to 194°F]	S-1278-01	Tape [1 in. x .062 in. x 25 ft.]
				S-1278-02	Tape [33/4 in. x .125 in. x 10 ft.]
S-1305	—	Hot-melt grey butyl sealant	-40°C to 90°C [-40°F to 194°F]	S-1305-01	Tape [1 in. x.062 in. x25 ft.]

*Shelf life from date of manufacture.
**For specific adhesion properties, see product specification sheets.
***Passes cold bend at -40°C [-40°F] per RT-4204.
****Only S-1006 Kit A conforms to MIL-A-46864.

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Adhesive/Sealant Product Characteristics Tables (Continued)

Pot Life at 23°C [73.4°F]	Curing Conditions	Shelf life* at or below 25°C [77°F]	Specifications**	Comments
1 h	96 h at 20°C [68°F] min. or 1 hr at 120°C [248°F]	2 years 1 year Kit 8	RT-1006 RK-6612 MIL-A-46864****	General purpose harnessing adhesive. Not used on Viton® fluoroelastomers, silicone or Kynar®; 20-minute pot life
20 min.	24 h at 20°C [68°F] min. or 1 hr at 95°C [203°F]	2 years 1 year Kit 8	RT-1009	General purpose harnessing adhesive Not used on Viton® fluoroelastomers or silicone; 20-minute pot life
	45 min at 120°C [248°F] 2 h at 155°C [311°F] min. or 15 min at 240°C [464°F]	1 year	RT-1014	One-part epoxy tape used with Viton® fluoroelastomer harness systems. Heat cure required (2 hours at 155°C [311°F])
90 min.	24 h at 20°C min. or 1 hr at 85°C [185°F]	18 months 1 year Kit 8	RT-1011 RK-6619 VG-95343	Good fluid-resistant epoxy used with System 25
	Cure during installation of molded parts	36 months	VG-95343 RK-6630	Precoated epoxy system for System 25
—	120°C [248°F]	Unlimited	RT-1050/1	General purpose harnessing adhesive Standard precoated adhesive for -3 and -4 molded parts
—	120°C [248°F]	Unlimited	RT-1050/6 RK-6017	Good low-temperature flexibility Available as a preinstalled tape for molded parts
—	160°C [320°F]	Unlimited	RT-1050/3 RK-6626	Requires high temperature to achieve bonding. Highest service temperature for hot melt
—	135°C [275°F]	Unlimited	RT-1050/13	Requires reflowing in an oven at 150°C [302°F] for 90 minutes. Designed to bond to -51 molded parts.
—	120°C [248°F]	Unlimited	RW-2019	General purpose harnessing adhesive Standard precoated adhesive in Sigmaform molded parts, CES and CSGA cable entry seals, and SST-FR heat-shrinkable tubing
—	110°C [230°F]	Unlimited	RW-2020	General purpose sealant and cable breakout area filler
—	110°C [230°F]	Unlimited	RW-2021	Halogen-free, flame-retardant sealant and cable breakout area filler

*Shelf life from date of manufacture.
**For specific adhesion properties, see product specification sheets.
***Passes cold bend at -40°C [-40°F] per RT-4204.
****Only S-1006 Kit A conforms to MIL-A-46864.

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Adhesive/Sealant Selection Table

