Adhesives

MG Chemicals Adhesives line is consisted of 1-part and 2-part epoxy systems. Our 1-part epoxies offer unlimited working time, do not require mixing, and can be stored at room temperature. 2-part epoxies are 1:1 mix ratio and are available in a variety of working times (*w.t.*).

Applications

- Electrical connections
- Thermal management
- Bonding heat sensitive components
- Providing structural support
- Bonding similar and dissimilar substrates
- Repairing circuits
- Sealing
- Potting
- Gap filling

Industries

- Battery modules and battery packs
- Consumer electronics
- Transportation
- Automotive
- Aerospace
- Defense
- Instrumentation
- Medical equipment
- Research

General Bonding

One-part	9310	• Surface mount adhesive
Two-part	8332	• Fast set epoxy, 5 min *w.t.*
	9200	• Structural, standard, 30 min *w.t.*
	9200FR	• Structural, 30 min *w.t.*, UL 94V-0 rated

Electrically Conductive

One-part	9410	• Resistivity of 1.8 x 10^{-3} Ω·cm, T_g of 96˚C
Two-part	8331D	• Resistivity of 1.8 x 10^{-3} Ω·cm, 20 min *w.t.*
	8330D	• Resistivity of 5.3 x 10^{-4} Ω·cm, 20 min *w.t.*
	8331S	• Resistivity of 6.0 x 10^{-3} Ω·cm, 4 hours *w.t.*
	8330S	• Resistivity of 7.0 x 10^{-4} Ω·cm, 4 hours *w.t.*

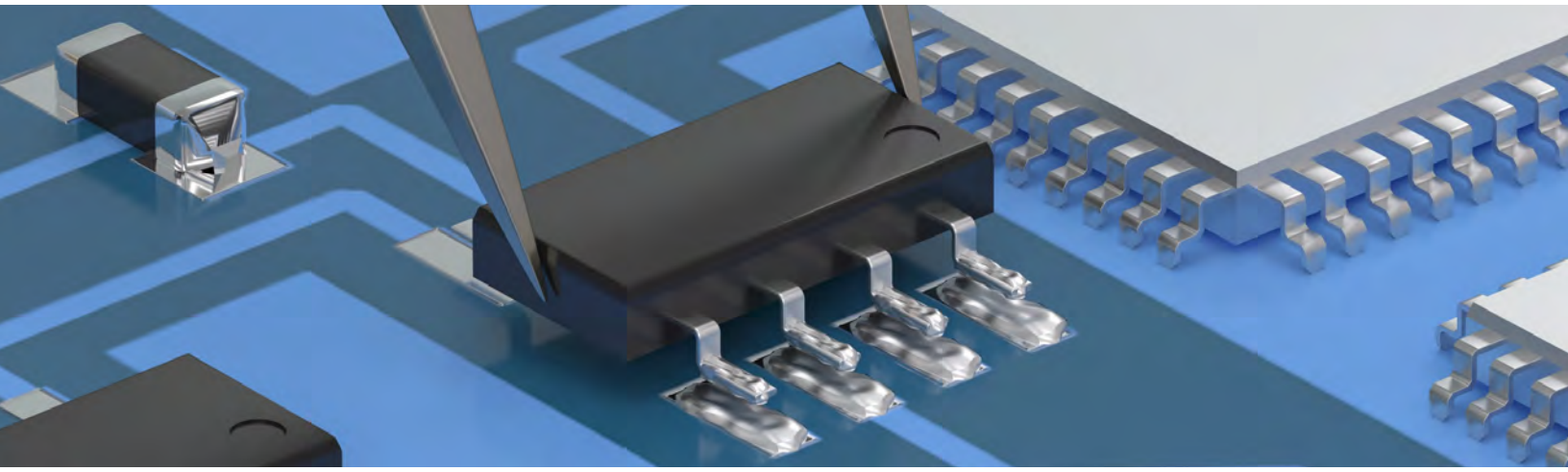
Thermally Conductive

One-part	9460TC	• *TC* of 0.8 W/(m·K)
Two-part	8329TFF	• *TC* of 0.8 W/(m·K), 5 min *w.t.*, dispensable, UL 94V-0 rated
	8349TFM	• *TC* of 0.9 W/(m·K), 20 min *w.t.*, dispensable, meets UL 94V-0
	8329TCM	• *TC* of 1.4 W/(m·K), 45 min *w.t.*, non-sagging
	8329TFS	• *TC* of 1.2 W/(m·K), 4 hours *w.t.*, dispensable
	8329TCS	• *TC* of 1.4 W/(m·K), 4 hours *w.t.*, non-sagging
	8329HTC	• *TC* of 0.9 W/(m·K), 80–120 min *w.t.*, dispensable

