

ThreeBond
1100/1200 Series

Liquid Gaskets / Silicone-Based Adhesives, Sealants and Potting Agents



Liquid Gaskets

These are liquid sealants used for sealing inner fluids by applying them to the joint surfaces of various flanges, screws, etc., in transportation equipment and industrial equipment.

Highly reliable sealing is achieved by filling in and adhering to the minute clearance on the joint surface.

Also, they are a liquid when applied, so metal joint surfaces touch each other, and there is almost no decrease in surface pressure due to vibration, etc. Therefore, they are durable and have excellent sealability.

Products with various material bases are available including synthetic resin-based, synthetic rubber-based, acrylate-based, acrylic emulsion-based, and silicone-based. There are also various reaction system grades including solvent vaporization, anaerobic curing, and moisture-curing.

Products include general-purpose types, and products for FIPG and CIPG.

* FIPG: Formed In Place Gasket

Liquid gasket that is applied on one surface and forms a seal by reactive curing after joining the other surface.

* CIPG: Cured In Place Gasket

Liquid gasket that is applied on one surface as a bead and forms a seal by curing before joining the other surface (sealing by surface pressure of the joint surface).



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1101

This is a non-drying type solventless liquid gasket.
It has excellent water resistance and seawater resistance.
It is possible to use it together with solid sheet gaskets because there is almost no effect on rubber.
It is easy to remove, so it is optimal for sealing joints that require periodic disassembly and overhauling.

1102

This is a non-drying type, solvent-type liquid gasket.
It has excellent water resistance and oil resistance.
There are variations such as different colors.

1107D

This is a sealant for hot materials that contain metal powder and silicone oil as main components.
It is good for sealing joint surfaces and bolts that are exposed to high temperatures.
It has a heat resistance of approximately 300°C.

1109J

This is a sealant for hot materials that contains liquid glass as its main component.
It can be used for vehicle mufflers in which high temperatures are applied, or in other high temperature junctions.
It has a heat resistance of approximately 400°C.

1119

This is a room-temperature curing type two-component fluorine-based liquid gasket.
It forms fluororubber quickly by mixing the Agent A and Agent B liquids.
It has excellent heat resistance and chemical resistance, and in addition to oil resistance, it also has excellent resistance to gasoline, gas oil, organic solvents, acid, and inorganic bases.
In addition to transportation equipment, it can also be used for sealing plant piping.

1121

This is a non-drying type solventless liquid gasket.
It has excellent water resistance and oil resistance.
It is possible to use it together with solid sheet gaskets because there is almost no effect on rubber.
It is easy to remove, so it is optimal for sealing joints that require periodic disassembly and overhauling. There is also a low-viscosity type available.

1130

This is a low-reaction, anaerobic-curing liquid gasket for tapered plugs.
It is a slow-curing type, so it is possible to apply it to many plugs using a tumbler, etc., and blocking between plugs does not occur for approximately 8 hours.
It has excellent oil resistance and coolant resistance. It is a low adhesive type.

1133J

This is an anaerobic curing type liquid gasket for flanges.
It conforms to flange movement because it is flexible after curing.
It has excellent oil resistance.

1141G

This is a water-based type liquid gasket for better working environment. Acrylic resin is the main component.
It has excellent chemical resistance. It is possible to use it together with solid sheet gaskets because there is almost no effect on rubber.
There are grades with different viscosities.

1152C

This is an olefin-based heat-curing liquid gasket for fuel cell batteries.

1152D

The cured material has rubber elasticity with excellent chemical resistance.

1153C

It has rubber elasticity, but also has excellent gas barrier property with hydrogen barrier property and low moisture permeability.
In addition to being used as a gas seal for fuel cell batteries, it can also be used for sealing water, coolants, methanol, etc.

1158

This is an alcohol-releasing single-component, moisture-curing, acrylic resin-based liquid gasket for FIG.
It has excellent oil resistance, and is used for sealing AT and CVT transmissions and gear cases.
It can also be used for high-grade oil.

1171D

This is a volatile solvent-type liquid gasket for batteries.

1171E

Special synthetic rubber is the main component, and it forms a rubber-like elastic body with low moisture permeability.

1171F

It has excellent heat resistance and reflow soldering durability. In addition to resistance to nonaqueous electrolytic solution, it also has resistance to acid and inorganic bases. It is used for lithium-ion batteries, capacitors, etc.

1184

This is a solvent-vaporizing type all-purpose liquid gasket.
It has rubber elasticity after curing. It has excellent padding ability during application, making it effective for joint surfaces with large clearances and poor flatness.
It has excellent water resistance and oil resistance.
There are grades with different colors and viscosities.

1206D

This is an alcohol type single-component, moisture-curing, modified silicone-based liquid gasket.
It is paintable, making it an optimal sealant for portions where painting is required after assembly.
There are grades with different colors and flowabilities.

1207B

This is an acetone type single-component, moisture-curing, silicone-based liquid gasket for FIG.
It has a fast curing speed, and it becomes a flexible cured material, so it has excellent displacement conformability on joint surfaces.
In addition to engine oil pans, it can also be used for sealing coolants such as for water pumps.

1211

This is an oxime type single-component, moisture-curing, silicone-based liquid gasket.
It has low viscosity, so it is easy to apply.
It has excellent oil resistance and can be used together with solid sheet packings for engine oil pans in addition to general-purpose sealing applications.
There is also a high-viscosity type available.

1100/1200 Series

1215 This is an oxime type single-component, moisture-curing, silicone-based liquid gasket. It has relatively low viscosity, so it is easy to apply. It has excellent chemical resistance and can be used as an FIPG for engine oil pans and gear cases, etc., in addition to general-purpose sealing applications.

1216 This is an oxime type single-component, moisture-curing, silicone-based liquid gasket for FIPG. It has excellent chemical resistance, and in addition to engine oil pans and gear cases, it can also be used for sealing coolants such as for water pumps. There are variations such as different functions.

1217G This is an oxime type single-component, moisture-curing, silicone-based liquid gasket for FIPG. It is a high elasticity type with excellent conformability to vibration. It is a grade with high viscosity and excellent initial pressure resistance.

1217H This is an oxime type single-component, moisture-curing, silicone-based liquid gasket for FIPG. It is a high elasticity type with excellent conformability for vibration. It is a grade with high viscosity and excellent initial pressure resistance.

1217M This is an oxime type single-component, moisture-curing, silicone-based liquid gasket for FIPG. It has excellent oily surface adhesiveness. It has oil resistance, and it is used for sealing engine oil pans, chain cases, etc.

1217N This is an oxime type single-component, moisture-curing, silicone-based liquid gasket for FIPG. It has excellent adhesion to magnesium alloys. It has oil resistance, and it is used for sealing engine oil pans and chain cases, etc.

About the single-component, moisture-curing, silicone-based liquid gasket reaction types

All single-component, moisture-curing, silicone-based liquid gaskets become rubber-like elastic bodies due to reaction with moisture in the air, but they are sorted into the following three types according to their reaction types.

Oxime type:

Gaskets that generate a small amount of oxime gas as a reactive byproduct. These are corrosive to copper alloys, so these are not suitable for electronic devices. They may cause cracks, etc., on thermoplastics. They have excellent adhesion with various materials.

Acetone type:

Gaskets that generate a small amount of acetone gas as a reactive byproduct. There is no corrosion on metals and no influence on most plastics. They have a fast curing speed and have excellent airtightness and heat resistance.

Alcohol type:

Gaskets that generate a small amount of methanol gas as a reactive byproduct. They have no influence on metals or plastics, but have weaker adhesion.



Liquid Gaskets

Property Table

Product name		1101	1102	1102D	1102G	1103B	1105	1105B	1107D		
Characteristics	Unit										
Main component		Vegetable oil	Alkyd-based resin	Alkyd-based resin	Alkyd-based resin	Cellulose-based acetate	NBR	NBR	Silicone		
Curing method		Non-drying	Non-drying	Non-drying	Non-drying	Solvent vaporization	Solvent vaporization	Solvent vaporization	Non-drying		
Features		Seawater resistance	Water resistance Oil resistance	Water resistance Oil resistance	Water resistance Oil resistance	Dry Peelable	Dry Peelable	Dry Peelable	Sealant for hot materials		
Appearance		Reddish brown	Yellow	Silver	Yellow	Black	Black	Silver	Gray		
Viscosity	Pa-s	850	7.0	6.9	6.9	3.4	3.5	3.5	25.0		
Specific gravity		1.50	1.32	1.33	1.33	0.88	0.92	0.92	1.80		
Non-Volatile Content	%	99.0	77.0	79.0	79.0	26.6	25.0	26.0	57.0		
Tack free time	min	Non-drying	Non-drying	Non-drying	Non-drying	-	-	-	-		
Physical characteristics after curing	State	Non-drying	Non-drying	Non-drying	Non-drying	Dry Peelable film	Dry Peelable film	Dry Peelable film	Semidrying		
	Hardness	-	-	-	-	-	-	-	-		
	Elongation rate	%	-	-	-	-	-	-	-		
	Tensile strength	MPa	-	-	-	-	-	-	-		
	Tensile shear bond strength (Iron)	MPa	-	-	-	-	-	-	-		
	Tensile shear bond strength (Aluminum)	MPa	-	-	-	-	-	-	-		
Pressure resistance	Room temperature	MPa	7.0	9.5	9.5	9.0	6.5	8.5	8.5	10 or higher	
	80°C	MPa	3.5	7.5	7.5	7.0	2.5	6.5	6.5	10 or higher	
	150°C	MPa	0.5	6.5	6.0	4.0	2.0	5.5	5.5	10 or higher	
Chemical resistance	Mass change rate	Water ^{*1}	%	-4.2	+1.0	+1.0	+1.0	-2.3	+0.3	+0.3	+1.2
		Gasoline ^{*2}	%	-36.4	-2.4	-2.4	-2.4	-38.6	-5.2	-5.2	-83.7
		Lubricating oil No.2 ^{*3}	%	-	-	-	-	-23.4	-	-	+4.8
Removability		Good	Difficult	Difficult	Difficult	Good	Good	Good	Good		
Operating temperature range (Est.)	°C	-40 to 80	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 400		
Remark(s)		Good plastic resistance		Different color from 1102		Suited for relatively small joint surfaces	Suited for relatively small joint surfaces	Different color from 1105			

*1 : Immersion conditions 90°C×24h

*2 : Immersion conditions 50°C×24h

*3 : Immersion conditions 100°C×24h

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/1200 Series



Liquid Gaskets Property Table

Product name		1108	1109J	1109M	1119	1121	1121C	1130	1133C		
Characteristics	Unit										
Main component		Vinyl modified resin Natural resin	Liquid glass	Synthetic rubber	Fluorine-based resin	Saturated polyester resin	Saturated polyester resin	Acrylate	Acrylate		
Curing method		Solvent vaporization	Solvent evaporation reaction	Solvent vaporization	Mixture of two fluids (alcohol-releasing type)	Non-drying	Solvent vaporization Non-drying	Anaerobic curing	Anaerobic curing		
Features		Used in combination with solid gaskets	Sealant for hot materials	Heat and Water resistance	Chemical resistance	Solventless	1121 Low viscosity	For tapered plugs	For flanges		
Appearance		Brown	Gray	Black	Agent A	Agent B	Gray	Gray	White	Blue	
					Black	White					
Viscosity	Pa-s	0.75	Paste	5.0	150	260	330	11.0	50.0	100	
Specific gravity		0.94	1.64	1.2	1.76	1.80	1.35	1.27	1.15	1.1	
Non-Volatile Content	%	53.0	65.0	54.0	99.3	93.5	100	87.3	100	-	
Tack free time	min	-	-	-	10 (Pot life)		Non-drying	Non-drying	-	-	
Physical characteristics after curing	State	-	Dry	Rubber-like	Rubber-like	Non-drying	Non-drying	Rubber-like	Rubber-like		
	Hardness	-	-	-	A39	-	-	-	-		
	Elongation rate	%	-	-	-	97	-	-	-	-	
	Tensile strength	MPa	-	-	-	1.03	-	-	-	-	
	Tensile shear bond strength (Iron)	MPa	-	5.2	-	0.54	-	-	-	11.0	
	Tensile shear bond strength (Aluminum)	MPa	-	1.8	-	0.59	-	-	-	10.0	
Pressure resistance	Room temperature	MPa	8.5	9.0	10.0	-	9.0	9.0	11.0	-	
	80°C	MPa	8.0	8.5	6.5	-	7.0	7.0	11.5	-	
	150°C	MPa	4.0	-	6.0	-	6.5	6.5	4.0	-	
Chemical resistance	Mass change rate	Water ^{*1}	%	-5.3	-	-0.4	-	-5.5	-5.5	+0.25	-
		Gasoline ^{*2}	%	+2.3	-	-21.3	-3	-4.4	-4.4	-0.85	-
		Lubricating oil No.2 ^{*3}	%	-	-	-3.8	-	-	-	-	-
Removability		Good	Relatively difficult	Normal	Normal	Good	Good	Normal	Difficult		
Operating temperature range (Est.)	°C	-40 to 140	-40 to 400	-40 to 150	-30 to 150	-40 to 130	-40 to 130	-40 to 130	-40 to 130		
Remark(s)			Sealant for mufflers				1121 low-viscosity product diluted with alcohol				

*1 : Immersion conditions 90°Cx24h

*2 : Immersion conditions 50°Cx24h

*3 : Immersion conditions 100°Cx24h

	1133J	1133K	1141G	1141H	1141J	1184	1184D	1184E	1184J	1184Y
	Acrylate	Acrylate	Acrylic emulsion	Acrylic emulsion	Acrylic emulsion	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber
	Anaerobic curing	Anaerobic curing	Vaporization	Vaporization	Vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization
	For flanges	For flanges	Water-based type Nonflammable	Water-based type Nonflammable	Water-based type Nonflammable	All-purpose type Chemical resistance	All-purpose type Chemical resistance	All-purpose type Chemical resistance	All-purpose type Chemical resistance	All-purpose type Chemical resistance
	Blue	Yellow	Gray	Gray	Gray	Gray	Cream	Black	Gray	Gray
	100	250	15.0	0.9	10.0	9.5	29.0	8.5	6.5	9.5
	1.10	1.9	1.26	1.22	1.26	1.26	1.32	1.20	1.23	1.35
	-	-	68.0	60.0	68.0	57.5	63.0	55.0	54.0	53.9
	-	60 (Set time)	-	-	-	12	12	12	12	10
	Rubber-like	Rubber-like	-	-	-	Rubber-like	Rubber-like	Rubber-like	Rubber-like	Rubber-like
	-	-	-	-	-	A23	A22	A28	A22	-
	-	-	-	-	-	1720	1000	700	1200	-
	-	-	-	-	-	0.17	0.15	0.21	0.13	-
	11.0	17.0	-	-	-	3.3	-	-	-	-
	10.0	17.7 (Cured at 80°C)	-	-	-	2.7	-	-	-	-
	-	10 or higher	10 or higher	10 or higher	10 or higher	10.0	10.0	10.0	10.0	10.0
	-	-	10 or higher	9.5	10 or higher	8.5	8.0	8.5	8.0	8.5
	-	-	9.5	8.5	9.0	8.5	8.0	8.0	8.0	-
	-	-	-2.3	-2.1	-2.5	-1.9	-1.9	-2.5	-3.0	-2.9
	-	-	-7.5	-7.0	-7.2	-2.8	-1.8	-3.8	-3.7	-2.6
	-	-	-	-	-	-3.6	-1.1	-1.9	-	-
	Difficult	Difficult	Good	Good	Good	Normal	Normal	Normal	Normal	Normal
	-40 to 130	-40 to 130	-40 to 140	-40 to 140	-40 to 140	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150
			pH: 9.0	pH: 9.0	pH: 9.0	Superior acid and alkali resistance	Superior acid and alkali resistance	Superior acid and alkali resistance	Superior acid and alkali resistance	Superior acid and alkali resistance

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/1200 Series



Liquid Gaskets Property Table

Product name		1152C	1152D		1153C	1156B	1156C	1158
Characteristics	Unit							
Main component		Olefin-based resin	Olefin-based resin		Olefin-based resin	Acryl rubber	Acryl rubber	Acryl rubber
Curing method		Heat-curing	Two-component heat-curing		Heat-curing	Heat-curing	Heat-curing	Moisture-curing Alcohol-releasing type
Features		Gas barrier property Low moisture permeability	Gas barrier property Chemical resistance Low moisture permeability		Gas barrier property Low moisture permeability	Heat resistance Chemical resistance	Heat resistance Chemical resistance	Oil resistance
Appearance		Milky white	White	Black	Gray	Black	Black	Black
Viscosity	Pa-s	650	390	230	1700	180	380	200
Specific gravity		0.97	0.97	0.97	1.03	1.2	1.24	1.35
Standard curing conditions		100°C×30 min	90°C×30 min		100°C×30 min	150°C×30 min	150°C×30 min	-
Physical characteristics after curing	Hardness	A30	A28		A41	A6	A15	A20
	Elongation rate	%	280	230	221	275	300	300
	Tensile strength	MPa	2.6	1.7	3.0	1.2	1.7	1.8
	Moisture permeability (40°C×95%RH)	g/m ² /24h	5.56	0.5		3.43	-	-
Removability		Difficult	Difficult		Difficult	Normal	Normal	Normal
Operating temperature range (Est.)	°C	-30 to 120	-		-30 to 120	-30 to 150	-30 to 150	-30 to 150
Remark(s)		For fuel cell FIPG	For fuel cell FIPG		For fuel cell CIPG	Superior CVT/AT oil performance	High-viscosity and high-thixotropic type of TB1156B	One component moisture-curing acrylic sealant, paintable type

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Product name		1170	1170E	1171D	1171E	1171F	
Characteristics	Unit						
Main component		Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	
Curing method		Solvent vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization	
Features		Low moisture permeability	Low moisture permeability	Low moisture permeability	Low moisture permeability	Chemical resistance	
Appearance		Blue	Blue	Colorless	Colorless	Black	
Viscosity	mPa-s	230	220	440	600	1800	
Specific gravity		0.87	0.86	0.87	0.79	0.91	
Non-Volatile Content	%	8.0	8.5	6.3	6.0	14.5	
Physical characteristics after curing	State	Dry	Rubber-like adhesive film	Rubber-like adhesive film	Rubber-like adhesive film	Rubber-like elastic film	
	Moisture permeability (40°C×95%RH)	g/m ² /24h	-	2.0	4.12	4.12	-
	Moisture permeability (60°C×95%RH)	g/m ² /24h	9.20	-	-	-	-
Chemical resistance (Mass change rate)	Polyprene carbonate	%	5.0	-2.3	-1.5	-1.5	0.5
	Gamma-Butyrolactone	%	6.0	-0.7	-0.2	-0.2	0.6
	Dimethoxyethane	%	-7.0	-2.5	-3.2	-3.2	-0.8
	Potassium hydroxide (10%)	%	2.9	-	-	-	-
	Hydrochloric acid (10%)	%	-1.9	-	-	-	-
Remark(s)		For Batteries	For Batteries	For Batteries	For Batteries	For Batteries	