Substrate Category	Product Name Examples	Molded Part Material Dash Number												
		-3	-4	-6	-8	-12	-25	-50	-51	-55	-71	-100	-125	-130
Polyolefin	RNF-100	S-1006	S-1006	—	—	—	—	—	—	—	S-1006	—	—	S-1006
	Versafit	S-1009	S-1009	—	—	—	—	—	—	—	S-1009	—	—	S-1009
	CRN	S-1017	S-1017	—	—	—	—	—	—	—	S-1017	—	—	S-1017
	BSTS	S-1030	S-1030	—	—	—	—	—	—	—	S-1030	—	—	—
	SST	S-1048	S-1048	—	—	—	—	—	—	—	S-1048	—	—	—
	HR	S-1297	S-1297	—	—	—	—	—	—	—	S-1297	—	—	—
Fluoro-polymer	Kynar®	S-1009	S-1009	—	S-1009	—	S-1125	—	—	—	S-1009	—	S-1009	—
		S-1048	S-1048	—	—	—	—	—	—	—	S-1048	—	S-1048	—
		S-1125	S-1125	—	—	—	—	—	—	—	S-1125	—	S-1125	—
	RT555	—	—	—	—	S-1255	—	—	—	S-1255	—	—	S-1255	—
	HCTE	—	—	—	—	S-1255	S-1125	—	—	S-1255	—	—	—	—
	CONVOLEX	—	—	—	—	S-1125	—	—	—	S-1125	—	—	—	—
Vinyl	PVC	S-1006	S-1006	—	—	—	—	—	—	—	S-1006	—	—	—
		S-1009	S-1009	—	—	—	—	—	—	—	S-1009	—	—	—
		S-1017	S-1017	—	—	—	—	—	—	—	S-1017	—	—	—
Elastomer	DR-25	—	—	—	—	—	S-1125	S-1125	S-1125	—	—	—	—	—
	NT	S-1006	S-1006	—	—	—	—	—	S-1124	—	S-1006	—	—	—
		S-1009	S-1009	—	—	—	—	—	—	—	S-1009	—	—	—
		S-1017	S-1017	—	—	—	—	—	—	—	S-1017	—	—	—
	NT-FR	—	—	—	—	—	S-1125	—	S-1124	—	—	—	—	—
	SFR	—	—	*	—	—	—	—	—	—	—	—	—	—
	SRFR	—	—	*	—	—	—	—	—	—	—	—	—	—
	Viton®	—	—	—	—	S-1255	—	—	—	S-1255	—	—	S-1255	—
	VPB	—	—	—	—	—	—	S-1125	—	—	—	—	—	—
		—	—	—	—	—	—	S-1255	—	—	—	—	—	—
Zerohal	XFFR	—	—	—	—	—	—	—	—	—	—	S-1030	—	—
	ZHTM	—	—	—	—	—	—	—	—	—	—	S-1030	—	—

*GE RTV 108 used with SFR SRFR and -6 (silicone) molded parts.

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Substrate Preparation Procedures

Preparation of the substrate depends on the part to be bonded. Following are two preparation procedures. The first applies to plated metals and adapters; the second applies to polymer molded parts, cable jackets, and tubing materials.

Plated Metals and Adapters

Thoroughly degrease the surface with a clean cloth or paper wipe dampened with a solvent. The cloth or paper should not be saturated with the solvent.

Allow the part to stand for a minute or two to allow complete evaporation of the solvent.

Molded Parts, Cable Jackets, and Tubing Materials

Carefully and evenly abrade the surface with #320 emery cloth. Wipe contaminants and abraded particles away with a clean cloth or paper wipe dampened with a solvent. The cloth or paper should not be saturated with the solvent. Allow the part to stand for a minute or two to allow complete evaporation of the solvent.

Note:

- Avoid contamination of the prepared surface. If using primer, apply it according to the manufacturer's instructions and allow it to dry.
- Epoxy adhesives may cause skin and eye irritation. Be sure to observe the handling instructions.
- When using hot-melt adhesives on substrates with high heat-sink capacity (such as connector backshells), preheat the substrate until it is hot to touch, then apply the adhesive tape and shrink the molded part in place.

Caution:

The use of cleaning solvent is described in the preparation of various components for adhesive bonding. Please observe the solvent manufacturer's safety recommendations. Several Raychem epoxy adhesives and solvent base primers are also described in some cases. For specific handling precautions, please consult the appropriate Raychem material safety data sheet for the adhesive being used.

Installation Procedures

The three sets of installation instructions that follow are based on the type and/or form of adhesive or sealant to be used.

Select the set of instructions that applies to your application.

Tape Adhesives and Sealants

Connector Boot

1. Degrease the area of the adapter to which the boot will be bonded, using appropriate solvent on a paper tissue or clean cloth. Do not abrade the adapter.
2. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth dampened with a solvent.
3. Lightly abrade and wipe 25.4 [1.0] back inside each end of the boot.
4. When using primer, apply a thin, uniform coating to the bonding surface and let it air dry (15–20 minutes).
5. Double-wrap the adhesive tape around the cleaned area of the adapter, placing slight tension on the tape as you wrap. Tack the ends in place with a soldering iron or hot tool.
6. Double-wrap adhesive tape around the cable jacket where the end of the boot is to be located.
7. Position the boot on the adapter and the cable. Apply heat, starting at the connector end.
8. Recover the connector end of the boot onto the adapter and continue heating until the area is fully recovered and the adhesive tape is properly melted.
9. Complete the recovery of the boot, continuing toward the cable end. Heat the cable end of the boot where the adhesive is placed, until the part is fully recovered and the tape has properly melted or flowed. The tape should appear wet, form a bead or fillet between the cable and boot, and show no definition between the layers of tape.
10. Where oven curing is required to complete adhesive bonding, heat the assembled harness in a preheated oven according to the following schedule:

    S-1255-02:
    2 hours at 155°C [311°F]

    S-1124:
    90 minutes at 150°C [302°F]

Transition

1. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth dampened with a solvent.
2. Abrade and wipe the inside of each transition opening.
3. When using primer, apply a thin, uniform coating to the bonding surface and let it air dry (15–20 minutes).

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Installation Guide (Continued)

4. Double-wrap the tape around the abraded areas of the cable, placing slight tension on the tape as you wrap. Tack the ends in place with a soldering iron or hot tool.
5. Center the molded part over the transition area. When properly positioned, the part should not fit tightly in the "branched" area of the breakout. A tight fit may cause the part to crease or wrinkle as it recovers. The tape should extend slightly beyond the end of the transition.
6. Apply heat to the center of the transition. Recover one leg of the transition, moving heat from the center of the transition to the adhesive opening of the leg. Repeat the procedure on each leg of the transition.
7. Continue heating each end of the transition until the part is fully recovered and the adhesive tape has properly melted or flowed. The tape should now appear wet, form a bead or fillet between the cable and transition, and show no definition between the layers of tape.
8. Where oven curing is required to complete adhesive bonding, heat the assembled harness in a preheated oven according to the following schedule:

   S-1255-02:
   2 hours at 155°C [311°F]

   S-1124:
   90 minutes at 150°C [302°F]

Thermosets

Connector Boot

1. Thoroughly mix the two parts according to the instructions provided with the kit.
2. Degrease the area of the adapter to which the boot will be bonded, using appropriate solvent on a paper tissue or clean cloth. Do not abrade the adapter.
3. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth.
4. Lightly abrade back 25.4 mm [1.0] inside each end of the boot.
5. Using a spatula, apply the mixed adhesive to the adapter and shrink the boot to the end of the adapter.
6. Apply adhesive to the cable jacket and complete the shrinking process.
7. With a clean cloth, remove excess adhesive from all areas immediately.
8. Follow the curing conditions outlined in this guide.

Transition

1. Thoroughly mix the two parts according to the instructions provided with the kit.
2. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth.
3. Abrade and wipe inside each opening of the transition.
4. Using a spatula, apply the mixed adhesive to the cable jacket.
5. Apply heat to the center of the transition. Recover one leg of the transition, moving heat from the center of the transition to the adhesive opening of the leg. Repeat the procedure on each leg.
6. Remove excess adhesive from all areas immediately with a clean cloth.
7. Follow the curing conditions specified for "thermosets" in the "Adhesive/Sealant Product Characteristics Table" on pages 5-2 and 5-3.

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Molded Parts Pre-coated with Thermoplastic Adhesive

Connector Boot

1. Degrease the area of the adapter to which the boot will be bonded, using appropriate solvent on a paper tissue or clean cloth. Do not abrade the adapter or inside surface of the boot.
2. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth dampened with solvent.
3. Position the boot on the adapter and cable. Apply heat starting at the connector end.
4. Recover the connector end of the boot onto the adapter and continue heating until the area is fully recovered and the adhesive is properly melted.
5. Complete the recovery of the boot, continuing toward the cable end of the boot until the part is fully recovered and the adhesive is properly melted. The adhesive should form a bead or fillet between the cable and boot when fully melted.
6. With a clean cloth, remove excess adhesive from all areas immediately.
7. Follow the curing conditions outlined in this guide.

Transition

1. Lightly abrade the bonding area of the cable jacket with #320 emery cloth, then wipe off loose particles with a tissue or clean cloth dampened with solvent.
2. Center the molded part over the transition area.
3. Apply heat to the center of the transition. Recover one leg of the transition, moving heat from the center of the transition to the adhesive opening of the leg. Repeat the procedure on each leg of the transition.
4. Continue heating each end until the part is fully recovered and the adhesive has properly melted. The adhesive should form a bead or fillet between the cable and transition when fully melted.
5. Follow the curing conditions specified for “thermosets” in the “Adhesive/Sealant Product Characteristics Table” on pages 5-2 and 5-3.

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