TC = Thermal Conductivity *w.t.* = working time

We are also the authorized master distributor for Momentive **RTV Silicone** *products. RTV silicones are desirable because of their high heat resistance, wide operating temperature range and low modulus. The silicone adhesives portfolio covers a host of options to meet your requirements like consistency, adhesive strength, flame retardancy, outgassing, thermal conductivity and more.*

1-Part Epoxy Adhesives



1-Part Adhesives for Easy Manufacturing Processes

MG Chemicals offers a full line of 1-part epoxy adhesives to meet the growing demand for ease of application in the manufacturing process. These adhesives require no mixing, and offer unlimited working time. Our 1-part epoxies enhance productivity by simplifying production processes and storage requirements.

Features and Benefits

- Easy to dispense—no mixing required
- Unlimited working time
- Low to moderate cure temperatures
- Extended shelf life at room temperatures
- Excellent adhesion to common electronics substrates and components

Applications

- Surface Mount Technology (SMT)
- Chip bonding
- LED manufacturing
- Bonding dissimilar substrates
- Telecommunications equipment
- Medical devices
- Automotive components

General Bonding

9310 – Surface Mount Adhesive (SMA)

Electrically Conductive

9410 – High conductivity, high T_g

9400 – Extreme conductivity

Thermally Conductive

9460TC – High thermal conductivity

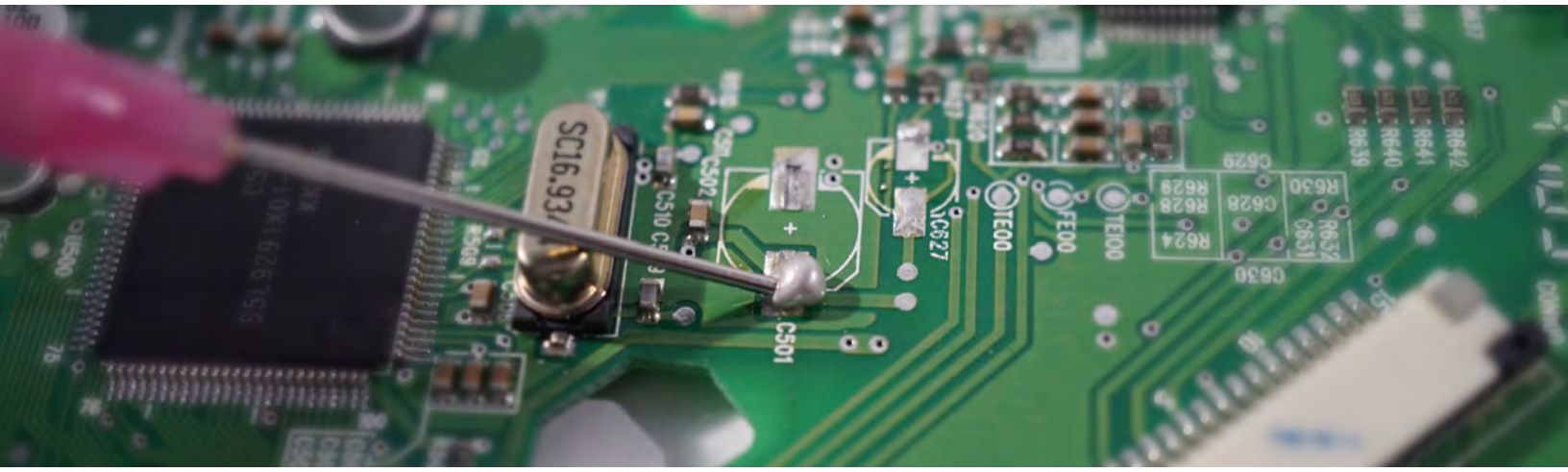
1-Part Epoxy Adhesives

	9310	9400	9410	9460TC
UNCURED PROPERTIES				
Number of components	1	1	1	1
Mixed density [g/mL]	1.15	3.14	2.34	1.64
Working time	Unlimited	Unlimited	Unlimited	Unlimited
Service cure @ 22 °C	—	N/A	N/A	—
RT cure [h]	—	N/A	N/A	—