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/1200 Series



Liquid Gaskets Property Table

Product name		1201	1206C	1206D	1206E	1206G	1207B	1207C	1207D
Characteristics	Unit								
Main component		Silicone	Modified Silicone	Modified Silicone	Modified Silicone	Modified Silicone	Silicone	Silicone	Silicone
Curing method		Oxime	Alcohol	Alcohol	Alcohol	Alcohol	Acetone	Acetone	Acetone
Features		Solvent dilution type Low viscosity	Paintable Oil resistance	Paintable Oil resistance	Paintable Oil resistance	Paintable Oil resistance	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance
Appearance		Gray	Black	Gray	Gray	White	Black	Reddish brown	Aluminum color
Viscosity	Pa-s	4.0	-	-	72.0	-	250	200	200
Apparent viscosity (SOD)	Pa-s	-	90	80	-	80	100	70	70
Specific gravity		1.17	1.45	1.46	1.43	1.45	1.01	1.47	1.46
Tack free time	min	100	30	5	16	5	3	3	5
Physical characteristics after curing	Hardness	A45	A45	A41	A33	A45	A30	A60	A60
	Elongation rate	%	150	400	470	350	450	400	200
	Tensile strength	MPa	2.8	2.0	2.2	1.8	2.2	1.9	4.2
	Tensile shear bond strength (Iron)	MPa	-	2.3	-	-	-	1.6	1.7
	Tensile shear bond strength (Aluminum)	MPa	-	-	2.3	1.7	2.2	1.1	1.7
Pressure resistance	Initial (When uncured) clearance: 0.2mm	MPa	-	-	0.14	0.14	0.14	0.18	0.14
	Initial (When uncured) clearance: 0.5mm	MPa	-	0.11	-	-	-	0.07	0.05
	After curing (Room temperature)	MPa	-	-	-	-	-	10 or higher	10 or higher
Chemical resistance	Appropriateness	Engine oil	-	△ (Lower heat resistance)	△ (Lower heat resistance)	△ (Lower heat resistance)	△ (Lower heat resistance)	○	○
		Gear oil	-	△ (for agricultural equipment)	△ (for agricultural equipment)	△ (for agricultural equipment)	△ (for agricultural equipment)	×	×
		AT oil	-	×	×	×	×	×	×
		MT oil	-	×	×	×	×	×	×
		Coolant	-	×	×	×	×	○	○
	Mass change rate	Water ^{*1}	%	-	-	-	-	-0.6	-0.4
		Gasoline ^{*2}	%	-	-	-	-	+5.0	-0.3
		Lubricating oil No.2 ^{*3}	%	-	-	-	-	-6.0	+5.8
Removability		Good	Normal	Normal	Normal	Normal	Relatively difficult	Good	
Operating temperature range (Est.)	°C	-60 to 200 (250)	-40 to 120	-40 to 120	-40 to 120	-40 to 120	-60 to 200 (250)	-60 to 200 (250)	
Remark(s)		Brush application possible May be used as a coating on solid packings	For FIPG farm equipment	For FIPG farm equipment	For FIPG farm equipment	For FIPG farm equipment	FIPG: Engine oil and Cooling liquid sealing	FIPG: Engine oil and Cooling liquid sealing	FIPG: Engine oil and Cooling liquid sealing Different color from 1207C

*1 : Immersion conditions 90°C×24h

*2 : Immersion conditions 50°C×24h

*3 : Immersion conditions 100°C×24h

	1207F	1207H	1211	1211E	1211F	1211G	1211H	1212	1212D	1212E	1215
	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
	Acetone	Acetone	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime
	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance	For general use Low viscosity	For general use Low viscosity	For general use Low viscosity	For general use Low viscosity	For general use Low viscosity	For general use High viscosity	For general use High viscosity	For general use High viscosity	For general use Chemical resistance
	Aluminum color	Gray	White	White	Clear	White	White	White	Aluminum color	Black	Gray
	-	-	70.0	5.0	70.0	4.3	63.0	300	300	-	75.0
	180	200	-	-	-	-	-	100	100	100	20
	1.45	1.47	1.01	1.05	1.04	1.04	1.03	1.04	1.05	1.55	1.50
	5	3	40	60	40	35	16	7	7	5	10
	A56	A57	A26	A25	A24	A20	A21	A30	A30	A28	A50
	190	230	300	200	300	250	280	300	300	380	320
	3.7	3.0	2.5	1.0	2.5	1.8	1.9	2.0	2.0	1.7	1.2
	2.3	1.1	-	0.8	-	-	-	-	1.7	1.8	0.9
	2.2	1.2	1.4	0.8	1.2	0.8	1.0	1.0	1.5	1.5	0.8
	0.23	-	0.04	0.01	0.04	0.01	0.04	0.15	0.1	0.15	0.05
	0.12	0.10	0.01	-	0.01	-	0.01	0.06	0.03	0.06	0.01
	10 or higher	-	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher
	○	○	○	○	○	○	○	○	○	○	○
	×	×	×	×	×	×	×	×	×	×	○
	×	×	×	×	×	×	×	×	×	×	×
	×	×	×	×	×	×	×	×	×	×	○
	○	○	×	×	×	×	×	×	×	×	×
	-	-	-0.5	-	-	-	-	+1.3	+1.3	-	-1.0
	-	-	-20.2	-	-	-	-	-15.1	-15.1	-	-5.0
	-	-	+5.0	-	-	-	-	+5.0	+5.0	-	+5.0
	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)
	FIPG: Engine oil and Cooling liquid sealing	FIPG: Engine oil and Cooling liquid sealing	For general use Engine oil pan Used with packing	1211 Low viscosity	1211 Color difference	Better nylon adhesion than 1211E	Better nylon adhesion than 1211	For general use Engine oil pan sealing	For general use Engine oil pan sealing 1212 Color difference	For general use Engine oil pan sealing 1212 Color difference	FIPG: Engine oil pan and Gear case sealing

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/1200 Series



Liquid Gaskets Property Table

Product name		1215B	1216	1216B	1216C	1216E	1217	1217B	1217C	
Characteristics	Unit									
Main component		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	
Curing method		Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	
Features		For general use Chemical resistance	Multi-grade	Mission oil resistance	Mission oil resistance	Multi-grade Fast-curing	Chemical resistance ATF resistance	Chemical resistance ATF resistance	Chemical resistance ATF resistance	
Appearance		Black	Gray	Black	Light reddish brown	Gray	Gray	Reddish brown	Black	
Viscosity	Pa-s	85.0	-	-	-	-	-	-	-	
Apparent viscosity (SOD)	Pa-s	20	120	120	170	215	140	150	150	
Specific gravity		1.45	1.40	1.50	1.48	1.36	1.47	1.45	1.50	
Tack free time	min	11	5	20	5	6	20	20	20	
Physical characteristics after curing	Hardness	A40	A60	A50	A48	A57	A57	A56	A52	
	Elongation rate	%	380	240	500	470	300	400	350	320
	Tensile strength	MPa	1.2	3.0	2.0	2.1	3.3	2.1	1.9	2.0
	Tensile shear bond strength (Iron)	MPa	0.9	2.3	-	1.1	-	-	-	-
	Tensile shear bond strength (Aluminum)	MPa	0.8	2.2	1.7	1.3	2.5	2.3	1.7	1.7
Pressure resistance	Initial (When uncured) clearance: 0.2mm	MPa	0.05	0.21	0.17	0.18	0.25	0.18	0.20	0.21
	Initial (When uncured) clearance: 0.5mm	MPa	0.01	0.10	0.07	0.06	0.10	0.07	0.10	0.10
	After curing (Room temperature)	MPa	10 or higher	10 or higher	10 or higher	-	10 or higher	10 or higher	10 or higher	10 or higher
Chemical resistance	Appropriateness	Engine oil	○	○	○	○	○	○	○	○
		Gear oil	○	○	△	△	○	△	△	△
		AT oil	×	△	○	○	△	△	○	○
		MT oil	○	○	○	○	○	○	×	×
		Coolant	×	△	×	×	△	×	×	×
	Mass change rate	Water ^{*1}	%	-0.4	-	-	-	-	-	-
		Gasoline ^{*2}	%	-4.7	-	-	-	-	-	-
		Lubricating oil No.2 ^{*3}	%	+4.9	-	-	-	-	-	-
Removability		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
Operating temperature range (Est.)	°C	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	
Remark(s)		FIPG: Engine oil pan and Gear case sealing	FIPG: Engine oil pan, AT case, Gear case and Cooling liquid sealing	FIPG: AT case and CVT case sealing 1215B High viscosity	FIPG: AT case and CVT case sealing 1216B Color difference	FIPG: Engine oil pan, AT case, Gear case and Cooling liquid sealing	FIPG: Engine oil pan, AT case, Gear case and Cooling liquid sealing	FIPG: Engine oil pan, AT case and Gear case sealing	FIPG: Engine oil pan, AT case and Gear case sealing	

*1 : Immersion conditions 90°Cx24h

*2 : Immersion conditions 50°Cx24h

*3 : Immersion conditions 100°Cx24h

	1217D	1217E	1217F	1217G	1217H	1217M	1217N	1227D	1280	1280B	1280E
	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Oxime	Alcohol	Oxime	Oxime	Oxime
	Engine oil Low foamability	ATF resistance AT oil Low foamability	High-grade engine oil	High elasticity High-grade engine oil	High elasticity High-grade engine oil	High elasticity Oily surface adhesiveness	High elasticity Magnesium adhesion	Compliant with MEKO regulations Coolant resistance	Engine oil resistance	Initial pressure resistance	Initial pressure resistance
	Gray	Reddish brown	Gray	Gray	Gray	Black	Gray	Black	Aluminum color	Gray	Gray
	-	-	-	-	-	-	-	-	-	-	-
	120	140	210	301	330	280	280	200	100	200	250
	1.51	1.50	1.39	1.37	1.36	1.37	1.45	1.46	1.04	1.06	1.12
	10	5	6	5	5	7	6	90	6	3	4
	A52	A53	A60	A60	A51	A45	A35	A33	A30	A33	A45
	400	260	210	430	470	500	440	410	400	480	330
	1.8	1.6	3.0	2.6	2.6	2.5	3.1	2.3	2.0	2.5	3.10
	-	1.3	1.9	2.1	2.3	-	2.6	2.3	1.4	1.8	2.80
	1.7	1.4	1.9	2.0	2.3	1.6	2.7	2.2	1.4	2.0	2.29
	0.17	0.20	0.34	-	-	-	-	0.19	0.13	0.17	0.40
	0.09	0.10	0.14	0.10	0.15	-	0.15	-	0.06	0.13	-
	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	-	10 or higher	10 or higher	10 or higher
	○	○	○	○	○	○	○	○	○	○	○
	×	×	×	×	×	×	×	×	×	×	×
	×	○	×	×	×	×	×	×	×	×	×
	×	○	×	×	×	×	×	×	×	×	×
	×	×	○	×	×	×	×	○	×	×	×
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	Normal	Normal	Good	Relatively difficult	Relatively difficult	Normal	Normal	Normal	Good	Good	Relatively difficult
	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)
	FIPG: Engine oil pan and Engine oil sealing Low-foaming ability	FIPG: Engine oil pan, AT case and AT oil sealing Low-foaming ability	FIPG: Engine oil pan for coolant sealing	FIPG: Engine oil pan sealing Excellent initial pressure resistance	FIPG: Engine oil pan sealing Excellent initial pressure resistance	FIPG: Engine oil pan sealing	FIPG: Engine oil pan sealing	FIPG: Engine oil pan for coolant sealing	FIPG: Engine oil pan sealing	FIPG: Engine oil pan sealing 1280 thickening agent	FIPG: Engine oil pan sealing 1280B thickening agent

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/1200 Series



Liquid Gaskets Property Table

Product name		1281B	1282B	1283		
Characteristics	Unit					
Main component		Silicone	Silicone	Silicone		
Curing method		Oxime	Acetone	Oxime		
Features		ATF resistance	Initial pressure resistance Liquid coolant resistance	High elasticity Initial pressure resistance		
Appearance		Reddish brown	Black	Gray		
Viscosity	Pa-s	-	-	300		
Apparent viscosity (SOD)	Pa-s	115	200	-		
Specific gravity		1.45	1.07	1.37		
Tack free time	min	10	3	5		
Physical characteristics after curing	Hardness	A60	A46	A50		
	Elongation rate	%	220	330	400	
	Tensile strength	MPa	4.8	3.3	2.0	
	Tensile shear bond strength (Iron)	MPa	2.0	1.8	1.2	
	Tensile shear bond strength (Aluminum)	MPa	2.0	1.7	1.2	
Pressure resistance	Initial (When uncured) clearance: 0.2mm	MPa	0.15	0.11	-	
	Initial (When uncured) clearance: 0.5mm	MPa	0.06	0.06	0.10	
	After curing (Room temperature)	MPa	10 or higher	10 or higher	-	
Chemical resistance	Appropriateness	Engine oil	△	△	○	
		Gear oil	×	×	×	
		AT oil	○	×	×	
		MT oil	×	×	×	
		Coolant	×	○	×	
	Mass change rate	Water ^{*1}	%	-	-	-
		Gasoline ^{*2}	%	-	-	-
		Lubricating oil No.2 ^{*3}	%	-	-	-
Removability		Normal	Normal	Relatively difficult		
Operating temperature range (Est.)	°C	-60 to 200 (250)	-60 to 200 (250)	-60 to 200 (250)		
Remark(s)		FIPG: AT case sealing	FIPG: Engine oil pan for coolant sealing	FIPG: Engine oil pan sealing		

*1 : Immersion conditions 90°C×24h

*2 : Immersion conditions 50°C×24h

*3 : Immersion conditions 100°C×24h

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Silicone-Based Adhesives, Sealants and Potting Agents



These are single-component type silicone adhesives and sealants. They can be used for various purposes including bonding, sealing, and dampproof coatings for different fields such as for electric and electronic devices.

The curing reaction occurs from the moisture in the air when it is squeezed from the container, and it becomes a rubber-like elastic body.

They have a fast curing speed, the surface cures at room temperature and normal humidity (25°C / 50%RH) after ten minutes (tack free), and they reach a cured thickness of 1mm or greater after 2 to 3 hours.

The rubber elasticity of the cured material is maintained over a wide temperature range from -60°C to 250°C (approx.) (300°C for heat-resistant type). They have excellent adhesion, so they can bond to most materials.

There are two reaction types; the alcohol type (generates a small amount of methanol gas as a reactive byproduct) and the acetone type (generates acetone gas). Neither type is corrosive to metals such as electric-contact metals. They also do not dissolve or cause cracks on most plastics.

All grades of the 1220 Series are low-molecular siloxane-reduced products, so they do not cause electrical contact failures.

■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1220G 1220H

This is a paste-like fluid type product.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.
1220G is milky white (translucent), and 1220H is white.

1221G 1221H

This is a paste-like non-fluid type with excellent padding ability due to its non-fluidity during application.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.
1221G is milky white (translucent), and 1221H is white.

1222C

This is an incombustible type certified according to incombustibility standard UL94V-0.
It is a gray non-fluid paste with excellent padding ability due to its non-fluidity during application.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.

1224G

This is milky white (translucent) ultra-fluid type with excellent flowability and leveling ability during application.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.

1200 Series

1225B

This has high thermal conductivity and excellent heat dissipation.
It is a white fluid paste.
It can be used for heat dissipation and insulation of various electronic devices such as switching power supplies, power ICs, and lighting inverters.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.

1225C

This has high thermal conductivity and excellent heat dissipation.
It is a gray fluid paste.
It can be used for heat dissipation and insulation of various electronic devices such as switching power supplies, power ICs, and lighting inverters.
It is alcohol type with excellent electric insulation.
Low-molecular siloxane, which causes electrical contact failures, is reduced.

1207B

It is a black non-fluid type.
It is the acetone type, so there is no corrosiveness with metals, and almost no influence on plastics.
It has excellent adhesion with metals and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
The cured material is soft and it can conform to the movement of the substrate. It has excellent heat resistance and moisture resistance.
* It cannot be used for insulation, as it has low electrical resistance.

1208

1208B

1208C

This is a white type adhesive sealant for electric and electronic devices.
It is the acetone type, so there is no corrosiveness with metals, and almost no influence on plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.
1208 is a medium-viscosity fluid paste, 1208B is a low-viscosity fluid paste, and 1208C is a non-fluid paste.
* It is not a low-molecular siloxane-reduced product.

1209

It is a highly heat-resistant type with excellent heat resistance.
It is a black non-fluid type with excellent padding ability due to its non-fluidity during application.
It is the acetone type, so there is no corrosiveness with metals, and almost no influence on plastics.
It has excellent adhesion with metals, glass, and plastics.
It can be used at a temperature range of -60°C to 300°C (approx.), and for continuous use, the heat resistance is about 250°C.
* It does not have high electrical resistivity, so it cannot be used for insulation.

1226

This is a tin-free product.
It is the alcohol type, so there is no influence such as corrosion on metals and plastics.
It exhibits excellent adhesion for various kinds of substrates, including metals and resin materials such as engineering plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It has excellent electric insulation.

1230

This is a heat curable two-component potting agent with a low viscosity for electric/electronic devices.
It is hardened by heating at 100°C for approximately 15 minutes to form a rubber elastomer that is heat resistant, cold resistant, waterproof, humidity resistant, impact resistant with impact absorption, and has great electrical characteristics, and great heat conductivity.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
It is a flame-retardant type that is certified with the flame-retardant standard UL94 V-0.

1234B

This is a heat-curing type with excellent resistance to heat, moisture, and water.
It reaches practical strength in 1 hour after being heated at 100°C.
It exhibits excellent adhesion for various kinds of substrates, including metals and resin materials such as engineering plastics.
It can be used at a temperature range of -60°C to 250°C (approx.), and for continuous use, the heat resistance is about 180°C.
The cured material is soft and it can conform to the movement of the substrate.