Heat cure [min @ °C]	30 @ 100 10 @ 120	120 @ 70 30 @ 80	60 @ 90 30 @ 100 7 @ 120	120 @ 80 60 @ 100 30 @ 120
CURED PROPERTIES				
Resistivity [Ω·cm]	9.3×10^{12}	3.1×10^{-4}	1.8×10^{-3}	7.4×10^{16}
Service temperature range [°C]	-55 to 140	-55 to 140	-65 to 145	-65 to 150
Glass transition temperature (T_g) [°C]	113	36	96	106
CTE prior T_g [ppm/°C]	56	76	42	36
CTE after T_g [ppm/°C]	185	100	150	72
Thermal conductivity @ 25 °C [W/(m·K)]	0.2	4.7	1.1	0.8
Thermal diffusivity @ 25 °C [mm^2/s]	0.2	2.2	0.7	0.5
Specific heat capacity @ 25 °C [J/(g·K)]	1.4	0.7	0.8	1.2
Color	Yellow	Silver grey	Silver grey	White
Hardness	84D	74D	70D	86D
Tensile strength [N/mm^2]	9.4	2.9	N/A	9.1
Compressive strength [N/mm^2]	103	18	26	78
Lap shear (stainless steel) [N/mm^2]	8.5	2.9	2.6	6.0
Lap shear (aluminum) [N/mm^2]	6.2	3.2	2.8	3.2

Refer to TDS for more information. N/A=Not Available

AVAILABLE PACKAGING				
Net content	10 mL (syringe) 300 mL (cartridge)	3 mL (syringe) 30 mL (syringe)	3 mL (syringe) 30 mL (syringe)	3 mL (syringe) 10 mL (syringe)

Electrically Conductive Adhesives



Silver Conductive Epoxy for the Assembly and Repair of Electronics

MG Chemicals offers silver conductive epoxy for the assembly and repair of electronics. It provides strong adhesion to many surfaces where soldering is not possible.

Features and Benefits

- Creates strong permanent electrical connections
- Excellent electrical and thermal conductivity
- Room temperature storage

Applications

- Repairing damaged circuits
- Creating jumpers, bridging, and gap filling
- Bonding heat sensitive components
- Bonding to conductive polymers
- Bonding to flexible circuits
- Bonding to gold, aluminum, brass, and bronze
- Bonding to glass
- Die attachment in LEDs and semiconductors

1-Part – Unlimited Working Time

9410 – Resistivity of 1.8 x 10^{-3} Ω·cm, T_g of 96˚C, heat cure only

2-Part – 20 Minute Working Time

8331D – Resistivity of 1.8 x 10^{-3} Ω·cm

8330D – Resistivity of 5.3 x 10^{-4} Ω·cm

2-Part – 4 Hour Working Time

8331S – Resistivity of 6.0 x 10^{-3} Ω·cm, heat cure only

8330S – Resistivity of 7.0 x 10^{-4} Ω·cm, heat cure only

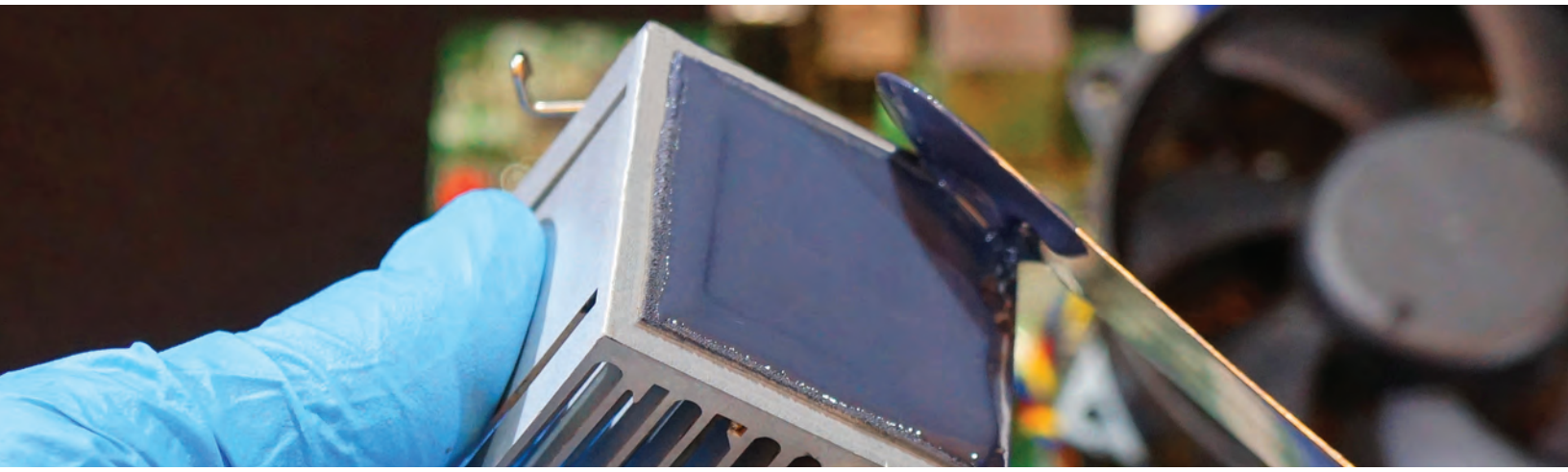
Electrically Conductive Adhesives

	8330D	8331D	8330S	8331S	9410
UNCURED PROPERTIES					
Number of components	2	2	2	2	1
Mixed density [g/mL]	3.22	2.40	3.06	2.42	2.34
Working time	20 min	20 min	4 h	4 h	Unlimited
Service cure @ 22 °C	65 min	65 min	—	—	—
Room temp. cure [h]	6	6	Heat cure	Heat cure	Heat cure
Heat cure [min @ °C]	10 @ 65 5 @ 80	10 @ 65 5 @ 80	120 @ 65 60 @ 80 30 @ 100	120 @ 65 60 @ 80 30 @ 100	60 @ 90 30 @ 100 7 @ 120
CURED PROPERTIES					
Resistivity [Ω·cm]	5.3×10^{-4}	1.8×10^{-3}	7.0×10^{-4}	6.0×10^{-3}	1.8×10^{-3}
Service temperature range [°C]	-50 to 150	-50 to 150	-40 to 150	-40 to 150	-65 to 145
Glass transition temperature (T_g) [°C]	40	35	34	34	96
CTE prior T_g [ppm/°C]	63	58	97	78	42
CTE after T_g [ppm/°C]	363	234	208	158	150
Thermal conductivity @ 25 °C [W/(m·K)]	2.0	1.5	2.4	1.3	1.1
Thermal diffusivity @ 25 °C [mm^2/s]	1.1	0.9	1.2	0.7	0.7
Specific heat capacity @ 25 °C [J/(g·K)]	0.6	0.7	0.6	0.8	0.8
Color	Silver grey	Silver grey	Silver grey	Silver grey	Silver grey
Hardness	84D	78D	73D	60D	70D
Tensile strength [N/mm^2]	8.3	13	9.0	14	N/A
Compressive strength [N/mm^2]	75	69	36	65	26
Lap shear (stainless steel) [N/mm^2]	3.6	5.6	1.7	4.5	2.6
Lap shear (aluminum) [N/mm^2]	2.6	5.1	1.2	7.1	2.8

Refer to TDS for more information.

AVAILABLE PACKAGING					
Net content	6 mL (2 syringe kit)	6 mL (2 syringe kit)	6 mL (2 syringe kit)	6 mL (2 syringe kit)	3 mL (syringe)
	50 mL (2 jar kit)	50 mL (2 jar kit)	50 mL (2 jar kit)	50 mL (2 jar kit)	30 mL (syringe)
	—	—	200 mL (2 can kit)	200 mL (2 can kit)	—

Thermally Conductive Adhesives



Maximum Heat Dissipation from Electronic Assemblies

MG Chemicals offers thermally conductive epoxy adhesives for bonding heat sinks, LEDs, and other heat generating electronic components.