Silicone-Based Adhesives Sealants and Potting Agents

Property Table

Product name		1207B	1208	1208B	1208C	1209	1220G	1220H	1221G	1221H	
Characteristics	Unit										
Main component		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	
Reaction type		Acetone	Acetone	Acetone	Acetone	Acetone	Alcohol	Alcohol	Alcohol	Alcohol	
Features		Standard Type	Standard Type	Standard Type	Standard Type	Highly heat-resistant type	Standard Type	Standard Type	Standard Type	Standard Type	
Appearance		Black	White	White	White	Black	Milky white (Translucent)	White	Milky white (Translucent)	White	
Viscosity	Pa-s	100	55.0	3.3	-	140	65.0	65.0	-	-	
Flowability		None	Yes	Yes	None	None	Yes	Yes	None	None	
Tack free time	min	3	3	3	3	5	10	10	10	10	
Content of low-molecular siloxane		-	-	-	-	Reduced product	Reduced product	Reduced product	Reduced product	Reduced product	
Physical characteristics after curing	Specific gravity	1.01	1.04 (Liquid specific gravity)	1.04 (Liquid specific gravity)	1.04 (Liquid specific gravity)	1.05 (Liquid specific gravity)	1.04	1.03	1.04	1.04	
	Hardness	A30	A30	A20	A30	A42	A20	A20	A28	A28	
	Elongation	%	400	300	200	450	270	500	500	500	
	Tensile strength	MPa	1.9	2.0	0.7	2.5	2.1	2.2	2.2	2.5	2.5
	Volume resistivity	Ω/m	-	5.2×10^{12}	1.0×10^{12}	1.0×10^{12}	Not good for insulation	2.0×10^{13}	2.0×10^{13}	3.0×10^{14}	3.0×10^{14}
	Dielectric breakdown strength	kV/mm	-	25	22	23	Not good for insulation	25	25	22	22
	Thermal conductivity	W/m-K	-	-	-	-	-	-	-	-	-
Tensile shear bond strength	Aluminum	MPa	1.1	1.4	2.5	0.5	1.7	1.0	1.0	1.0	
	Glass	MPa	-	-	-	-	1.3	1.2	1.2	1.0	1.0
	Acrylic	MPa	-	-	-	-	-	1.3	1.3	1.2	1.2
	Polycarbonate	MPa	-	-	-	-	-	1.4	1.4	1.2	1.2
Remark(s)						Heat resistance of approx. 300°C					

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1200 Series



Silicone-Based Adhesives Sealants and Potting Agents

Property Table

Product name		1222C	1224G	1225B	1225C	1226	1230		1234B
Characteristics	Unit						Agent A	Agent B	
Main component		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone		Silicone
Reaction type		Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Additional reactions		Heat-curing
Features		Incombustible type	Ultra-fluid type	For heat dissipation	For heat dissipation	Tin-free type	For potting, non-flammable		Highly resistant type
Appearance		Gray	Milky white (Translucent)	White	Gray	Gray	Reddish brown	White	Gray
Viscosity	Pa-s	-	1.2	18.0	70	97	5.3	5.0	400
Flowability		None	Yes	Yes	Yes	None	Yes	Yes	None
Tack free time	min	5	7	5	10	7	-		-
Content of low-molecular siloxane		Reduced product	Reduced product	Reduced product	Reduced product	Reduced product	-		-
Physical characteristics after curing	Specific gravity	1.32	1.00	2.6	2.90	1.37	1.53		1.18
	Hardness	A45	A24	A74	A81	A27	A70		A11
	Elongation	%	250	150	48	50	460		700
	Tensile strength	MPa	4.0	0.5	3.9	2.5	2.4		4.5
	Volume resistivity	Ω/m	4.0×10^{12}	5×10^{13}	2.0×10^{14}	1.1×10^{11}	4.3×10^{12}		7.8×10^{13}
	Dielectric breakdown strength	kV/mm	30	28	20	17.4	19		29
	Thermal conductivity	W/m-K	-	-	1.59	2.5	-		0.46
Tensile shear bond strength	Aluminum	MPa	1.0	0.6	0.9	1.1	2.2		Non-adhesive
	Glass	MPa	1.7	0.6	1.3	-	1.9		Non-adhesive
	Acrylic	MPa	2.2	0.5	-	-	2.1		Non-adhesive
	Polycarbonate	MPa	1.4	0.6	-	-	1.7		Non-adhesive
Remark(s)		Non-flammable grade UL94 V-0 certified product		Heat conductivity 1.59W/mK	Heat conductivity 2.5W/mK		Non-flammable grade UL94 V-0 Certified Product Compounding ratio 100:100 Visible time: 6 hours Standard curing conditions: 100°Cx10min Heat conductivity: 0.46W/mK		Standard curing conditions: 100°Cx1h

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.

- A lineup of devices that can handle small-amounts and large-amounts of sealants and adhesives is available.
- They are suitable for the bead application of solvent-volatilization-type and moisture-curable-type liquid gaskets.
- Dispensers that can apply a fixed quantity of a sealant and adhesive without waste are available.
- A unit that can reduce the amount of a remaining material in a pail is available as an option. (Some conditions must be met.)

Tube



Air gun for tube (PG100C)

Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #1



Tube Dispenser Tank (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and tank pressure. Automatic application by machine is possible.

Individual catalog number #2



Mechanical Forming Dispenser (MFD-10)

Cartridge



Cartridge-type pump (ACB-20) Pen type manually operated valve (pencil gun)

This dispenser is excellent in high-speed dispense and operability as the result of a combination of high pressure-feeding cartridge pump and a pencil gun. Automatic application by machine is impossible.

Individual catalog number #5



Cartridge-type pump (PCB-20)

This is a high-pressure feeding pump designed for automatic application. When it is combined with a robot, uniform linear application is possible. Automatic application by machine is possible.

Individual catalog number #6



Dedicated to surface application Adhesive discharging valve RV-SN Series

1-kg can



Tank for 1-kg can (PT-01) Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3



Tank for 1-kg can (PT-01) Needle type dispense valve (HPNV-50) Pressure controller (coater S4) Desktop 3-axis robot (TRC-120R)

This device pressure-feeds a material from a tank and applies the material by controlling the open/close valve of the nozzle section. When the dispenser is combined with a robot, it applies the material appropriately to a programmed position. Automatic application by machine is possible.

Individual catalog number #4



Mechanical Forming Dispenser (MFD-10)

Pail



Double-acting pump for pails (AP-30) High-pressure flow gun (H-FLG)

This dispenser is excellent in high-speed dispense and operability as the result of a combination of high-pressure feeding pump for pails and a high-pressure flow gun. Automatic application by machine is impossible.

Individual catalog number #7



Single-acting pump for pails (PBIII-45)

This is a pump for streaming a high viscosity liquid agent efficiently. When it is combined with a robot, uniform linear application is possible. Automatic application by machine is possible.

Individual catalog number #8

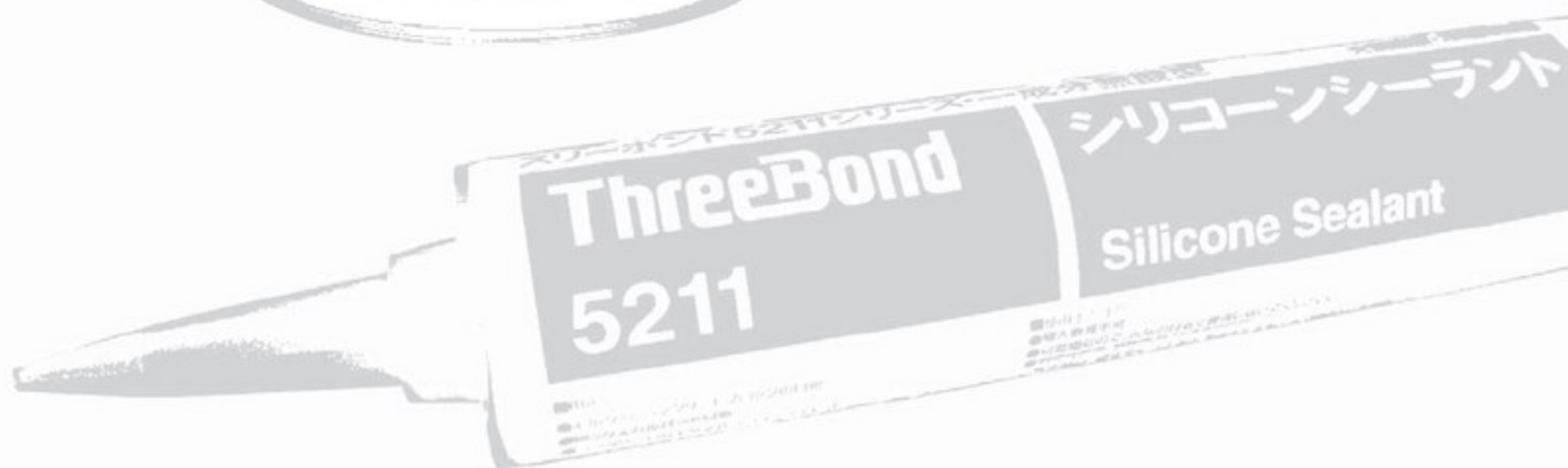


Pump for pails (PBIII-45) Constant-rate injection head (fixed-quantity booster) Desktop 3-axis robot (TRC-130R)

When a high-pressure feeding pump designed for automatic application and a constant-speed dispense head are combined with a robot, high-precision and uniform linear application that is not affected by changes in the environmental temperature is possible. Automatic application by machine is possible.

ThreeBond 1100/4000/4200/4300 Series 4100/5200 Series

Pipe Sealants
Sealants for Construction



1100/4000/4200/4300 Series

Pipe Sealants

These are liquid sealants that can seal inner fluids when applied to the threaded portion of piping.

Highly reliable sealing can be achieved by completely filling in and adhering to the minute clearance of the screw interlocking surface.

Products with various material bases are available including synthetic resin-based, synthetic rubber-based, acrylate-based, silicone-based, olefin resin-based, and acrylic emulsion-based products. There are also various reaction system grades including solvent vaporization, anaerobic curing, and moisture-curing.

There are various types available including a general-purpose type, a type for water supply pipes, and a type for gas pipes. There is also a gas leak repair spray for repairing gas leaks from the threaded portions of gas pipes installed in buildings.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1110F
1110G

This is an anaerobic curing acrylate-based sealant for general pipes. It does not cure while contacting the air, but quickly cures when the threaded portion is tightened. Sealability is effective immediately, and it can prevent pipe galling due to its lubricity from the fluorine powder. It can be used as a general use sealant or for preventing loosening with metallic pipes such as cold and hot water pipes, oil pipes, air pipes, and conduit.

4221
4221B

This is a volatile solvent type sealant for water supply pipes that uses synthetic resin as the main component. It is compliant with the Japan Water Works Association standard JWWA K-146. It can be used for prevention of corrosion of the end faces of steel pipes for water supply, as a sealant, and for hot water supply pipes. As for the applicable diameter, up to around 80A can be used.

4230

This is an alcohol type silicone-based sealant for water supply pipes. It is compliant with the Japan Water Works Association standard JWWA K-146 and K-142. It can be used for water supply pipes and for hot water supply pipes. It is a mold-resistant type, so it can also be used as a joint sealant or adhesive around water.

4314D

This is a volatile solvent type sealant for gas piping that uses special synthetic rubber as the main component. After drying, it becomes a rubber-like elastic body with excellent vibration resistance and impact strength. It can be used for both city gas and LP gas. The applicable diameter is 15A to 50A.

4320B

This is a solventless sealant for gas piping that uses alkyd resin as the main component. Sealability is effective immediately, and it is also a non-drying type, so it has excellent vibration resistance and impact strength. It uses tubes with a rotating nozzle, and the nozzle itself rotates so that it is easy to apply to the whole pipe circumference. It is an exclusive product for city gas. It has excellent lubricity, and as for the applicable diameter, up to around 80A can be used.

4325
4325B

This is a solventless sealant for gas piping that uses alkyd resin as the main component. It is a non-drying type with excellent vibration resistance and impact strength. It can be used for both city gas and LP gas. The applicable diameter is 15A to 40A.

4333B

This is a solventless sealant for gas piping that uses silicone-modified olefin-based resin as the main component.

It is a mastic type, so putty state is maintained after curing resulting in excellent vibration resistance and impact strength.

Sealability is effective immediately, and it can prevent pipe galling due to its lubricity.

It can be used for both city gas and LP gas.

4370

This is an aerosol type sealant that uses acrylic emulsion as the main component for repairing small leaks at the threaded joint portions of gas pipes (interior gas piping).

It is possible to repair leaks at the threaded portions of gas pipes in existing buildings by setting the aerosol can and pressure-filling the sealant inside using the aerosol pressure.

It can be used for both city gas and LP gas.

Principally, the applicable diameter is up to 25A.

**ThreeBond
Tape**

This is a sealing tape that contains unbaked fluororesin as its main component.

It is self adhesive, and can prevent leakage just by being wound around the sealing of various piping screws or bolts.

It has also great heat- and cold-resistance, and can be used in the range of -100 to 260°C. It can also be used for sealing of water and oil, as well as steam, various fuels, organic solvents, etc. since its chemical resistance is also great. JIS-compliant products are also available.

1100/4000/4200/4300 Series



Pipe Sealants

Property Table

Product name		1110F	1110G	4002	4004D		
Characteristics	Unit						
Main component		Acrylate	Acrylate	Synthetic resin	Special synthetic rubber		
Curing method		Anaerobic curing	Anaerobic curing	Solvent vaporization	Solvent vaporization		
Features		Lubricity High strength	Lubricity Low strength	For general use	Propane gas City gas for anti-freeze		
Appearance		White	Milky white	Gray	Gray		
Viscosity	Pa-s	50.0	25.0	4.5	9.5		
Specific gravity		1.08	1.12	1.30	1.26		
Non-Volatile Content	%	Solventless	Solventless	77.0	58.0		
State after curing		Solid	Solid	Dry adhesion	Rubber-like		
Pipe pressure resistance	Initial	20A	MPa	3.4 or higher	3.4 or higher	-	-
		25A	MPa	-	-	-	0.49 or higher
		50A	MPa	-	-	-	0.49 or higher
	25°C/ 24h	20A	MPa	3.4 or higher	3.4 or higher	-	-
		25A	MPa	-	-	2.0 or higher	0.49 or higher
		50A	MPa	-	-	2.0 or higher	0.49 or higher
Chemical resistance	Mass change rate	Water*1	%	-	-	-	-2.6
		Anti-freeze*1	%	-	-	-	-3.2
	Gas resistance	4°C	%	-	-	-	0.1
		20°C	%	-	-	-	0.1
Removability		Difficult	Excellent	Relatively difficult	Normal		
Operating temperature range (Est.)	°C	-40 to 150	-40 to 150	-30 to 130	-40 to 150		
Remark(s)		For metallic pipes	For metallic pipes	For metallic pipes	Applicable diameter 15A to 50A		

*1: Immersion conditions 85°C×24h

- : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Product name		4221	4221B	4230
Characteristics	Unit			
Main component		Synthetic resin	Synthetic resin	Silicone
Curing method		Solvent vaporization	Solvent vaporization	Moisture-curing alcohol type
Features		For hot water supply	For hot water supply	For hot water supply
Appearance		Gray	White	White
Viscosity	Pa-s	5.5	5.5	Paste
Specific gravity		1.26	1.26	1.45
Non-Volatile Content	%	67.0	67.0	Solventless
Tack free time	min	-	-	15
Physical characteristics after curing	State	Dry adhesion	Dry adhesion	Rubber-like
	Hardness	-	-	A30
	Elongation rate	%	-	700
	Tensile strength	MPa	-	2.5
Water pressure resistance (20A)	MPa	2.5 or higher	2.5 or higher	2.5 or higher
Removability		Relatively difficult	Relatively difficult	Normal
Operating temperature range (Est.)	°C	-	-	120
Remark(s)		JWWA K-146 compliant	JWWA K-146 compliant	JWWA K-146 K-142 compliant

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1100/4000/4200/4300 Series



Pipe Sealants Property Table

Product name			4314D	4320B	4325	4325B	4332C	4333B	4370		
Characteristics	Unit										
Main component			Special synthetic rubber	Alkyd resins	Alkyd resins	Alkyd resins	Silicone	Silicone-modified olefin-based resin	Acrylic emulsion		
Curing method			Solvent vaporization	Non-drying	Non-drying	Non-drying	Moisture-curing deamidation	Moisture-curing alcohol type	Vaporization		
Features			For city gas and LP gas	For city gas	For city gas and LP gas	For city gas and LP gas	For city gas and LP gas	For city gas and LP gas	Interior gas piping gas leakage repair		
Appearance			Gray	Ivory	Gray	Ivory	Ivory	Green-gray	Milky white		
Viscosity	Pa·s		9.5	110	40.0	40.0	600	265	7.0 (mPa·s)		
Specific gravity			1.26	1.46	1.67	1.67	1.23	1.35	1.01		
Non-Volatile Content	%		58.0	96.3	98 or higher	98 or higher	96.2	Solventless	33.0		
State after curing			Rubber-like	Non-drying	Non-drying	Non-drying	Mastic	Mastic	Rubber-like		
Pipe pressure resistance	Initial	20A	MPa	-	-	-	-	0.49 or higher	0.1 or higher	-	
		25A	MPa	0.49 or higher	0.5 or higher	-	-	-	-	-	
		50A	MPa	0.49 or higher	-	-	-	-	0.1 or higher	-	
	25°C/ 24h	20A	MPa	-	-	0.49 or higher	0.49 or higher	-	-	-	
		25A	MPa	0.49 or higher	0.5 or higher	-	-	-	-	-	
		50A	MPa	0.49 or higher	-	-	-	-	-	-	
Chemical resistance	Mass change rate	Water	%	-1.9	-0.4	-	-	-	-	-	
		Gas resistance	4°C ¹	%	+0.10	+0.7	-	-	-	-	-
			20°C ¹	%	+0.10	+0.2	-	-	-	*3	(Excellent)
			Benzene ²	%	-	-33.1	-	-	-	-	(Excellent)
		Benzene vapor phase ²	%	-	-	-4.2	-4.2	-	*4	-	
		n-hexane ²	%	-	+3.8	-7.9	-7.9	-	-	-	
		n-pentane ²	%	-	-	-10.1	-10.1	-	-	-	
Removability			Normal	Excellent	Excellent	Excellent	Excellent	Excellent	-		
Operating temperature range (Est.)	°C		-40 to 150	-40 to 80	-40 to 80	-40 to 80	-40 to 100	-40 to 100	-20 to 80		
Remark(s)			Applicable diameter 15A to 50A	Applicable diameter 15A to 80A	Applicable diameter 15A to 40A	Applicable diameter 15A to 40A			Applicable diameter 25A or less		

*1: Immersion for 1h

*2: Immersion at 25°C×24h

*3: Rubber physical properties evaluation for city gas (7 days), elongation change 0%, change in strength -4%
Rubber physical properties evaluation for LP gas (7 days), elongation change -9%, change in strength -21%

*4: Rubber physical properties evaluation (20°C/7 days), elongation change 0%, change in strength -8%

- : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Product name		ThreeBond Tape	ThreeBond Tape (JIS-compliant products)
Characteristics	Unit		
Main component		Unbaked fluoro resin (tetrafluoride raw tape)	Unbaked fluoro resin (tetrafluoride raw tape)
Appearance		White	White
Dimensions	Thickness	mm	0.1
	Width	mm	13
	Length	m	5
Physical properties	Tensile strength	MPa	6.8
	Elongation rate	%	20 or higher
Flammability		Non-combustible	Non-combustible
Operating temperature range (Est.)	°C	-100 to 250	-100 to 250
Remark(s)		This is a tape made of unbaked fluoro resin, which is self adhesive. It can be used for any screw parts such as screws, taper plugs, stud bolts, elbow drains, etc. It is chemical resistant and strong against solvents and steam. It is easy to apply and remove. Also it is non-combustible and usable for foods. (Note) Sodium, fluorine gas, chloride gas, hydrogen fluoride, and so on must not be used.	It can be used for constructions supervised by the Ministry of Land, Infrastructure, Transport and Tourism, as the product conforms to JIS K 6885 2 standards.

- * The value listed in the property table is an example of a measured value and is not the guarantee level.
- * Before using, confirm the adequacy and safety for the relevant application.

Sealants for Construction



This is a caulking agent that can be used for various purposes including joints for mortar and concrete, concrete blocks, U-shaped gutters, metal framed glass sliding doors and windows, and for bonding and sealing of pools, water tanks, sinks, etc. It is a single component that cures by simply squeezing it from the container and forms a rubber-like elastic body.

There are various grades of different materials available including synthetic rubber-based, urethane-based, silicone-based, and modified silicone based products.

Various primers for silicone are available, and it is possible to gain optimal adhesion for various materials at any work location.

■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

4101

This is a caulking agent that uses chloroprene rubber as the main component. It maintains its rubber elasticity after curing, which is different from oil-based caulking agents, so it does not crack. It can be used as general use joint caulk.

4102

This is a caulking agent that uses modified isobutylene-isoprene rubber as the main component. It has some tackiness, so it can be used for manhole catch basin joints, sheet metal seams, and for container joints.

4108

This is a caulking agent that uses urethane resin as the main component. After curing, it becomes a rubber elastic body with low modulus and high elongation, so it can be used for cured materials. It can be used as a sealant for automobiles, vehicles, and containers, etc., and as a sealant for various joints.

5211 Series

This is a caulking agent with silicone resin as the main component that has good adhesion, weather resistance, freeze resistance, and heat resistance.

Rubber elasticity is maintained over a wide temperature range from -60°C to 200°C (approx.).

These can be used for various purposes including joints for mortar and concrete, concrete blocks, U-shaped gutters, metal framed glass sliding doors and windows, and for bonding and sealing of pools, water tanks, sinks, etc. There are seven different colors available; White, Clear, Gray, Ivory, Black, Aluminum, and Amber.

5222 Series

This is a caulking agent that uses modified silicone resin as the main component.

It has excellent heat resistance and freeze resistance, and rubber elasticity is maintained over a temperature range from -40°C to 100°C (approx.).

It is paintable, so it can be applied to cured materials.

It can be used as joint sealing for construction and civil engineering, vehicle window joint seals, and sealing and bonding of electric parts. There are four different colors available; White, Gray, Ivory, and Black.

5223

This is a low-odor caulking agent that uses alcohol type silicone resin as the main component. There is no corrosiveness with metal.

Rubber elasticity is maintained over a wide temperature range from -60°C to 250°C (approx.).

It has excellent adhesion for various materials including metals, glass, tile, and plastic.

It is used for sealing locations where glass is used, for repairs, for sealing resin panels, and for filling.

5232C

This is a caulking agent of middle modulus type that is weather resistant, cold resistant, heat resistant, and adhesive. It uses silicon resin as its main component.

It strikes a great balance between adhesion and stretch, and is extremely adaptive to stretching and shrinking.

Rubber elasticity is maintained over a wide temperature range from -60°C to 200°C (approx.).

5264B

This is a primer for improved adhesion for silicone and modified silicone.

By coating and drying it to a substrate in advance, adhesion can be further improved.

Various primers are available for different materials.

4100/5200 Series



Caulking Agent Property Table

Product name		4101	4102	4108	5211	5222M	5223	5232C
Characteristics	Unit							
Main component		Chloroprene rubber	Modified isobutylene-isoprene rubber	Urethane resin	Silicone	Modified Silicone	Silicone	Silicone
Curing method		Solvent vaporization	Solvent vaporization	Moisture-curing	Moisture-curing oxime type	Moisture-curing alcohol type	Moisture-curing alcohol type	Moisture-curing oxime type
Features		Rubber elasticity	For catch basins	Low modulus	Weather resistance	Paintable	Low odor, alcohol-removed silicon	Middle modulus, for civil engineering
Appearance		White	Gray	Gray	Various ¹	Various ²	Ivory	Gray
Viscosity	Pa-s	400	300	800	Paste	450	Paste	460
Specific gravity		1.30	1.40	1.30	1.04	1.40	1.45 (Cured)	1.35
Tack free time	min	8 to 10	3	8	20	60	15	35
Physical characteristics after curing	Hardness	-	-	A7	A23	A28	A30	A21
	Elongation rate	%	-	900	500	400	700	890
	Tensile strength	MPa	-	1.5	2.5	0.9	2.5	6.5
Tensile shear bond strength	Iron	MPa	-	-	1.1	1.2	-	-
	Aluminum	MPa	-	-	1.3	1.2	1.8	-
	Acrylic	MPa	-	-	1.1	0.5	-	-
	ABS	MPa	-	-	-	-	1.1	-
	Hard PVC	MPa	0.3	-	-	1.1	1.1	-
	Glass	MPa	-	-	-	1.3	-	1.8
	Tiles	MPa	-	-	-	1.2	-	-
	Concrete/Tiles	MPa	0.6	-	-	-	-	-
	Concrete	MPa	1.2	-	-	-	-	-
	Wood	MPa	0.6	-	-	0.9	-	-
Operating temperature range (Est.)	°C	-	-	-	-60 to 200 (250)	-40 to 100	-60 to 200 (250)	-60 to 200 (250)
Remark(s)					Different colors available 5211: White 5211B: Gray 5211C: Clear 5211D: Ivory 5211E: Black 5211F: Aluminum color 5211G: Amber	Different colors available 5222J: Black 5222L: Gray 5222M: White 5222N: Ivory	Great adhesion to concrete	

*1: White, Gray, Clear, Ivory, Black, Aluminum, Amber

*2: White, Gray, Ivory, Black

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Product name		5262	5263	5264B	5268
Characteristics	Unit				
Features		Primer for silicone	Primer for silicone	Primer for silicone	Primer for silicone
Applications		Concrete Wood	Plastic(s)	Metal coated surface	Stainless steel Acrylic resin
Appearance		Light yellow	Light yellow	Colorless	Colorless
Specific gravity		0.97	0.90	0.69	0.89
Non-Volatile Content	%	40.0	5.0	4.7	14.5
Drying time	min	30 or higher	15 or higher	-	-
Standard coating weight	g/m ²	200	50	38	-

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

ThreeBond 1300 Series

Anaerobic Adhesives and Sealants



Anaerobic Adhesives and Sealants

These are single-component type acrylic anaerobic adhesives and sealants. In addition to bonding and sealing of screws and interlocking parts, they can also be used for magnet surface adhesion, and bonding and sealing of metal materials.

When air (oxygen) supply is cut between metal materials such as when a screw is tightened and the gaps of the threads are minimized, curing reaction begins due to the metal ions, and curing by polymerization occurs rapidly.

For screws, after around 20 seconds to a few minutes, it cures to where it cannot be moved (set time), and from 30 minutes to 2 hours it reaches 1/2 of final strength (practical strength). After 12 to 24 hours, it reaches final strength, and it forms a tough cured material with excellent oil resistance, chemical resistance, heat resistance, and weather resistance.

It can be used in a temperature range from -40°C to 150°C (approx.) (200°C for heat-resistant type).

There are also types with UV curability and primer curability in addition to anaerobic curing property.

A halogen-free type is also available.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1303N
1305N

High strength / Fast Curing Type

This is good for permanent adhesion and sealing of screws.

It can be used in a temperature range from below -40°C to 150°C (approx.).

It can be used with bolts of any size, but 1303N is a low-viscosity type suitable for M10 bolts and smaller, and 1305N is a medium viscosity, lubricating ability type suitable for M10 bolts and larger.

1322N
1324N

Medium strength / Fast Curing Type

It is good for bonding and sealing screws that may need to be removed.

It can be used in a temperature range from below -40°C to 150°C (approx.).

It can be used with bolts of any size, but 1322N is a low-viscosity type suitable for M10 bolts and smaller, and 1324N is a medium viscosity type suitable for M10 bolts and larger.

1342J
1344J

Low strength / Fast Curing Type

It is good for bonding and sealing screws that will be removed.

It can be used in a temperature range from below -40°C to 150°C (approx.).

It can be used with bolts of any size, but 1342J is a low-viscosity type suitable for M10 bolts and smaller, and 1344J is a medium viscosity type suitable for M10 bolts and larger. It is a DOP-free product.

1307N
1360G

With lubricating ability, medium-high strength, medium-high-viscosity type

This is good for bonding and sealing large-diameter bolts and high tensile bolts.

It can be used in a temperature range from below -40°C to 150°C (approx.) (200°C for heat-resistant type).

1307N is a standard type and 1360G is a fast-curing/heat-resistant type. There is also 1360K, which is a slow curing, heat-resistant type, and 1374, which is a standard, high-strength type.

1373N
1375N
1377N

For interlocking, High-strength type

It is good for adhesion and sealing of interlocking portions such as pins, bushes, shafts, and bearings.

It can be used in a temperature range from below -40°C to 120°C (150°C) (approx.).

1373N is a low-viscosity type (heat resistance: 150°C), and 1375N is a medium-viscosity type. 1377N is a medium-high viscosity, lubricating ability type that can be used for press fitting portions.

1360F

Heat resistant / High strength / Fast curing type

It can be used in a temperature range from below -40°C to 200°C (approx.).

It is good for screws and fixing interlocking portion and sealing requiring heat resistance. It can be used with bolts of any size. 1360F is a medium-viscosity type suitable for M10 bolts and larger.

There is also 1360N, which is a slow curing, medium strength type.

1320B

Ultra-low viscosity, low- to medium-strength type

It is possible to penetrate inside by application on screws after tightening and on the interlocking portion.

It is good for fixing thread portion and interlocking portion and for sealing pinholes, where penetrability is required.

It can be used in a temperature range from below -40°C to 150°C (approx.).

1314

More thermal deterioration-resistant type

Even after continuous aging at 120°C , there is almost no decrease in strength.

It is a high strength, low-viscosity type.

It is good for fixing thread portion and interlocking portion and sealing that are normally under high-temperature environments.

It can be used in a temperature range from below -40°C to 150°C (approx.).

1372D

Thermal strength improved type

It has a high softening point, and can maintain high strength even in a high-temperature environment of 150°C .

It is good for fixing interlocking portion and sealing at locations requiring strength under heat.

It is a high strength, low-viscosity type with UV curability.

It can be used in a temperature range from below -40°C to 150°C (approx.).

1353

Type with heat-curing property

It is possible to cure by heating with a large clearance where it is normally difficult for curing to occur only by the anaerobic curing property. It is also possible to prevent dropping because the overflow portion becomes a dry film by heating. It is good for interlocking portion adhesion and sealing. It can be used in a temperature range from below -40°C to 125°C (approx.).

1353 are medium-high strength, medium-viscosity types, and 1355 is a medium-high strength, medium-high-viscosity type. All have UV curability.

1355

1386D

Exclusive product for sealing welch plugs

It was adjusted to make it easy to use with coating robots.

1386E

It is a low strength, slow-curing type.

1386G

It can be used in a temperature range from below -40°C to 150°C (approx.).

1386H

1386L

1355D

Grade for surface adhesion with UV curability

1357K

It is flexible, and it can be used for surface adhesion of metal parts, etc., because of its high peel strength.

1359

1359D

It can be used in a temperature range from below -40°C to 150°C (approx.) (200°C for heat-resistant type).

1359G

1355D is a medium-high viscosity type, 1359 and 1359D are high viscosity types, 1357K and 1359G is a high viscosity, heat-resistant types.

1354

Halogen-free product with heat-curing property

1354D

It is possible to prevent dropping because the overflow portion becomes a dry film by heating, and as a result, outgas can be reduced. It is good for adhesion and sealing of interlocking portions where outgas should be avoided such as HDD parts.

It can be used in a temperature range from below -40°C to 125°C (approx.).

It is a high strength, medium-high-viscosity type with UV curability.

1376B

Halogen-free product for interlocking, High-strength type

It is good for adhesion and sealing of interlocking portions such as pins, bushes, shafts, and bearings.

It can be used in a temperature range from below -40°C to 120°C (approx.).

1389F

Sealant for flanges

This has rubber elasticity, so it has high conformability, and it has excellent sealability for dissimilar metals and larger flanges.

It is good for flange sealing of transportation machines, construction machines, agricultural machines, hydraulic equipment, etc.

It can be used in a temperature range from below -40°C to 150°C (approx.).

1390F

1390K

1390R

CCuring accelerator (primer) for anaerobic adhesives and sealants

By applying and letting it dry on substrates in advance, it is possible to increase the curing speed of the anaerobic adhesives and sealants. 1390R (Halogen-free enabled) is an alcohol-based solvent type that can be used with plastic parts, and 1390F and 1390K are quick-drying, acetone (solvent)-types.

1300 Series



Anaerobic Adhesives and Sealants

Property Table

Product name		1301B	1303	1303B	1303N	1305	1305B	1305N	1305P
Characteristics	Unit								
Main component		Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester
Strength		High strength	High strength	High strength	High strength	High strength	High strength	High strength	High strength
Main usages		Screw	Screw	Screw	Screw	Screw	Screw	Screw	Screw
Features		Low viscosity	Low viscosity	Low viscosity	Fast-curing	Medium viscosity	Medium viscosity	Fast-curing Lubricity	Excellent water resistance
Appearance		Brown	Green	Purplish brown	Green	Green	Purplish brown	Green	Purple
Viscosity	mPa-s	8.0	150	125	150	600	500	650	600
Specific gravity		1.07	1.11	1.07	1.12	1.11	1.07	1.11	1.16
Additional curability		-	-	-	-	-	-	-	-
Curing speed	Set time (Screws ^{*1})	sec	-	-	-	60	-	-	-
	Set time (Interlocking part ^{*2})	sec	-	-	-	-	-	-	-
	Set time (Interlocking part ^{*2}) When used with curing accelerator (1390K)	sec	-	-	-	-	-	-	-
	Practical strength ^{*3} onset	h	2	2	2	1	2	2	1
	Final strength onset	h	24	24	24	12	24	24	12
Breaking torque ^{*1}	N/m	33.0	33.0	33.0	45.3	33.0	33.0	46.0	20.0
Interlocking adhesion strength ^{*2}	MPa	35.0	35.0	35.0	40.0	35.0	35.0	45.0	40.0
Operating temperature range (Est.)	°C	below -40°C to 120°C	below -40°C to 150°C	below -40°C to 120°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 120°C	below -40°C to 150°C	below -40°C to 150°C
Remark(s)		For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	

*1: Iron bolts/nut M10×Pitch 1.5

*2: Iron pin / collar 6φ×15mm, Clearance 1/100mm

*3: 1/2 of the final strength

	1307N	1314	1320B	1322D	1322N	1323N	1324	1324B	1324N	1327	1333B
	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester
	High strength	High strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Low strength
	Screw	Screw Interlocking part	Screw Interlocking part	Screw	Screw	Screw	Screw	Screw	Screw Interlocking part	Screw	Screw
	Fast-curing Lubricity	Excellent heat aging resistance	Low viscosity Penetrability	Medium viscosity	Fast-curing	Ultrarapid curing	Medium viscosity	Medium viscosity	Fast-curing Lubricity	Compatible with high clearances	Low viscosity
	Green	Green	Green	Red	Red	Green	Red	Red	Red	Red	Red
	2300	250	18.0	150	150	90.0	650	600	600	2500	125
	1.12	1.10	1.10	1.10	1.11	1.16	1.13	1.13	1.12	1.11	1.07
	-	-	-	-	-	-	-	-	-	-	-
	-	180	480	-	-	-	-	-	-	-	-
	-	90	600	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	120	120	-	-	-
	1	1	2	1	1	0.5	2	2	1	2	4 to 6
	12	12	24	12	12	6	24	24	12	24	24
	42.0	45.0	20.8	25.5	24.0	20.6	22.0	22.0	27.0	30.0	12.0
	40.0	41.0	20.4	28.0	28.0	25.0	28.0	28.0	30.0	32.0	-
	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 120°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 120°C
	For large-diameter bolts and high tensile bolts	For permanent adhesion									

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1300 Series



Anaerobic Adhesives and Sealants

Property Table

Product name		1342H	1342J	1344H	1344J	1353	1354	1354D	1355
Characteristics	Unit								
Main component		Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester
Strength		Low strength	Low strength	Low strength	Low strength	Medium strength	High strength	High strength	Medium-high strength
Main usages		Screw	Screw	Screw	Screw	Interlocking part	Interlocking part	Interlocking part	Interlocking part
Features		Low viscosity	Fast-curing	Medium viscosity	Fast-curing	Low outgassing	Low outgassing Low halogen content	Low outgassing Low halogen content	Low outgassing
Appearance		Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
Viscosity	mPa·s	150	150	650	650	650	1000	1000	1300
Specific gravity		1.05	1.06	1.05	1.06	1.11	1.10	1.10	1.12
Additional curability		-	-	-	-	Heating UV light	Heating UV light	Heating UV light	Heating UV light
Curing speed	Set time (Screws ^{*1})	sec	-	-	-	-	-	-	-
	Set time (Interlocking part ^{*2})	sec	-	-	-	90	120 to 180	300	120
	Set time (Interlocking part ^{*2}) When used with curing accelerator (1390K)	sec	-	-	-	-	5 to 10	5 to 10	-
	Practical strength ^{*3} onset	h	2	1	2	1	1	-	1
	Final strength onset	h	24	12	24	12	24	-	24
Breaking torque ^{*1}	N/m	16.7	24.1	14.5	23.7	-	-	-	-
Interlocking adhesion strength ^{*2}	MPa	-	-	-	-	26.0	33.2	36.0	25.0
Operating temperature range (Est.)	°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 125°C	below -40°C to 125°C	below -40°C to 125°C	below -40°C to 125°C
Remark(s)		Good removability DOP-free product	Good removability DOP-free product	Good removability DOP-free product	Good removability DOP-free product				

*1: Iron bolts/nut M10×Pitch 1.5

*2: Iron pin / collar 6φ×15mm, Clearance 1/100mm

*3: 1/2 of the final strength

	1355D	1357K	1359	1359D	1359G	1360	1360F	1360G	1360K	1360N	1372D
	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester
	High strength	High strength	High strength	High strength	Medium strength	Medium strength	High strength	Medium-high strength	Medium strength	Medium strength	High strength
	Surface adhesion	Surface adhesion	Surface adhesion	Surface adhesion Interlocking part	Surface adhesion	Screw	Screw Interlocking part	Screw	Screw	Screw	Interlocking part
	Flexibility Low outgassing	Flexibility High heat resistance Low halogen content	Flexibility Fast-curing	Flexibility Fast-curing	Flexibility High heat resistance	High heat resistance	High heat resistance Fast-curing	High heat resistance Fast-curing with axial force	High heat resistance Slow curing Lubricity	High heat resistance Slow curing	Strength at a high temperature
	Blue	Blue	Blue	Blue	Blue	Red	Blue	Red	Red	Red	Green
	900	12000	12000	14000	23000	1000	500	1800	1700	800	110
	1.10	1.10	1.07	1.05	1.10	1.07	1.10	1.10	1.13	1.07	1.07
	UV light	UV light	UV light	UV light	UV light	-	-	-	-	-	UV light
	-	-	-	-	-	-	-	300	-	-	-
	100 to 110	300	120	-	300 to 360	240	240	-	-	-	180
	10 to 15	10 (1390R)	-	-	60 to 70	15	15	-	-	-	-
	-	-	-	-	-	6	1	2	6	6	1
	-	-	-	-	-	24	12	24	36	36	24
	-	-	-	-	-	29.0	41.6	37.6	25.0	22.5	-
	38.2	30.9	41.2	32.0	22.8	23.0	36.6	-	25.0	25.0	33.0
	below -40°C to 150°C	below -40°C to 175°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 200°C	below -40°C to 200°C	below -40°C to 200°C	below -40°C to 200°C	below -40°C to 180°C	below -40°C to 200°C	below -40°C to 150°C
		Emits light with black light					For permanent adhesion				