Features & Benefits

- Creates strong permanent thermal bonds
- Eliminates need for mechanical fasteners
- Excellent thermal conductivity (*TC*)
- Provides strong electrical insulation
- Room temperature storage
- Maintains bonds in severe environments
- Excellent chemical resistance
- Excellent mechanical stability
- A wide variety of working times (*w.t.*)

Applications

- Bonding heat sinks
- Power semiconductor devices
- Flip chip BGA heat spreaders
- Battery modules and battery packs
- LED lighting
- Power Supplies
- Automotive lighting
- Appliances

One-part

9460TC • *TC* of 0.8 W/(m·K), unlimited *w.t.*, no mixing, heat cure only

Two-part

8329TFF • *TC* of 0.8 W/(m·K), 5 min *w.t.*, dispensable, UL 94V-0 rated - flame retardant

8349TFM • *TC* of 0.9 W/(m·K), 20 min *w.t.*, dispensable, meets UL 94V-0 - flame retardant

8329TCM • *TC* of 1.4 W/(m·K), 45 min *w.t.*, non-sagging

8329TFS • *TC* of 0.8 W/(m·K), 4 hours *w.t.*, dispensable, heat cure only

8329TCS • *TC* of 1.4 W/(m·K), 4 hours *w.t.*, non-sagging, heat cure only

8329HTC • *TC* of 0.9 W/(m·K), 80 min *w.t.*, dispensable

Dispensing accessories

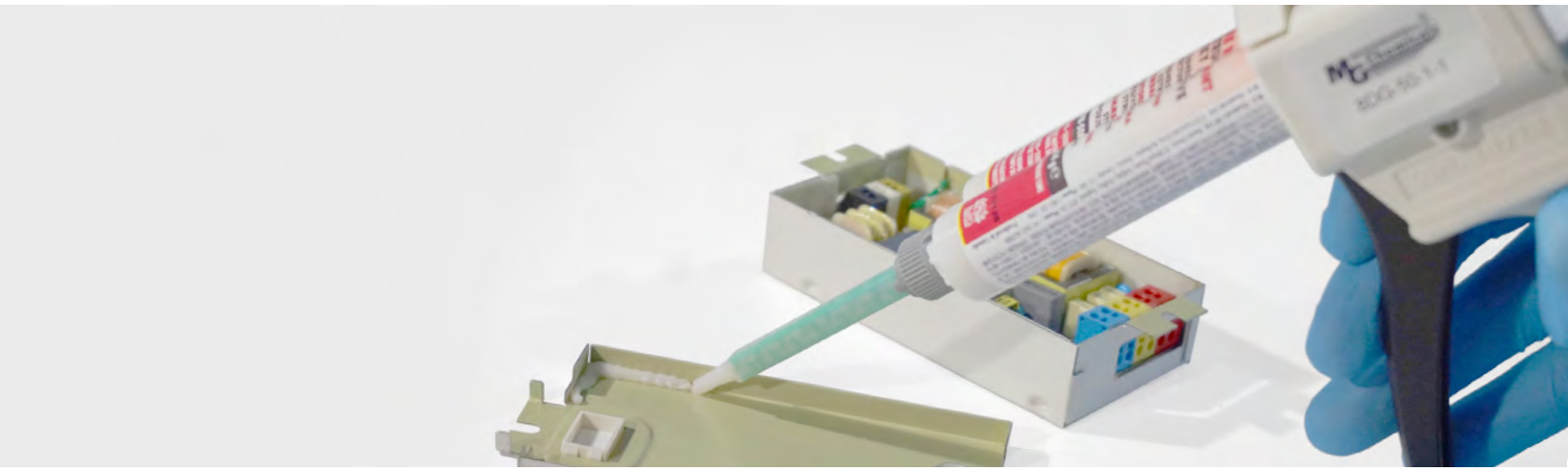
Dispensing gun • 8DG-50-1-1

Mixing tips • 8MT-50 (standard)
• 8MT-50-FT (fine flow)

Thermally Conductive Adhesives

	TWO-PART						ONE-PART
	8329TCS	8329TCM	8329TFS	8349TFM	8329TFF	8329HTC	9460TC
UNCURED PROPERTIES							
Number of components	2	2	2	2	2	2	1
Mix Ratio by Volume	1:1	1:1	1:1	1:1	1:1	1:1 by wt.	—
Mixed density [g/mL]	2.3	2.4	2.1	1.6	1.6	1.7	1.6
Working time	4 h	45 min	4 h	20 min	5 min	80–120 min	Unlimited
Room temperature cure [h]	Heat cure	24	Heat cure	16 hours	4 h	48 h	Heat cure
Heat cure [min @ °C]	120 @ 65	60 @ 65	180 @ 65	20 @ 65	15 @ 65	60 @ 65	120 @ 80
	60 @ 80	45 @ 80	80 @ 80	10 @ 80	10 @ 80	45 @ 80	60 @ 100
	20 @ 100	20 @ 100	30 @ 100	—	—	—	30 @ 120
CURED PROPERTIES							
Resistivity [Ω·cm]	2×10^{13}	9×10^{12}	1.0×10^{12}	6.5×10^{12}	7.9×10^{12}	10^{11}	7.4×10^{16}
Service temperature range [°C]	-40 to 150	-40 to 150	-40 to 150	-65 to 120	-40 to 150	-55 to 160	-65 to 150
Glass transition temperature (T_g) [°C]	8.8	46	9	80	25	90	106
CTE prior T_g [ppm/°C]	36	71	47	20	34	60	36
CTE after T_g [ppm/°C]	173	131	164	120	146	150	72
Thermal conductivity @ 25 °C [W/(m·K)]	1.4	1.4	1.2	0.9	0.8	0.9	0.8
Thermal diffusivity @ 25 °C [mm^2/s]	0.7	0.6	0.6	0.4	0.3	—	0.5
Specific heat capacity @ 25 °C [J/(g·K)]	0.9	0.9	1.0	1.4	1.4	—	1.2
Color	Silver grey	Silver grey	Silver grey	Black	Beige	Gray	White
Hardness	62D	77D	68D	92D	82D	86D	86D
Tensile strength [N/mm^2]	11	10	4.2	25	13	34	9.1
Compressive strength [N/mm^2]	43	34	42	115	65	160	78
Lap shear (stainless steel) [N/mm^2]	4.7	6.4	5.0	6.7	7.1	15	6.0
Lap shear (aluminum) [N/mm^2]	4.4	6.1	6.3	4.4	8.3	17	3.2
AVAILABLE PACKAGING							
Net contents	6 mL (2 syringe kit)	6 mL (2 syringe kit)	25 mL (Dual-syringe)	25 mL (Dual-syringe)	25 mL (Dual-syringe)	50 mL (Dual-cartridge)	3 mL (Syringe)
	50 mL (2 jar kit)	50 mL (2 jar kit)	45 mL (Dual-cartridge)	45 mL (Dual-cartridge)	45 mL (Dual-cartridge)	400 mL (Dual-cartridge)	10 mL (Syringe)

Bonding Adhesives



Bonding Adhesives for Industrial Applications

MG Chemicals bonding adhesives provide significant bond strength to similar and dissimilar substrates. They are used in a wide range of industrial applications where long-lasting load bearing joints are required.

Features & Benefits

- Strong adhesion to a variety of substrates
- Excellent chemical and moisture resistance
- Exceptional durability and toughness
- Excellent sealing capacity against unwanted liquids and gases
- Weight and cost reduction through elimination of conventional metal fasteners

Applications

- Automobile body panels
- Bonding to vertical surfaces
- Battery assembly (cell-to-cell or cell-to-carrier)
- Aircraft structural adhesives
- Surface mount technology
- Gap filling, potting, and sealing
- Bonding windows

One-part

9310 – Surface mount adhesive

Two-part

9200 – Structural, standard, 30 min *w.t.*

9200FR – Structural, UL 94V-0 rated, 30 min *w.t.*

8332 – Fast set epoxy, 5 min *w.t.*

Dispensing accessories

Dispensing gun – 8DG-50-1-1

Mixing tips – 8MT-50 (standard)
8MT-50-FT (fine flow)