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1300 Series



Anaerobic Adhesives and Sealants

Property Table

Product name		1373B	1373N	1374	1375B	1375N	1375P	1376B	1377B	
Characteristics	Unit									
Main component		Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	
Strength		High strength	High strength	High strength	High strength	High strength	High strength	High strength	High strength	
Main usages		Interlocking part	Interlocking part	Screw	Interlocking part	Interlocking part	Interlocking part	Interlocking part	Interlocking part	
Features		Low viscosity	Fast-curing	With axial force	Medium viscosity	Fast-curing	Medium viscosity	Low halogen content	High viscosity	
Appearance		Green	Green	Red	Green	Green	Green	Blue	Green	
Viscosity	mPa-s	125	90.0	650	800	500	600	700	2000	
Specific gravity		1.10	1.10	1.11	1.11	1.12	1.12	1.10	1.12	
Additional curability		-	UV light	-	-	UV light	UV light	UV light	-	
Curing speed	Set time (Screws ^{*1})	sec	-	-	-	-	-	-	-	
	Set time (Interlocking part ^{*2})	sec	-	-	-	-	-	60 to 120	-	
	Set time (Interlocking part ^{*2}) When used with curing accelerator (1390K)	sec	-	-	-	-	-	5 to 10	-	
	Practical strength ^{*3} onset	h	1.5	1	1 to 2	2	1	1	-	1.5
	Final strength onset	h	24	24	24	24	24	24	-	24
Breaking torque ^{*1}	N/m	42.7	-	35.8	-	-	-	-	-	
Interlocking adhesion strength ^{*2}	MPa	25 to 34	38.2	19 to 27	29 to 34	31.8	34.5	33.5	25 to 34	
Operating temperature range (Est.)	°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 175°C	below -40°C to 120°C	below -40°C to 175°C	below -40°C to 120°C	below -40°C to 150°C	
Remark(s)										

*1: Iron bolts/nut M10×Pitch 1.5

*2: Iron pin / collar 6φ×15mm, Clearance 1/100mm

*3: 1/2 of the final strength

	1377N	1386	1386B	1386D	1386E	1386G	1386H	1386L	1389F
	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester	Methacrylic acid ester
	High strength	Low strength	Low strength	Low strength	Low strength	Low strength	Low strength	Low to medium strength	Low strength
	Interlocking part	Welch plug interlocking sealing	Welch plug interlocking sealing	Welch plug interlocking sealing	Welch plug interlocking sealing	Welch plug interlocking sealing	Welch plug interlocking sealing	Welch plug interlocking sealing	Flange seal
	Fast-curing	Lubricity	Lubricity	Slow curing Lubricity	Slow curing Lubricity	Slow curing Lubricity	Slow curing	Slow curing Lubricity	Rubber elasticity
	Green	Red	Yellow	Red	Blue	Dark purple	Fluorescent yellow	Blue	Blue
	1500	2000	2000	2000	2000	2000	2200	2000	60000
	1.12	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.12
	UV light	-	-	-	-	-	-	-	-
	-	-	-	-	-	50 (min)	-	15 (min)	-
	-	-	-	-	-	15 (min)	50 (min)	20 (min)	-
	-	-	-	-	-	-	10	-	-
	1	2	2	5	5	8	-	6	-
	24	24	24	36	36	24	-	24	-
	-	15 to 25	15 to 25	10 to 15	10 to 15	17.2	15.3	23.5	9.0
	31.8	-	-	-	-	18.5	-	20.5	-
	below -40°C to 120°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C	below -40°C to 150°C
								Galling prevention Excellent coating properties	

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1300 Series



Anaerobic Adhesives and Sealants

Property Table

Product name		1390F	1390K	1390R
Characteristics	Unit			
Solvent		Acetone	Acetone	Alcohol
Main usages		Anaerobic curing Curing accelerator	Anaerobic curing Curing accelerator	Anaerobic curing Curing accelerator
Features		Quick-drying	Quick-drying	Little influence on plastics
Appearance		Light brown	Green	Blue-green
Specific gravity		0.8	0.8	0.8
Set time (Screws ^{*1}) used with 1322N	sec	15 to 25	10 to 20	10 to 20
Remark(s)				Low-halogen product

*1: Iron bolts/nut M10×Pitch 1.5

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.

- Lineup of products for improved productivity and workability.
- The RTM and RTA-H Series can be designed and manufactured to suit your needs.

*RTM: Rotary Transfer Motor

*RTA-H: Rotary Transfer Air-Motor (by Hand)

Bottle



Transfer-type simple applicator (coater R)

Application to threaded portion is done by lightly pressing the threaded portion of a bolt to the outer portion of the rotating rotor. Automatic application by machine is impossible.

Individual catalog number #10



Syringe dispenser (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and air pressure. Automatic application by machine is possible.

Individual catalog number #11



Manual rotary applicator (RTA-H)

This is a rotary coating machine for coating the inside of a cylinder with a material manually. Automatic application by machine is impossible.

Individual catalog number #12



Rotary applicator (RTM2)

This is a unit for applying and pressure feeding anaerobic sealant to the inside of a cylinder. Automatic application by machine is possible.

Individual catalog number #13

ThreeBond 1400 Series

Agents for Preventing Screw Loosening, Leaks and Rust



1400 Series

Agents for Preventing Screw Loosening, Leaks and Rust

These are single-component type solvent vaporizing-type screw-fixing agents. They can be used for bonding small screws, mainly size M6 and smaller. They have penetrability, so they can be applied after tightening. After application, it penetrates to the threaded portion, and the solvent vaporizes, resulting in the formation of a resin-based cured material that can prevent loosening and leakage. These are also good for preventing rust at threaded portions. It is possible to loosen by a force that is about 10 to 20% higher than the tightening torque, so they can be removed easily when necessary. For M6 size screws, 1/2 of the final strength (practical strength) is achieved after one or two days, and it reaches final strength after three days. It can be used in a temperature range from below -40°C to 80°C (approx.).



■ Applicable markets



Property Table

Product name		1401	1401B	1401C	1401D	1401E	1402	1402B	
Characteristics	Unit								
Main component		Vinyl acetate resin	Vinyl acetate resin	Vinyl acetate resin	Vinyl acetate resin	Vinyl acetate resin	Acrylic resin	Acrylic resin	
Features		Standard Type	Standard Type	Standard Type	Low viscosity	High viscosity	Strong adhesiveness Quick dry type	Strong adhesiveness Quick dry type	
Appearance		Colorless to Light yellow	Blue	Red	Green	Dark green	Yellow-brown	Green	
Viscosity	mPa-s	445	445	445	25.0	630	525	525	
Specific gravity		0.90	0.90	0.90	0.85	0.90	1.23	1.23	
Solid content (Nonvolatile content)	%	31.0	31.0	31.0	16.0	32.0	30.0	30.0	
Breaking* torque	M3	N/m	0.3	0.3	0.3	0.2	0.2	0.3	0.3
	M4	N/m	0.6	0.6	0.6	0.5	0.5	0.5	0.5
	M6	N/m	3.5	3.5	3.5	2.0	2.5	2.0	2.0
Operating temperature range (Est.)	°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	
Solvent used		Methanol	Methanol Toluene	Methanol Toluene	Methanol	Methanol	Methylene chloride Methyl acetate	Methylene chloride Methyl acetate	

*: Iron bolt/nut M3×Pitch 0.5, M4×Pitch 0.7, M6 Pitch 1.0 (Tightening torque = 0)

- : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1401

This is a standard type transparent screw-locking agent.
It uses alcohol as the solvent, so it can be used without influencing plastic materials.
There are products with different colors and different viscosities available.

1402

This is a quick dry type screw-locking agent with strong adhesiveness.
There are products with different colors available.

ThreeBond
1500 Series

**Volatile Solvent-Type Adhesives / Elastomeric Adhesives /
Water-Based Pressure Sensitive Adhesives for Screen Printing**



Volatile Solvent Type Adhesives

This is a series of single-component, volatile solvent-type adhesives. They can be used for general bonding to a wide range of substrates such as soft materials like rubber and leather, and rigid materials like plastic and metals. After curing, they have elasticity so they provide excellent bonding between different types of materials due to the high peel strength. After applying and letting the solvent vaporize until the stickiness is lost, adhesion strength is acquired immediately when it is clamped. There is a rubber-based solvent type, water-based acrylic emulsion type, paste-like type that can be used with materials with high penetrability, which are normally difficult to bond, and a low-viscosity type that can be applied using an air gun.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1501

This is a standard type rubber-based adhesive. It has a long adhesiveness-keeping time after application and becoming tack free, and it has good bonding workability for a large area. There are products with different colors available.

1521

This is a rubber-based adhesive with high initial adhesiveness.

1521C

This is a high-viscosity colored type of 1521. It has excellent padding ability, so dropping does not occur even when applied to a vertical surface. It is good for bonding weather strip rubber for automobiles, etc., and is good for porous materials with high penetrability, which are difficult to bond.

1541C

This is a water-based acrylic emulsion type. It can be used for polystyrene foams with low organic solvent resistance.

TCX-
004

This is a low-viscosity type of 1521. It can be applied using an air gun.

Property Table

Product name		1501	1521	1521B	1521C	TCX-004	1541C	
Characteristics	Unit							
Main component		Chloroprene rubber Phenolic resin	Chloroprene rubber Phenolic resin	Chloroprene rubber Phenolic resin	Chloroprene rubber Phenolic resin	Chloroprene rubber Phenolic resin	Acrylic resin-based emulsion	
Features		Long adhesiveness-keeping time	High initial adhesiveness	1501 Black Long adhesiveness-keeping time	Optimal for materials with high penetrability	Low-viscosity type of 1521 Application by air gun possible	Water-based adhesive High initial adhesiveness	
Appearance		Brown	Brown	Black	Black	Light yellow	Milky yellow	
Viscosity	mPa-s	5000	2800	4700	Paste	330	1100	
Specific gravity		0.89	0.87	0.88	1.13	0.86	1.00	
Solid content (Nonvolatile content)	%	25.0	26.0	27.0	60.0	26.0	54.0	
Tack free time	min	10 or less	8 to 10	10 or less	5	5	-	
Adhesiveness-keeping time	min	90 or higher	8 to 30	90 or higher	40	60	* Open time 20 (Recommended)	
Peel strength	Iron / Cotton canvas	kN/m	4.7	5.2	4.7	1.6	7.6	-
	Tin plate / Cotton canvas	kN/m	-	-	-	-	-	0.7
	Iron / Soft PVC	kN/m	15	3.7	15	1.0	-	-
	Aluminum foil / Soft PVC	kN/m	-	-	-	-	-	2.0
	Iron / NBR	kN/m	2.0	3.8	2.0	-	1.4	-
	Soft PVC / Soft PVC	kN/m	-	-	-	-	-	-
Tensile shear bond strength	ABS	MPa	-	-	-	-	-	-
	Hard PVC	MPa	-	-	-	-	-	-
Operating temperature range (Est.)	°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	below -40°C to 80°C	
Remark(s) (Solvent used)		Toluene n-hexane	Toluene n-hexane Ethyl acetate	Toluene n-hexane Ethyl acetate	Toluene	Toluene Acetone n-hexane Ethyl acetate	Water Coal tar naphtha Trimethylbenzene	

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1530 Series

Elastomeric Adhesives

These are single-component type solventless moisture-curing adhesives.

The curing reaction occurs from the moisture in the air when it is squeezed from the container, and it becomes a rubber-like elastic body.

They have excellent adhesive strength for a wide range of materials including metals, plastics, rubber, wood, and inorganic materials.

After curing, they have elasticity so they provide excellent bonding between different types of materials due to the high peel strength.

The 1530 Series begins to have a strong initial tackiness in just 5 to 10 minutes after application, and temporary adhesion is possible without a jig. Depending on the bonding area, it can reach 1/2 of the final strength (practical strength) after 12 to 24 hours, and it reaches final strength after 3 to 7 days.

The 1532 Series reaches practical strength after two days, and reaches final strength after three to seven days, becoming a cured material with high elongation.

There is also a low-viscosity type and a type with incombustibility (certified according to incombustibility standards).

1533 is compliant with REACH.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1530 Series

This is a standard type elastomeric adhesive. After an open time of 5 to 10 minutes, initial tackiness develops and temporary adhesion is possible without a jig. It has excellent adhesion strength for a wide range of materials. It is possible to bond with silicone rubber. There are many variations such as different color tones and different viscosities. It has a heat resistance of approximately 100°C to 120°C.

1532 Series

This is a modified silicone-based elastomeric adhesive. It forms a cured material with high elongation. Because of its thixotropic properties, it is easy to apply without dropping. It has excellent adhesion strength with a wide range of materials, and it is also good as a filling adhesive for materials with uneven surfaces. It has a heat resistance of approximately 80°C for continual use.

1537 Series

This is an incombustible type elastomeric adhesive. This product is certified according to flammability standard UL94 V-0. It has small cure shrinkage. It has excellent adhesion strength for a wide range of materials. It has a heat resistance of approximately 100°C to 120°C.

1538B

It is an elastomeric adhesive that meets special standards. Certified as UL Standard QQW2 [Polymeric Adhesive Systems, Rated temperature 80°C]. It has excellent adhesion strength for a wide range of materials. It has a heat resistance of approximately 100°C to 120°C.

1539 Series

This is an elastomeric adhesive that is speedily cured at low temperatures. Plant-based polymers (Castor oil) are used, so it is an environmentally-friendly adhesive. It has excellent adhesion strength for a wide range of materials. It has a heat resistance of approximately 100°C.



Elastomeric Adhesives

Property Table

Product name		1530	1530B	1530C	1530D	1530H	1530K	1530P	1532C	
Characteristics	Unit									
Main component		Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Modified Silicone	
Reaction type		Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	
Features		Standard type	Thixotropic type	Clear type	Low viscosity	Low viscosity	Light blocking type	Ultra-low viscosity	Flexibility	
Appearance		White	Black	Translucent	Gray	White	Black	Black	White	
Viscosity	Pa-s	100	110	100	22.0	30.0	70	6.0	420	
Specific gravity		1.39	1.31	1.31	1.39	1.14	1.24	1.43	1.40	
Tack-free	min	7	7	7	5	13	12	8	60	
Physical characteristics after curing	Hardness		A44	A48	A55	A34	A25	A35	A26	A40
	Elongation rate	%	280	380	200	220	280	270	140	360
	Tensile strength	MPa	5.9	3.0	4.1	3.2	2.1	2.5	1.6	1.8
	Volume resistivity	Ω/m	5.0×10^{10}	3.9×10^{10}	3.6×10^{10}	1.7×10^{10}	4.8×10^9	9.3×10^9	1.2×10^9	-
	Dielectric breakdown strength	kV/mm	21	17	20	-	-	32	17	-
Tensile shear bond strength	Iron	MPa	5.4	4.1	3.5	2.9	2.5	2.2	2.5	2.0
	Aluminum	MPa	6.6	4.4	4.3	2.5	2.8	2.5	2.9	2.4
	Acrylic	MPa	4.7	3.3	3.8	2.6	2.1	2.5	2.3	0.5
	Polycarbonate	MPa	5.6	3.8	4.5	2.4	3.1	3.6	2.0	1.6
Peel strength	Aluminum	kN/m	2.5	2.8	1.9	2.5	-	-	1.7	-
	NBR	kN/m	1.60	1.50	1.40	-	-	-	0.29	-
	CR	kN/m	1.40	1.60	1.00	-	-	-	0.04	-
	Silicone rubber	kN/m	0.30	0.75	0.30	-	-	-	0.07	-
Remark(s)			Structural viscosity ratio 4.1			Small increase in hardness when heating		DBT-free product		

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

* DBT: Dibutyltin compounds

1530 Series



Elastomeric Adhesives Property Table

Product name		1532D	1533	1533C	1533D	1533F	1533K	1535	1535C	
Characteristics	Unit									
Main component		Modified Silicone	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	
Reaction type		Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	
Features		Flexibility	Standard type	Clear type	Low viscosity	Applicable to Adhesion-difficult Material	-	Standard type	Clear type	
Appearance		Black	White	Translucent	Gray	Gray	Black	White	Colorless	
Viscosity	Pa-s	450	100	100	22.0	180	47.0	75.0	30.0	
Specific gravity		1.55	1.39	1.30	1.39	1.21	1.24	1.43	1.04	
Tack-free	min	60	7	7	7	-	12	4	3	
Physical characteristics after curing	Hardness	A40	A40	A50	A26	A25	A30	A45	A37	
	Elongation rate	%	360	280	145	286	460	480	180	136
	Tensile strength	MPa	1.8	4.5	3.8	2.9	3.0	3.0	4.5	3.5
	Volume resistivity	Ω/m	-	3.2×10^{10}	8.8×10^9	1.0×10^9	6.8×10^{13}	4.6×10^9	5.9×10^3	4.7×10^9
	Dielectric breakdown strength	kV/mm	-	21	25	21	26	19.0	25	28
Tensile shear bond strength	Iron	MPa	2.0	5.8	4.6	3.4	3.7	4.1	5.0	7.1
	Aluminum	MPa	2.4	5.7	4.7	2.8	3.9	4.4	5.8	8.7
	Acrylic	MPa	0.6	2.6	3.8	2.7	4.5	2.8	4.1	6.4
	Polycarbonate	MPa	1.6	4.3	3.2	2.1	4.2	3.3	3.1	5.5
Peel strength	Aluminum	kN/m	-	3.5	3.2	1.5	-	-	1.7	1.7
	NBR	kN/m	-	2.30	1.0	1.3	-	-	1.2	0.7
	CR	kN/m	-	2.10	0.7	1	-	-	1.3	0.4
	Silicone rubber	kN/m	-	1.00	0.2	0.4	-	-	0.1	0.1
Remark(s)			DBT-free product	DBT-free product	DBT-free product	DBT-free product	DBT-free product	Tin-free product	Tin-free product	

	1537	1537B	1537D	1538B	1538D	1539	1539B
	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Silyl-containing special polymer	Castor oil polymer	Castor oil polymer
	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Heat-curing	Heat-curing
	Incombustible type	Incombustible type	Incombustible type	Incombustible type	Standard type	Standard type	Standard type
	White	Black	Gray	Black	Gray	Black	White
	55.0	55.0	55.0	80.0	55.0	100	100
	1.67	1.67	1.67	1.44	1.67	1.34	1.34
	4	4	4	9	7	-	-
	A72	A74	A71	A50	A85	A70	A70
	29	33	29	170	60	120	140
	5.0	3.9	4.3	2.9	4.1	3.5	3.5
	1.9×10^{10}	2.3×10^{10}	2.7×10^{10}	3.9×10^{10}	6.2×10^{11}	2.4×10^{11}	6.5×10^{10}
	25	24	26	17	20.6	19	22
	4.0	4.2	4.4	4.0	3.9	3.8	3.6
	4.3	4.3	4.3	4.2	3.5	4.3	4.1
	1.7	1.6	1.8	3.4	3.2	0.7	0.7
	3.7	3.6	3.6	3.2	3.5	1.5	1.4
	1.0	1.4	1.2	2.2	3.5	1.5	1.5
	0.10	0.11	0.09	0.30	-	-	-
	0.06	0.05	0.06	0.10	-	-	-
	0.13	0.13	0.12	0.30	-	-	-
	Non-flammable grade UL94 V-0 certified product	Non-flammable grade UL94 V-0 certified product	Non-flammable grade UL94 V-0 certified product	UL QQQW2 certified product	Non-flammable grade UL94 V-0 equivalent product	Heat-curing 60°C×1 min or more	Heat-curing 60°C×1 min or more

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

* DBT: Dibutyltin compounds

Water-Based Pressure Sensitive Adhesives for Screen Printing

This is a series of single-component type, water-based, pressure sensitive adhesives.