Bonding Adhesives

	8332	9200	9200FR	9310
UNCURED PROPERTIES				
Number of components	2	2	2	1
Mixed density [g/mL]	1.14	1.25	1.34	1.15
Working time	3 to 5 min	30 min	30 min	Unlimited
RT cure [h]	5	48	48	—
Heat cure [min @ °C]	15 @ 65	960 @ 40	960 @ 40	30 @ 100
	—	90 @ 65	180 @ 65	10 @ 120
	—	60 @ 80	90 @ 80	—
	—	15 @ 100	30 @ 100	—
CURED PROPERTIES				
Resistivity [Ω·cm]	1.7×10^{14}	2.5×10^{13}	1.1×10^{13}	9.3×10^{12}
Breakdown voltage [V]	23 200	41 500	39 800	41 600
Dielectric strength [V/mil]	250	503	497	220
Service temperature range [°C]	-40 to 150	-40 to 150	-40 to 150	-55 to 140
Glass transition temperature (T_g) [°C]	64	44	59	113
CTE prior T_g [ppm/°C]	76	95	79	56
CTE after T_g [ppm/°C]	175	215	126	185
Color	Light yellow	Grey yellow	Light yellow	Yellow
Hardness	82D	76D	78D	84D
Tensile strength [N/mm^2]	34	16	13	9.4
Compressive strength [N/mm^2]	63	64	46	103
Lap shear (stainless steel) [N/mm^2]	4.9	20	14	8.5
Lap shear (aluminum) [N/mm^2]	5.9	22	10	6.2
AVAILABLE PACKAGING				
Net contents	25 mL (dual-syringe) 46 mL (dual-cartridge)	25 mL (dual-syringe) 45 mL (dual-cartridge)	25 mL (dual-syringe) 45 mL (dual-cartridge)	10 mL (syringe) 300 mL (cartridge)

Dispensing Accessories

Dispensing Guns and Static Mixers to Aid in Application

MG Chemicals offers dispensing accessories to aid in the application of adhesives and epoxy potting compounds. Dispensing guns allow the user to apply more pressure to the cartridge than they could by hand, allowing viscous materials to be dispensed through mixing tips.

Dispensing Guns Features & Benefits

- Solid plastic casing
- Simple slide in and slide out insertion system
- Trigger activated control provides a steady incremental flow
- Dispenses an accurate and smooth flow of materials

Static Mixers Features & Benefits

- Narrow cylindrical tubes with a stationary mixing elements
- For 2-part low to medium viscosity cartridge systems
- Provides a homogeneous and perfect mix of hardener and resin
- Eases precise application
- Single use

Dispensing Guns

8DG-30-1 Solid plastic gun, for use with 30 mL 1-part cartridges

8DG-50-1-1 Solid plastic gun, for use with 50 mL dual cartridges

8DG-400-1-1 Manual gun with two steel piston arms for use with 1:1 400 mL cartridges

8DG-450-2-1 Manual gun with two steel piston arms for use with 2:1 450 mL cartridges

Static Mixers

8MT-450 Large, standard flow tip for use with 2:1 450 mL and 1:1 400 mL cartridges

8MT-50 Standard flow tip for use with 1:1 50 mL cartridges and 1:1 25 mL syringes

8MT-50-FT Fine flow tip allowing greater precision for use with 1:1 50 mL cartridges

8MT-25 Standard flow tip for use with 832HD 1:1 50 mL cartridge and 1:1 25 mL dual syringes

Dispensing Accessories

	DISPENSING GUNS				STATIC MIXERS			
	8DG-450-2-1	8DG-400-1-1	8DG-50-1-1	8DG-30-1	8MT-25	8MT-50	8MT-50FT	8MT-450
832C-450ML	Yes	—	—	—	—	—	—	Yes
832B-450ML	Yes	—	—	—	—	—	—	Yes
832HD-400ML	—	Yes	—	—	—	—	—	Yes
832HD-50ML	—	—	Yes	—	Yes	Yes	—	—
832HD-25ML	—	—	—	—	Yes	Yes	—	—
8329TFF-50ML	—	—	Yes	—	Yes	Yes	—	—
8329TFM-50ML	—	—	Yes	—	Yes	Yes	Yes	—
8329TFS-50ML	—	—	Yes	—	Yes	Yes	Yes	—
8332-25ML	—	—	—	—	Yes	—	—	—
8332-50ML	—	—	Yes	—	—	Yes	—	—
8349TFM-50ML	—	—	Yes	—	—	Yes	Yes	—
9200-50ML	—	—	Yes	—	Yes	Yes	Yes	—
9200FR-50ML	—	—	Yes	—	Yes	Yes	Yes	—
9400-30ML	—	—	—	Yes	—	—	—	—
9410-30ML	—	—	—	Yes	—	—	—	—
9510-30ML	—	—	—	Yes	—	—	—	—
AVAILABLE PACKAGING								
Content(s)	1 unit	1 unit	1 unit	1 unit	5 tips (bag)	5 tips (bag)	5 tips (bag)	5 tips (bag)