They are good for screen printing, and adhesion processing can be done according to the design pattern.

They can be used as pressure-sensitive adhesives for plastic, paper, metal and other nameplates, as well as for labels and stickers.

After printing, a strong adhesive layer is formed by heating and drying, or at room temperature.

It is possible to configure the dried film thicknesses up to around 100µm according to the screen design.

There is a standard type and a high heat resistant, high moisture-resistant type.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1549

This is a standard type water-based, pressure sensitive adhesive for screen printing. It has excellent adhesion with various plastics such as polyester, polyvinyl chloride, styrol, ABS, and PET, as well as paper, metal, etc. It is an aqueous type, so it can be used with materials that have low organic solvent resistance.

1555C

This is a high heat resistant, highly moisture-resistant, aqueous, pressure-sensitive adhesive for screen printing. It has excellent adhesion with various plastics such as polyester, polyvinyl chloride, styrol, ABS, and PET, as well as paper, metal, etc. It is an aqueous type, so it can be used with materials that have low organic solvent resistance.

Property Table

Product name		1549	1549B	1555C	1555D	
Characteristics	Unit					
Main component		Acrylic resin-based emulsion	Acrylic resin-based emulsion	Acrylic resin-based emulsion	Acrylic resin-based emulsion	
Features		Standard type	Standard type High viscosity	High heat resistance High moisture resistance	High heat resistance High moisture resistance Slow drying property	
Appearance		Milky white	Milky white	Milky white	Milky white	
Viscosity	Pa-s	20.0	25.0	30.0	25.0	
Specific gravity		1.01	1.01	1.01	1.01	
Solid content (nonvolatile content)	%	65.0	66.0	65.0	60.0	
Recommended screen		Polyester or SUS 100 to 150 mesh, etc.		SUS 80 mesh, etc.		
Recommended conditions of drying		55°C×15 min or 25°C×60 min, etc.		60°C×20 min (SUS 80 mesh)		
Peel strength	PET/Polystyrol	N/m	823	823	-	-
	PET/Acrylic	N/m	823	823	-	-
	PET/ABS	N/m	-	-	380	380
	Polycarbonate/Polystyrol	N/m	1098	1098	-	-
	Polycarbonate/Acrylic	N/m	1098	1098	-	-
Operating temperature range (Est.)	°C	below -30°C to 60°C	below -30°C to 60°C	below -30°C to 80°C	below -30°C to 80°C	
Remark(s)						

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1500 Series

Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.



- Lineup of products for improved productivity and workability
- Applicators suitable to a wide range of adhesives, such as solvent-volatilization type, moisture-curable type, and aqueous pressure-sensitive type, can be selected.

Tube



Air gun for tube (PG100T)

Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #1

Cartridge



Air gun for tube (PG100C)

Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #1

1-kg can



Tank for 1-kg can (PT-01) Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3

Pail



TB 1530 exclusive power booster (DBP-40)

This is a diaphragm pump-method power booster without a sliding part where it comes in contact with the liquid. Therefore, it is possible to stream a liquid agent stably without any sticking or resulting increases in resistance.

Individual catalog number #32



Tube Dispenser Tank (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and tank pressure. Automatic application by machine is possible.

Individual catalog number #2



Cartridge-type tank (LVCT-AC) Diaphragm type automatic valve Controller for pressure (coater S4) Desktop 3-axis robot (TRC-120R)

This unit pressure-feeds a material from the cartridge and controls the open/close valve to apply the material. When the controller is combined with a robot, it will apply the material to a programmed position. Automatic application by machine is possible.

Individual catalog number #15



Tank for 1-kg can (PT-01) Needle type dispense valve (HPNV-50) Pressure controller (coater S4) Desktop 3-axis robot (TRC-120R)

This device pressure-feeds a material from a tank and applies the material by controlling the open/close valve of the nozzle section. When the dispenser is combined with a robot, it applies the material appropriately to a programmed position. Automatic application by machine is possible.

Individual catalog number #4



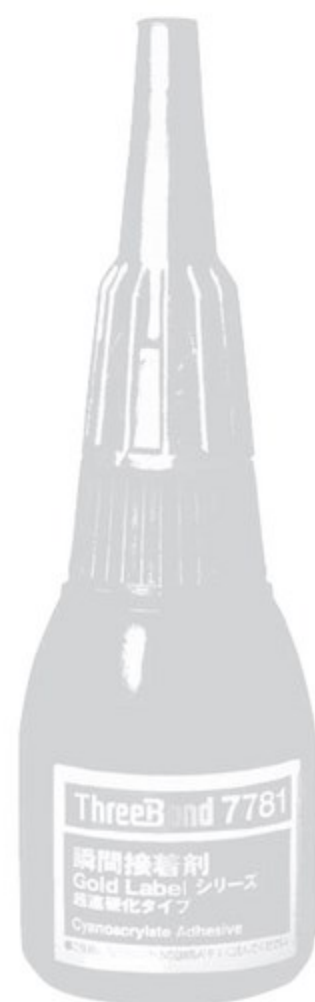
Dedicated to surface application Adhesive discharging valve RV-SN Series

This is an adhesive discharging valve to apply material in plane-like or band-like form. Automatic application by machine is possible.

Individual catalog number #30

ThreeBond
1700/7700 Series

Instant Adhesives and Gold Label Instant Adhesives



1700/7700 Series

Instant Adhesives Gold Label Instant Adhesives

These are single-component type instant adhesives that use cyanoacrylate as the main component.

When bonding, the adhesives cure in several seconds due to the trace of moisture that exists on the adhesion surface, and bonding occurs within a few seconds to a few minutes.

They are single component products, so they are easy to use and have excellent adhesion strength in a short time for a wide range of materials including metals, plastics, rubber, wood, and inorganic materials.

There is a gel type, a low-odor / low-blooming type, an ultra-rapid curing type, a high peel-strength type, a highly moisture- and heat-resistant type, and a light-curing type.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1721D

Low odor / Low-blooming type

Blooming is a phenomenon where white powder is generated at the bonding location when general use instant adhesives are applied. This is a low bloom product. There is also virtually no irritating odor. It is good for elements requiring a good appearance.

1757

High moisture resistance / Excellent water resistance, High heat resistance type

It has better moisture resistance and heat resistance than regular instant adhesives. Even at an ambient temperature of 120°C, a bonding strength of at least 10MPa (iron/iron) is maintained. In addition, continuous use heat resistance is also high, as it can be used at approximately 120°C. It has excellent moisture resistance and water resistance, so it can be used for bonding parts that are used outdoors. In particular, it has excellent adhesion strength for various elastomers.

1771E
1771M
1773E

Light-curing property

It can be cured by UV light or visible light, so it is possible to cure quickly in overflow portions that cause blooming and areas with large clearance that slows curing. It also has excellent surface curability because there is no curing inhibition by oxygen. 1771M is a ISO10993 compliant product for medical devices

1795C

Remover for instant adhesive

By dropping it on an adhered surface, this product dissolves the cured material so that the substrate can be removed from the surface. It does not contain any chlorinated solvents or specified materials according to the Poisonous and Deleterious Substance Control Act / List of Carcinogens (IARC / Japan Society for Occupational Health).

7721

Non-blooming type

There is no characteristic irritating odor and almost no blooming. It also has excellent quick-curing property. It is a highly functional instant adhesive with special functionality.

7737
7738

Elastomer-containing ultrahigh peel strength / impact-resistant type

This is a half-gel adhesive with sag resistance and excellent workability because there is no stringing. It has excellent adhesion even at high temperatures and high humidity. It is a highly functional instant adhesive with special functionality.

7741

Standard type

This is a highly functional instant adhesive standard product with excellent adhesion strength even on engineering plastics and with excellent quick-curing property.

7761

Impregnation coating agent for 3D printed plaster cast

This agent has excellent penetrability to be impregnated uniformly throughout the cast. It has excellent curability and resin design with suppressed blooming, and excellent reinforcement cure after impregnation and cure.

The workability is excellent because of reduced irritating odor.

7781

Ultra-rapid curing type

This has excellent quick-curing property, so it has quick adhesion strength even on porous materials that are normally difficult to bond, and on acidic materials such as wood. It has a sharp increase in strength even on difficult-to-bond materials such as polyacetal.

7782

7784

7785

7786

It has excellent heat resistance.

It is a highly functional instant adhesive with special functionality.

7789

Gel-type

There is no sagging property, so it can be used on vertical surfaces and ceilings.

By using a curing accelerator, thick curing is possible, so it can also be used for filling and reinforcement on uneven portions.

7796

Faint-odor curing accelerator for instant adhesives

By dropping it on protruding excessive adhesive, the bonding time of the adhesive is reduced.

It has excellent balance between low odor and curability.

7797

7797C

Multi-primer for instant adhesive

It allows easy adhesion of difficult-to-bond materials such as polypropylene, polyethylene, polyacetal, fluoropolymers, and silicone rubber. Apply and let it dry on surfaces as a preconditioning agent for difficult-to-bond materials.

1700/7700 Series



Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name		1701	1702	1702B	1721D	1731	1733	1735	1739	
Characteristics	Unit									
Main component		Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	
Features		For metal	For metal	Colored	Low odor Low-blooming	High peel strength	High peel strength	High peel strength	Gel-like	
Appearance		Colorless	Colorless	Blue	Light yellow	Light yellow	Light yellow	Light yellow	Colorless	
Viscosity	mPa-s	3.0	35.0	35.0	6.0	20.0	150	1500	23000	
Specific gravity		1.10	1.10	1.05	1.07	1.06	1.10	1.10	1.03	
Set time	Iron	sec	10	30	40	40	30	40	60	30
	NBR	sec	5	15	5	2	60	70	120	30
Tensile shear bond strength	Iron	MPa	23.7	23.0	16.9	14.4	20.0	17.0	18.0	24.2
	Aluminum	MPa	15.3	17.0	8.4	13.2	11.0	11.0	10.0	11.5
	Polycarbonate	MPa	(Material failure)	(Material failure)	7.8	(Material failure)	(Material failure)	(Material failure)	1.4	5.8
	ABS	MPa	(Material failure)	(Material failure)	7.6	(Material failure)	(Material failure)	(Material failure)	(Material failure)	6.1
	NBR	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	Chloroprene rubber	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
Peel strength	Iron	kN/m	-	-	-	-	3.0	3.0	4.0	-
	Aluminum	kN/m	-	-	-	-	2.0	2.0	2.0	-
Operating temperature range (Est.)	°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	
Remark(s)									Structural viscosity ratio 3.5	

	1741	1741D	1741E	1743	1743D	1743F	1745	1747	1757	1771E	1771M
	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate
	For general use Low viscosity	For general use Low viscosity Colored	For general use Fast-curing	For general use Medium viscosity	For general use Medium viscosity Colored	Brush-equipped container	For general use Medium viscosity	For general use High viscosity	High moisture resistance Excellent water resistance High heat resistance	Light curing	Light curing Compliant to ISO10993 for medical devices
	Colorless	Blue	Colorless	Colorless	Blue transparent	Colorless	Colorless	Colorless	Light yellow	Yellow	Yellow to Yellowish green
	2.0	2.0	3.0	100	100	100	500	2000	1200	2.0	2.0
	1.06	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.06	1.05	1.05
	5	5	5	10	10	20	10	10	30	3	10
	5	5	5	10	10	20	10	10	20	2	2
	14.2	14.2	14.0	19.3	19.3	22.0	22.2	22.9	19.2	15.1	17.5
	16.5	16.5	12.0	16.6	16.6	14.0	16.6	17.3	16.0	10.6	13.3
	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	4.5	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	4.2	4.2	(Material failure)	5.2	5.2	(Material failure)	5.1	5.0	(Material failure)	(Material failure)	(Material failure)
	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 120°C	below -40°C to 100°C	below -40°C to 100°C
									Continuous usage at 120°C possible	Standard curing condition 10kJ/m ²	Standard curing condition 10kJ/m ²

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1700/7700 Series



Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name		1773E	1781	1781F	1782	1783	1785B	1786	7721	
Characteristics	Unit									
Main component		Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	
Features		Light curing	Impact resistance Heat resistance	Impact resistance Heat resistance	Impact resistance Heat resistance	Impact resistance Heat resistance	Fast-curing for woodwork	Fast-curing for woodwork	High functionality Non-whitening type	
Appearance		Yellow	Colorless	Blue	Colorless	Colorless	Colorless	Colorless	Colorless to Light yellow	
Viscosity	mPa-s	150	3.0	20.0	80.0	800	3.0	150	5.0	
Specific gravity		1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.07	
Set time	Iron	sec	5	10	10	10	10	5	5	15
	NBR	sec	2	5	5	5	5	3	3	2
Tensile shear bond strength	Iron	MPa	15.9	16.4	22.1	25.5	24.7	11.9	18.2	18.4
	Aluminum	MPa	11.2	15.3	12.8	17.8	17.7	12.0	13.2	12.9
	Polycarbonate	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	5.4	(Material failure)
	ABS	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	NBR	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	Chloroprene rubber	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
Peel strength	Iron	kN/m	-	-	-	-	-	-	-	-
	Aluminum	kN/m	-	-	-	-	-	-	-	-
Operating temperature range (Est.)	°C	below -40°C to 100°C	below -40°C to 120°C	below -40°C to 120°C	below -40°C to 120°C	below -40°C to 120°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	
Remark(s)		Standard curing condition 10kJ/m ²	Continuous usage at 100°C possible	Continuous usage at 100°C possible	Continuous usage at 100°C possible	Continuous usage at 100°C possible				

	7737	7738	7741	7761	7781	7782	7784	7785	7786	7789
	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate
	High functionality Ultrahigh peel strength	High functionality Ultrahigh peel strength	High functionality Standard type	Impregnating reinforcement coating agent for 3D printers	High functionality Ultraprapid curing	High functionality Ultraprapid curing	High functionality Ultraprapid curing	High functionality Ultraprapid curing	High functionality Ultraprapid curing	Fast-curing gel
	Light yellow	Light yellow	Colorless to Light yellow	Light yellow	Colorless to Light yellow	Colorless to Light yellow	Colorless to Light yellow	Colorless to Light yellow	Colorless to Light yellow	Light yellow
	2000	5000	2.0	4.9	2.0	15.0	160	500	1000	25000
	1.07	1.08	1.05	-	1.05	1.05	1.05	1.07	1.08	1.09
	90	90	3	-	2	2	3	3	4	10
	90	90	2	120	2	2	2	2	2	7
	25.7	27.7	15.0	-	14.0	14.2	15.3	16.3	17.0	21.0
	20.4	21.4	15.1	-	14.9	15.3	16.1	14.6	14.9	15.9
	(Material failure)	(Material failure)	(Material failure)	-	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	(Material failure)	(Material failure)	(Material failure)	-	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	(Material failure)	(Material failure)	(Material failure)	-	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	(Material failure)	(Material failure)	(Material failure)	-	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	3.4	4.2	-	-	-	-	-	-	-	-
	3.4	2.9	-	-	-	-	-	-	-	-
	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C		below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C	below -40°C to 100°C
	Structural viscosity ratio 4.8	Structural viscosity ratio 5.0	Continuous usage at 80°C possible	Impregnation coating for 3D printer shaped objects of plaster	Continuous usage at 80°C possible Final strength within 30 min	Continuous usage at 100°C possible Final strength within 30 min	Continuous usage at 100°C possible Final strength within 30 min	Continuous usage at 100°C possible Final strength within 30 min	Continuous usage at 100°C possible Final strength within 30 min	Structural viscosity ratio 6.5

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1700/7700 Series



Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name		1795C	1796	1796B	1796F	1796G	1796K	1797	7796	
Characteristics	Unit									
Main component		Acetone	Amine compound	Amine compound	Amine compound	Amine compound	Amine compound	Amine compound	Amine compound	
Features		Remover	Curing accelerator	Curing accelerator	Curing accelerator	Curing accelerator	Curing accelerator	Bonding primer	Curing accelerator	
		-	-	Lower odor	Aerosol	Ordinance on Prevention of Organic Solvent Poisoning does not apply	Lower odor Aerosol	-	Slight odor type	
Appearance		Colorless	Light yellow	Light yellow	Light yellow	Light yellow	Colorless to Light yellow	Light yellow	Colorless to Light brown	
Viscosity	mPa-s	-	-	-	-	-	-	-	-	
Specific gravity		0.90	0.82	0.82	0.81	0.82	0.76	0.80	0.75	
Set time	Iron	sec	-	5 to 10 (TB1739)	5 to 10 (TB1739)	5 to 10 (TB1739)	5 or less (TB1739)	5 or less (TB1739)	-	5 or less (TB1739)
	Polypropylene	sec	-	-	-	-	-	-	5 (TB1741)	-
	NBR	sec	-	-	-	-	-	-	-	-
Tensile shear bond strength	Iron ^{*1}	MPa	-	2.7 (TB1739)	2.7 (TB1739)	2.7 (TB1739)	3.4 (TB1739)	2.8 (TB1739)	-	2.7 (TB1739)
	Polypropylene	MPa	-	-	-	-	-	-	(Material failure) (TB1741)	-
Remark(s)								For hard-to-bond materials		

*1: Tensile shear bond strength: After 1 minute of iron shear bonding

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

	7797	7797C
	Amine compound	Amine compound
	Bonding primer	Bonding primer
	Multi-primer	Multi-primer
	Colorless	Colorless
	-	-
	0.67	0.68
	-	-
	3 (TB7784)	3 (TB7784)
	-	-
	-	-
	(Material failure) (TB7784)	(Material failure) (TB7784)
	For hard-to-bond materials	For hard-to-bond materials (7797 variant with a different solvent)

1700/7700 Series

Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.



- Application of an instantaneous adhesive that is difficult to handle is automated. This enables the work environment and application quality to be improved.

*TDV: Triple Diaphragm Valve

Bottle



Tubing pump (TF300mp-S)

This is a dispenser for low-viscosity small-amount dispense. Automatic application by machine is impossible.

Individual catalog number #16



Tank with level sensor detection (PT-01E) Extremely small-quantity and fixed-quantity valve (TDV) Exclusive controller

This is an extremely small-quantity dispenser with excellent durability and stability. Automatic application by machine is possible.

Individual catalog number #17

ThreeBond 1800/1900 Series

Antirust Lubricants / Molybdenum Anti-Seizing Lubricants



1800/1900 Series

Antirust Lubricants / Molybdenum Anti-Seizing Lubricants

These rust-preventing lubricants mainly contain rust-preventing oil and lubricating agents, so rust is prevented by blocking water and oxygen from metallic surfaces. The oil films and the lubricating agents help ensure slipperiness for lubricating capability.

There are various grades available for general rust-preventing lubrication, heavy-load lubrication, galling prevention, and specially formulated products for automobile parts which provide a wide range of penetrability, oil film strength, base oil heat resistance, and type of lubricating agent, etc.

Other products include a film-type vapor phase corrosion inhibitor for creating a rust-preventing atmosphere, and a rust-preventing lubricant for food.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

1801B
1802B

This is a general rust-preventing lubrication spray with excellent penetrability. By simply spraying, it penetrates to necessary locations providing rust prevention and lubricity. It also penetrates through rust and dirt, making it easy to remove rust, and it is helpful when loosening bonded screws. There is also a can type available.

1804

This is an odorless general rust-preventing lubrication spray with excellent penetrability. By simply spraying, it penetrates to necessary locations providing rust prevention and lubricity. It also penetrates through rust and dirt, making it easy to remove rust, and it is helpful when loosening bonded screws. There is virtually no influence on rubber and plastic, so it can be used for a wide range of materials.

1805

This is a grease type general rust-preventing lubrication spray. By spraying, it forms a grease type soft film that strongly adheres to metallic surfaces. It has excellent weather resistance and water resistance, resulting in long-term rust prevention, so it can be used as rust prevention for outdoor parts. It has high oil film strength, excellent lasting effect on sliding surfaces, and highly durable lubricity.

1807

This is a high-quality rust-preventing lubrication spray with excellent penetrability and good load-resistant lubricating capability. By simply spraying, it penetrates to necessary locations providing rust prevention and lubricity. It also penetrates through rust and dirt, making it easy to remove rust, and it is helpful when loosening bonded screws. It contains organic molybdenum with high lubrication, so it can fill in the fine gaps of sliding portions, and it has excellent lubricity.

1807B

This is a penetrative rust-preventing lubricant with improved lubricity, penetrability and rust prevention.

When sprayed to bonded screws, it penetrates throughout the bonded portion because of its high penetrability, making the screws to be loosened with a little force.

Aerosol type adopting a folding long nozzle enables pinpoint spray aiming at a designated area with little scattering.

Foams of the lubricant sprayed by means of carbon dioxide attaches to the object with reduced drip and it can be used without waste.

1809B

This is an odorless grease type rust-preventing lubricant with excellent load-resistant lubricating capability. It forms a soft film when applied.

It contains organic molybdenum with high lubrication, so it can fill in the fine gaps of sliding portions, and it has excellent lubricity with high load resistance.

It also has a good lasting effect on sliding surfaces due to its high oil film strength, so it has durability for long-term usage.

1810C

This is an odorless dry powder lubrication spray.

It uses fluorine powder as the main component, so there is no stickiness after spraying.

There is no influence on plastic, so it can be used for a wide range of materials including metals and wood.

It has excellent lubricity for a wide temperature range from high temperatures to low temperatures.

1815D

This is a grease type rust-preventing lubrication spray with excellent rust prevention and heavy load-resistant lubricating capability.

It has excellent extreme pressure property and very good lubricity even under heavy loads.

It also has good rust prevention and excellent durability for long-term corrosion prevention, and it has good water resistance so that good lubricity can be maintained even when water enters.

It can be used in severe environments such as outdoor facilities, and can be used as rust-preventing lubrication for construction machines.

1816B

This is a rust-preventing lubrication spray for chains.

It has excellent penetrability, lubricity, and rust prevention for chain pins and bushes, and it prevents elongation and abrasion in addition to preventing rust for chains.

It has proper viscosity for a lasting effect on chains during high-speed rotation, and there is less dust attachment because it has low stickiness. The formed film is flexible even at low temperatures so that performance can be maintained.

It can be used for the metal chains of automobiles, motorcycles, and agriculture equipment, etc.

1821

This is a very safe rust-preventing lubrication spray that uses materials certified by the Food Sanitation Act.

It has antibacterial properties and can be used for food machinery.

It also has excellent penetrability. By simply spraying, it penetrates to necessary locations providing rust prevention and lubricity.

It also penetrates through rust and dirt, making it easy to remove rust, and it is helpful when loosening bonded screws.

1851
1851B

This is a lubricant that uses low viscosity silicone oil as its main component. It has great flowability, permeability, lubricativity, and weather resistance. It has no negative effect on rubbers or plastics.

It can be used to lubricate rubber parts or plastic parts, to prevent squeaking of run channels of vehicle doors, to lubricate weather strips, and to prevent freezing.

1851 is an aerosol type, and 1851B is a can type.

1855
1856

This is a silicone grease-based rust-preventing lubricant that is mainly used for automobile maintenance.

It has a wide operating temperature range, and has excellent thermal oxidative stability, water resistance, and brake oil resistance. It can be used for brakes, suspension, transmissions, and various other parts because there is no negative influence on rubber or plastics.

There is a tube type and a spray type available.

1800/1900 Series

1860
1860B

This is a silicone grease-based, rust-preventing lubrication spray for vehicle brakes. It has excellent high temperature lubricity because it contains a solid lubricant with a heat resistance of 900°C. Flowing is suppressed at high temperatures since the dropping point is above 280°C. It has high adhesion to metal parts because it is highly sticky, and it can reduce resonant sound. It also has excellent lubricity for preventing abrasion at metal sliding portions. There is no negative influence on rubber or plastic. 1860 is a tube type, 1860B is a one-time use size of 15 ml aerosol specification.

1862

This is an anti-rust lubricant for screws. In addition to rust resistance, it can reduce screwing stiffness by providing appropriate lubrication, thereby also providing axial stability.

1901
1910

This is a grease-type galling-preventing lubricant that uses molybdenum disulfide as the base. It has a low coefficient of friction, high lubrication, and extreme pressure property, so it has excellent lubricity for heavy loads, and can prevent abrasion, galling and seizure of parts. It has excellent heat resistance and can be used at up to 400°C (for galling prevention of screws and pins, up to 800°C). There is a can type and an aerosol type available.

1920

This is a grease-type lubricant for gas valves and cocks that contains molybdenum disulfide mixed with a stable base oil for city gas and LP gas. It has excellent wear resistance and sealability to prevent chattering at high temperatures. There is no negative influence on rubber or plastic. It is used for lubrication and sealing of city gas and LP gas valves and cocks.

1925

This is a spray type grease for brake maintenance for vehicle brake and rubber. It has excellent lubricity because it contains molybdenum disulfide. It can be used both as a grease for brakes and as a grease for brake rubbers. It has excellent lubricity and rust prevention. It can be used safely with various rubbers and plastics for brake equipment because it has no negative influence on these.

1930

This is a lubrication spray for preventing noise and abrasion for constant-velocity joint ball bearings of vehicle drive shafts. It uses molybdenum disulfide as the main component, it has high lubricity for reducing noise at bearing portions, and it is used as an abnormal sound-preventing agent and abrasion-preventing agent.



Antirust Lubricants/Molybdenum Anti-Seizing Lubricants

Property Table

Product name		1801B	1802B	1804	1805	1807	1807B	1809B	1810C
Characteristics	Unit								
Applications		Penetrating lubrication Water repellency and rust prevention Loosening of screw Rust removal	Penetrating lubrication Water repellency and rust prevention Loosening of screw Rust removal	Penetrating lubrication Water repellency and rust prevention Loosening of screw Rust removal	Rust-preventing lubrication Long-term corrosion prevention	Sliding portion lubrication Penetrating lubrication Water repellency and rust prevention Loosening of screw	Sliding portion lubrication Penetrating lubrication Water repellency and rust prevention Loosening of screw	Sliding portion lubrication Water repellency and rust prevention Galling prevention	Sliding portion dry lubrication
Features		Excellent penetrability	For equipment Excellent penetrability	Odorless No damage to plastics	Grease high oil film strength Excellent adhesion Excellent water resistance No damage to plastics	Contains organomolybdenum Excellent load resistance No damage to plastics	High lubricity High penetrability High rust prevention No damage to plastics	Contains organomolybdenum Excellent load resistance and resistance to galling Low friction	Dry powder lubrication No stickiness because fluorine powder is main component
Appearance		Brown	Brown	Yellow-brown	Reddish brown	Light brown	Light yellow	Yellow-brown	White
Viscosity	mPa-s	3.8	3.8	5	400	2.7	10	880	
Specific gravity		0.80	0.80	0.80	0.85	0.80	0.82	0.92	1.40
Solid content	%	33	33	28	70	22	-	97	100
Rust prevention capability		○	○	○	○	○	◎	△	×
Lubricity		○	○	○	○	○	◎	○	○
High speed resistance and load resistance		○	○	△	○	◎	○	△	○
Penetrability		○	○	○	×	◎	◎	×	×
Heat resistance		△	△	△	○	○	○	○	○
Plastic compatibility	Polycarbonate	○	○	○	○	○	○	○	-
	ABS	○	○	○	○	○	○	○	-
	Polystyrene	△	△	○	○	○	○	×	-
	Hard PVC	△	△	○	○	○	○	×	-
	Overall evaluation	△	△	○	○	○	○	○	△
Remark(s)		Aerosol Can Liquid type available	Aerosol Can Liquid type available	Aerosol Can Liquid type available	Aerosol	Aerosol	Aerosol	Can Liquid type	Aerosol

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

1800/1900 Series



Antirust Lubricants/Molybdenum Anti-Seizing Lubricants

Property Table

Product name		1815D	1816	1816B	1821	1851	1851B	1855	1856
Characteristics	Unit								
Applications		Rust-preventing lubrication in areas near the ocean and for outdoor facilities Heavy-load environment rust-preventing lubrication	For metal chains Rust-preventing lubrication	Rust-preventing lubrication for metal chains, rotating parts, and sliding portions	Rust-preventing lubrication for food machinery Loosening of screw Rust removal	Preventing vehicle door squeaking Weather strips Rubber lubrication, freeze prevention Rubber part lubrication	Lubrication of rubber and plastic parts	Vehicle parts Rust-preventing lubrication for brakes, suspension, transmissions, etc.	Vehicle parts Rust-preventing lubrication for brakes, suspension, transmissions, etc.
Features		Grease Excellent water resistance Strong rust prevention High lubrication Heavy load resistance	For chains Excellent penetrability for pins and bushes Low stickiness Good lasting effect for chains Excellent low-temperature performance	For chains Excellent penetrability for pins and bushes Low stickiness Good lasting effect for chains Excellent low-temperature performance	Can be used for food machinery Has antibacterial action Excellent penetrability	Low viscosity Excellent heat resistance, freeze resistance, and weather resistance due to silicone oil No damage to rubber, plastic, or paint	Low viscosity Blue coloring Excellent heat resistance, freeze resistance, and weather resistance due to silicone oil No damage to rubber, plastic, or paint	Silicone grease heat resistance, Excellent freeze resistance Excellent brakes oil resistance and water resistance No damage to rubber, plastic, or paint	Aerosol version of 1855
Appearance		Light brown	Blue	Yellow	Turbid white	Colorless	Blue	Beige	Beige
Viscosity	mPa-s	Paste	80	80	20	1000	950	Paste	Paste
Specific gravity		-	0.81	0.81	0.95	0.97	0.97	0.97	0.97
Solid content	%	-	70	70	97.1	100	98	-	100
Rust prevention capability		○	○	○	○	△	△	△	△
Lubricity		○	○	○	○	△	△	△	△
High speed resistance and load resistance		○	○	○	○	×	×	×	×
Penetrability		×	○	○	○	×	×	×	×
Heat resistance		○	-	-	-	○	○	○	○
Plastic compatibility	Polycarbonate	○	-	-	×	○	○	○	○
	ABS	○	-	-	×	○	○	○	○
	Polystyrene	○	-	-	×	○	○	△	△
	Hard PVC	-	-	-	×	○	○	-	-
	Overall evaluation	○	×	×	×	○	○	○	○
Remark(s)		Aerosol	Aerosol	Aerosol	Aerosol	Aerosol	4L can	Tube	Aerosol

	1860	1860B	1862	1901	1910	1920	1925
	Brake grease Brake Lubrication for metal contact portions / Preventing resonance and squealing	Brake grease Brake Lubrication for metal contact portions / Preventing resonance and squealing	For screws Rust-preventing lubrication / Axial force stabilization	Galling and seizure prevention of mechanical parts Abrasion and chattering prevention	Galling and seizure prevention of mechanical parts Abrasion and chattering prevention	Galling prevention Lubrication	Rubber grease Maintenance and rust-preventing lubrication for brake parts and rubber parts
	Low flow at high-temperatures due to a high dropping point of above 280°C Excellent high temperature lubricating capability No damage to rubber, plastic, or paint	Low flow at high-temperatures due to a high dropping point of above 280°C Excellent high temperature lubricating capability No damage to rubber, plastic, or paint	Lubricating capability for screws Axial force stabilization	Contains molybdenum disulfide High lubricity Heavy load resistance High heat resistance, can be used at 400°C (for galling prevention, 800°C)	Contains molybdenum disulfide Aerosol	Contains molybdenum disulfide Excellent gas resistance	Contains molybdenum disulfide Excellent lubricating capability No damage to rubber or plastic
	White	White	Light yellow	Black	Black	Black	Dark gray
	Paste	Paste	185	Paste	25	-	1.1
	-	-	0.82	1.40	1.60	0.90	0.91
	99.7	99.7	-	96.5	-	99.0	31.0
	○	○	○	○	○	-	-
	○	○	○	○	○	○	○
	-	-	-	⊙	⊙	○	○
	-	-	-	×	×	×	×
	○	-	-	⊙	⊙	-	⊙
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	○	○	×	×	×	-	○
	Tube	Aerosol		Can Paste	Aerosol	Can Paste	Aerosol

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

ThreeBond 2000/2100/2200 Series

Epoxy Resins



2000/2100/2200 Series

Epoxy Resins

These are adhesives that use epoxy resin as the main component.

They have strong adhesion strength and have excellent overall characteristics including chemical resistance, electrical properties, and mechanical strength.

There is a two-component type that cures at room temperature, and a single-component type that is a heat-curing type.

They can be used for various purposes including general-purpose adhesion and sealing, for construction materials, and for electronic device bonding, filling, repair, casting, and impregnation.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

2000 Series (Two-component epoxy resin main agent)

2001

This is a standard epoxy main agent. It forms a cured material with slight flexibility, and it has great adhesion strength.

2002K
2002L

It has thixotropic properties and is cream-like. There is virtually no dropping even when mixed with a curing agent, and it has excellent padding ability giving it good workability.

2022

This is a standard epoxy main agent. It forms a cured material with good overall balance. There is a low-viscosity type (2023), a low-viscosity colored type (2023J), and an ultra-low-viscosity type (2023B).

2022U

This is a high adhesive strength type that can be used as an adhesive for construction. In combination with 2103, it provides strong adhesive strength even when hardened at room temperature.

2100 Series (Two-component epoxy resin curing agent)

2102B This is a medium viscosity, high-speed curing agent.

2103 This is a low viscosity, high-speed curing agent. It forms a cured material with medium heat resistance.

2104 This is a curing agent with excellent curability at low temperature. It forms a flexible cured material, so it has excellent impact strength and freeze resistance.

2105C This is a standard type curing agent. It forms a cured material with some flexibility. This is a medium-viscosity type, so it has excellent workability.

2105F This is a standard type curing agent. It forms a cured material with medium flexibility, so it has good impact strength.

2106G This is a curing agent with excellent transparency. It forms a cured material with excellent tensile shear bond strength and good overall balance. This is also a slightly-high-viscosity type (2106H).

2131D This is a heat-applied type curing agent with excellent transparency. It has low viscosity and a low shrinkage rate while curing, so it is good for potting.

2163 This is a heat-applied type curing agent. It forms a cured material with good heat resistance and insulation property.

2000/2100/2200 Series

2080 Series (Two-component epoxy resin adhesive set)

2082C This high-strength adhesive is a set with a main agent and curing agent. Rubber particles are distributed, so it forms a tough cured material. It has stable and strong adhesiveness. It is good for bonding a wide range of materials such as various metals and plastics.

2084 This filling adhesive is a set with a main agent and curing agent. It contains iron powder so it forms a tough cured material. It is good for repair of metallic parts. There is an aluminum powder-contained type (2084B), and a crystal-containing type (2084E).

2088E This heat-resistant adhesive is a set with a main agent and curing agent. It has excellent adhesion even at 200°C (approx.). It is good for bonding various metals and ceramics.

2081D This adhesive is a set with a main agent and curing agent. It has excellent adhesion strength for soft PVC, which is difficult-to-bond material. It is good for bonding with rubber such as CR and EPDM, various metals, and concrete, etc.

2083L This is a spackling adhesive that can be hardened on wet surfaces or in water, and provides strong adhesive power. A large volume type is also available (2083J).

2086N This fast-curing low temperature type adhesive is a set with a main agent and curing agent. It can even cure at a low temperature of -5°C. It is good for bonding various metals, plastics, and rubber, etc. There is also a low-viscosity transparent type (2086M). A thixolabile transparent type is also available (2086T). A twin cartridge type is also available. (2086M, 2086T)

2200 Series (One-part heat-curing epoxy resin)

2212B This is a type speedily cured at low temperature. There are grades with different viscosities, different colors, and with low halogen content.

2202 This is a type cured at low temperatures. It has low viscosity and can be used as an underfill agent for electronic device reinforcement. There are grades with different viscosities, different colors and Low-halogen product. 2202C is an ISO 10993 compliant product for medical devices.

2222P It has excellent heat resistance for soldering and excellent thermal shock resistance. It has high adhesion strength and has excellent peeling strength. There are grades with different viscosities.

2223Q It has excellent thermal shock resistance.
It has low halogen content.

2235L This has a low linear expansion rate and a high glass transition temperature. It is suitable for applications that require heat resistance since it maintains a high elastic modulus even in a high temperature environment.

2237J This has a high glass transition temperature. It maintains a high elastic modulus even in a high temperature environment, as well as having an excellent peel-off adhesion strength, therefore it is suitable to adhesion and filling of parts where heat resistance is required.

2239H This is a highly-adhesive type. It forms a cured material with good balance and excellent shear bond strength and peel strength. There are grades with different viscosities and different colors.

2249G This is a highly-adhesive type. It forms a tough cured material with very excellent shear bond strength and peel strength. There are grades with different viscosities and different colors.

2270C This has low cure shrinkage and excellent dimensional stability. It is a low outgassing product with reduced separation and uncuring issue. It has excellent thermal conductivity and is good for heat dissipating purposes. A high heat conductivity type is also available (2270J).

2272F Incombustible type (UL94 V-0 certified product) This exhibits excellent handling ability. It is good for bonding and potting electronic devices and other potential heat sources that require incombustibility.

2274S This is an underfill agent for mounting CSP and BGA. It has good flowability and penetrates in a short time.

2280E It has low viscosity and low heat generation while curing, so it is good for coil impregnation and fixing. A different color grade is also available (2280C).

2284F This is a high specific-gravity type for adjusting the balance of rotating bodies such as motors. There are grades with different specific gravities and different viscosities.

2287 This is a low-viscosity grade for impregnation of cut cores.

2002K		2002L								2002M	
2105F	2107	Main agent	2105	2105C	2105F	2105R	2107	2163	Main agent	2105C	
Modified polyamido-amine	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified aromatic polyamines	Epoxy resin	Aliphatic polyamine	
Adhesion strength Flexibility Chemical resistance	Adhesion of structures	Highly thixotropic Padding ability	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	High viscosity, appropriate hardness and flexibility	Adhesion of structures	Adhesion of structures	For electronic device molding	For electronic device molding
Reddish brown	Light brown	White	Light yellow	Reddish brown	Reddish brown	Reddish brown	Reddish brown	Light brown	Reddish brown	Black	Reddish brown
40.0	30.0	95.0	4.5	1.8	40.0	50.0	30.0	30.0	15.0	1.8	
-	-	-	-	-	-	-	-	-	-	-	
0.96	0.96	1.25	0.95	0.95	0.96	0.86	0.96	0.96	1.17	0.95	
100 / 80 to 100	100 / 100	-	100 / 40 to 50	100 / 40 to 50	100 / 80 to 100	100 / 80 to 100	100 / 100	100 / 100	-	100 / 40 to 50	
-	-	-	-	-	-	1.5 to 2h	-	-	-	-	
25°C/24h or 100°C/1h	25°C/24h or 70°C/30min	-	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	25°C/48h or 100°C/1h	25°C/24h or 70°C/30min	70°C/30min	-	25°C/24h or 100°C/1h	
D82	D70	-	D84	D84	D78	D80	D70	D70	-	D85	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
16.9	17.6	-	18.8	18.7	20.2	23.3	18.2	18.2	-	19.8	
-	-	-	-	-	-	-	-	-	-	-	

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2003H		2004			2004J	2016F			
Main agent	2105T	Main agent	2105C	2105F	Main agent	Main agent	2103	2105C	2105F
Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine	Modified polyamido-amine	Epoxy resin	Epoxy resin	Aliphatic polyamine	Modified polyamido-amine	Modified polyamido-amine
High peel-strength adhesiveness No dropping while curing		Excellent adhesion strength For sprinkler piping		Adhesion strength Flexibility Chemical resistance	General-purpose adhesion High viscosity	For filling/ repairing Aluminum powder- contained High mechanical strength	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance
Black	Milky white	White	Reddish brown	Reddish brown	Gray	Silver	Light yellow	Reddish brown	Reddish brown
Paste		60.0	1.8	40.0	90.0	Putty	-	1.8	40.0
-		-	-	-	-	-	20.0	-	-
1.80		1.40	0.95	0.96	1.18	1.31	0.97	0.95	0.96
-	100 / 100	-	100 / 32 to 40	100 / 64 to 80	-	-	100 / 6.3 to 7	100 / 28 to 35	100 / 56 to 70
-	1 to 2h	-	50 to 60 min	90 min	-	-	-	-	-
-	25°C/24h or 60°C/1.5h	-	25°C/24h or 100°C/1h	25°C/48h or 100°C/1h	-	-	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h
-	D80	-	-	-	-	-	D87	D84	D84
-	40	-	-	64	-	-	-	-	-
-	-	-	-	1×10 ¹³	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	12.0 (When cured at room-temperature)	-	15.7	17.7	-	-	14.3	20.1	21.2
-	1900 (When cured at room-temperature)	-	-	-	-	-	-	-	-

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2022				2022B	2022C		2022D	2022F	2022R
2106G	2106H	2107	2131D	Main agent	Main agent	2131D	Main agent	Main agent	Main agent
Modified aliphatic polyamine	Modified aliphatic polyamine	Modified polyamido-amine	Modified aliphatic polyamine	Epoxy resin	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Epoxy resin	Epoxy resin
Transparency Medium heat resistance	Transparency Medium heat resistance	Adhesive for structures	Transparency Low shrinkage Low viscosity	Low viscosity Medium flexibility	Low viscosity	Transparency Low shrinkage Low viscosity	Water resistance Low discoloration Excellent defoaming ability	Water resistance Low discoloration Excellent defoaming ability	Low viscosity Medium flexibility
Light yellow	Light yellow	Light brown	Light brown	Light yellow	Light yellow	Light yellow	Red	Blue	White
3.0	6.5	30.0	-	4.0	5.0	-	15.0	15.5	4.0
-	-	-	10	-	-	10	-	-	-
1.06	1.06	0.96	0.95	1.15	1.10	0.95	1.20	1.20	1.15
100 / 50	100 / 60	100 / 100	100 / 30 to 35	-	-	100 / 30 to 35	-	-	-
65 min	77 min	2.5h	4 to 5h	-	-	4 to 5h	-	-	-
25°C/48h or 80°C/1h	25°C/48h or 80°C/2h	25°C/24h or 60°C/1h	80°C/4h or 100°C/1h	-	-	80°C/4h or 100°C/1h	-	-	-
D87	D87	D70	D85	-	-	D80	-	-	-
78	73	60	-	-	-	80	-	-	-
-	-	2.9×10 ¹²	1×10 ¹³	-	-	1×10 ¹³	-	-	-
-	-	-	27	-	-	25	-	-	-
18.0	19.0	26.0	16.0	-	-	16.0	-	-	-
500	500	1961	392	-	-	589	-	-	-

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2023							2023B			2023D
2105F	2105R	2106G	2106H	2131D	2163	Main agent	2106G	2106H	Main agent	
Modified polyamido-amine	Modified polyamido-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Modified aliphatic polyamine	Modified aromatic polyamine	Epoxy resin	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin	
Adhesion strength Flexibility Chemical resistance	High viscosity, appropriate hardness and flexibility	Transparency Medium heat resistance	Transparency Medium heat resistance	Transparency Low shrinkage Low viscosity	Heat resistance Insulation property	Low viscosity	Balance between shear and peel-adhesive strength	Balance between shear and peel-adhesive strength	Low viscosity Flexibility	
Reddish brown	Reddish brown	Light yellow	Light yellow	Light yellow	Black	Light yellow	Light yellow	Light yellow	Light yellow	
40.0	50.0	3.0	6.5	-	1.15	-	3.0	6.5	-	
-	-	-	-	10.0	-	200	-	-	800	
0.96	0.96	1.06	1.06	0.95	1.10	1.13	1.06	1.06	1.07	
100 / 80 to 100	100 / 80 to 100	100 / 50	100 / 60	100 / 30 to 35	100 / 20	-	100 / 50	100 / 60	-	
2h	1.5 to 2h	90 min	108 min	4 to 5h	5h	-	50 min	70 min	-	
25°C/48h or 100°C/1.5h	25°C/48h or 100°C/1h	25°C/48h or 80°C/1.5h	25°C/48h or 80°C/3h	80°C/4h or 100°C/2h	100°C/3h + 150°C/2h	-	25°C/24h or 80°C/1h	25°C/48h or 80°C/2h	-	
D80	D78	D84	D85	D81	D88	-	D81	D81	-	
60	-	63	55	79	140	-	46	42	-	
1×10 ¹³	-	-	-	1×10 ¹³	2×10 ¹⁴	-	-	-	-	
20	-	-	-	20	40	-	-	-	-	
18.0	19.8	18.0	19.0	17.0	24.0	-	17.0	16.0	-	
981	-	500	500	235	235	-	600	400	-	

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2024B		2025		2061F		2074B		2077D		2081D	
2163	Main agent	2104	Main agent	2105C	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	
Modified aromatic polyamine	Epoxy resin	Polythiol	Epoxy resin	Modified polyamido-amine	Epoxy resin	Polyamido-amine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine Tertiary amine	
Heat resistance Insulation property	Thermal impact Insulation property Flexibility	Rubbery hardened material, low-temperature hardening, impact resistance, cold resistance	Casting Potting	Adhesion strength Flexibility Chemical resistance	Low viscosity High-thixotropic		Low viscosity Flexible hardened material		Soft PVC adhesion		
Black	Light gray	Dark brown	Light brown	Reddish brown	White	Black	Milky white	Light brown	Light yellowish white to pale rose	Brown	
1.15	25.0	-	2.0	1.8	25.0	9.0	2.9	28.6	11.0	10.0	
-	-	950	-	-	-	-	-	-	-	-	
1.10	1.52	1.22	1.10	0.95	1.27	1.16	1.24	0.96	1.16	0.98	
100 / 12	-	100 / 40 to 50	-	100 / 30	100 / 50		100 / 80		100 / 100		
5h	-	23 min	-	60 to 80 min	50 min		-		60 min		
100°C/3h + 150°C/2h	-	25°C/24h or 100°C/1h	-	80°C/2h	25°C/48h or 120°C/1h		-		25°C/24h or 60°C/1h		
D88	-	D69	-	A55	D84		D54		D60 to 65		
140	-	-4.3	-	-	-		45		-		
2×10 ¹⁴	-	-	-	4.7×10 ¹⁰	-		-		-		
40	-	-	-	1.3×10 ¹³	-		-		-		
24.0	-	11.9	-	-	20.4		15.0		13.7		
235	-	766	-	-	-		2300		3730		

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2000/2100/2200 Series



Epoxy Resins Property Table

Product name	Main agent		2082C		2082E		2082F		2083J	
	Curing agent		Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
Characteristics	Unit									
Main component			Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine	Epoxy resin	polyamido-amine
Features			High shear bond strength		General-purpose adhesive filling repair		Adhesive for repair of metallic parts		Filling adhesion for wet surfaces	
Appearance			White	Brown	White translucent	Gray	Black	Light yellow	Gray	Dark brown
Viscosity	Pa-s		15.0	16.0	90.0	150	5500	-	Putty	Putty
	mPa-s		-	-	-	-	-	850	-	-
Specific gravity			1.19	0.98	1.20	1.07	2.60	0.95	1.76	1.54
Compounding ratio (Mass ratio) Main agent / Curing agent			100 / 100		100 / 100		100 / 10		100 / 100	
Pot life (25°C / 100g when mixed)			70 min		60 min		60 min		25 to 45 min	
Standard curing conditions			25°C/24h or 60°C/1h		25°C/24h or 80°C/1h		25°C/24h or 80°C/1h		25°C/24h	
Physical characteristics after curing	Hardness		D76		D78		D85		D65	
	Glass transition temperature	°C	-		93.1		66.5		-	
	Volume resistivity	Ω-m	-		-		-		-	
	Dielectric breakdown strength	kV/mm	-		-		-		-	
Iron	Tensile shear bond strength (When heat-cured)	MPa	25.5		16.5		20.8		6.8 (When cured at room-temperature)	
	Peel strength (When heat-cured)	N-m	1720		-		-		-	
Remark(s)										

2083L		2084		2084B		2084E		2086M	
Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Polythiol
Structural adhesive for wet surfaces		For repair of metallic parts (iron-based)		For repair of metallic parts (aluminum-based)		For repair (quartz-based)		Fast curing at low temperature	
Light gray	Blue-green	Black	Brown	Silver	Brown	Colorless	Brown	Colorless	Light yellow
Putty	Putty	250	2.4	Paste	-	13.0	1.9	13.0	10.0
-	-	-	-	-	250	-	-	-	-
1.60	1.50	3.04	0.95	1.20	0.95	1.16	0.96	1.17	1.15
100 / 100		100 / 10		100 / 10		100 / 50		100 / 100	
15 min		30 to 40 min		30 to 50 min		40 to 50 min		5 min	
25°C/24h		25°C/24h or 100°C/30 min		25°C/24h or 100°C/30 min		25°C/24h or 100°C/30 min		25°C/30 min or 5°C/20h	
D77		D87		D85		(Rockwell R55)		D85	
-		76		58.0		-		44.7	
2.2×10 ¹⁰		1×10 ¹⁰		1×10 ¹⁰		-		-	
22		4.3		-		-		-	
14.6		15.7		9.81		23.7		20.3 (When cured at room-temperature)	
-		-		-		-		-	
								Twin cartridge type available	

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

2000/2100/2200 Series



Epoxy Resins Property Table

Product name	Main agent	2086N		2086T		2087		2087N	
	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
Characteristics	Unit								
Main component		Epoxy resin	Polythiol	Epoxy resin	Polythiol	Epoxy resin	Polyamido-amine	Epoxy resin	Modified aliphatic polyamine
Features		Fast curing at low temperature		Fast curing at low temperature Twin cartridge type		Adhesion of structures		For HDD parts, other out-gas	
Appearance		Light yellow	Gray	White	Yellow-brown	Light yellow	Light yellow	Milky white	Blue
Viscosity	Pa-s	110	50.0	29.0	9.2	13.0	30.0	12.0	5.0
	mPa-s	-	-	-	-	-	-	-	-
Specific gravity		1.29	1.20	1.18	1.13	1.16	0.96	1.17	1.05
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 100		100 / 100		100 / 100		100 / 50	
Pot life (25°C / 100g when mixed)		5 min		3 min		60 min		25 to 30 min	
Standard curing conditions		25°C/30 min or 5°C/20h		25°C/30 min		25°C/24h or 60°C/2h		60°C/3h or 80°C/1h	
Physical characteristics after curing	Hardness	D70		D78		D70		D80	
	Glass transition temperature	°C	29.7	52.0		72.0		80.0	
	Volume resistivity	Ω-m	-	7.2×10 ¹⁴		-		-	
	Dielectric breakdown strength	kV/mm	-	29		-		-	
Iron	Tensile shear bond strength (When heat-cured)	MPa	14.0 (When cured at room-temperature)	15.5		21.4		30.3	
	Peel strength (When heat-cured)	N-m	-	-		1220		-	
Remark(s)									

	2087W		2088E		2088J	
	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
	Epoxy resin	Modified polyamido-amine	Epoxy resin	Polyamido-amine	Epoxy resin	Polyamido-amine
	High shear bond strength Twin cartridge type		High thermal adhesiveness		High heat resistance High moisture resistance	
	White	Light yellow	Yellow	Yellow-brown	White	Brown
	15.0	16.0	40.0	4.0	13.0	4.5
	-	-	-	-	-	-
	1.17	0.98	1.19	1.03	1.17	0.95
	100 / 100		100 / 25		100 / 30	
	70 min		70 min		4h	
	25°C/24h or 60°C/1h		25°C/24h or 100°C/1h		80°C/2h	
	D80		D82		-	
	-		170 (150°C/1h)		100	
	-		-		-	
	-		-		-	
	25.5		22.9		20.0	
	1720		-		-	

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

	2210	2210C	2210K	2210S	2212	2212B	2212C	2212E	2212Q	2215	2215D
	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
	Low viscosity Penetrability Small heat generation while curing	Low viscosity Reduced separation and uncuring issue	Low viscosity Curing at low temperatures	Low halogen content	Low viscosity Glossy cured material Excellent penetrability and flowability	Excellent moisture resistance Curing in 1 min at 150°C	Excellent moisture resistance Curing in 1 min at 150°C	Medium flowability Glossy cured material	Low halogen content	Some padding ability Glossy cured material	Reduced separation and uncuring issue
	Black	Black	Black	Black	Black	Black	Reddish brown	Black	Black	Black	Black
	10.0	8.0	3.5	8.0	13.0	25.0	25.0	35.0	15.0	80.0	140
	-	-	-	-	-	-	-	-	-	-	-
	1.18	1.17	1.15	1.20	1.39	1.39	1.39	1.40	1.69	1.40	1.30
	90°C/30 min 100°C/20 min 120°C/15 min	90°C/30 min 100°C/20 min 120°C/15 min	80°C/40 min	100°C/30 min	90°C/30 min 100°C/20 min 120°C/15 min	80°C/30 min 100°C/20 min 120°C/10 min 150°C/ 1 min	80°C/30 min 100°C/20 min 120°C/10 min 150°C/ 1 min	90°C/30 min 100°C/20 min 120°C/15 min	80°C/90 min 100°C/20 min 120°C/15 min	90°C/30 min 100°C/20 min 120°C/15 min	100°C/30 min
	D86	D87	D87	D89	D92	-	D93	D92	D92	D94	D85
	120	120	92	95	100	109	109	94	105	125	110
	1.5×10 ¹⁴	-	-	4.5×10 ¹⁴	5.7×10 ¹⁴	1.6×10 ¹⁴	1.6×10 ¹⁴	5.7×10 ¹⁴	-	5.7×10 ¹⁴	-
	23	-	-	27	23	23	23	23	32	23	-
	16.3	14.7	16.5	13.9	10.8	10.2	8.89	11.7	10.0	14.7	17.7
	204	-	400	-	329	338	349	297	-	-	-

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

	2223S	2224	2224C	2225G (NEO)	2230	2230B	2232	2233B	2233G	2234C	2234E
	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
	Stable with low flowability change in time Good adhesion Humidity resistance	Excellent flowability	Excellent flowability	For relay sealing Excellent flowability	Low viscosity Peel strength Glossy cured material	Low viscosity Peel strength Glossy cured material	Penetrability Heat resistance Glossy cured material	Flexibility Glossy cured material	Little dropping while curing Impact strength	Excellent flowability Heat resistance Glossy cured material	Excellent flowability Heat resistance for soldering Glossy cured material
	Black	Reddish brown	Black	Black	Hazel	Black	White	Black	Black	Gray	Black
	42.9	80.0	64.0	50.0	8.0	8.0	27.0	55.0	60.0	110	70.0
	-	-	-	-	-	-	-	-	-	-	-
	1.60	1.40	1.70	1.35	1.28	1.28	1.23	1.16	1.19	1.35	1.42
	100°C/60 min 120°C/30 min	100°C/40 min 120°C/30 min 150°C/10 min	120°C/30 min	100°C/60 min 120°C/30 min	100°C/120 min 120°C/60 min 150°C/30 min	100°C/120 min 120°C/60 min 150°C/30 min	100°C/65 min 120°C/40 min 150°C/30 min	100°C/90 min 120°C/60 min	120°C/60 min	120°C/60 min 150°C/30 min	120°C/60 min 150°C/30 min
	D91	D95	D94	D87	D84	D84	D90	D75	D82	D92	D92
	118	125	140	132	70	70	130	75	-	142	142
	6.0×10^{13}	1.1×10^{14}	1.1×10^{14}	3.6×10^{15}	2.0×10^{13}	2.0×10^{13}	2.5×10^{13}	1.0×10^{13}	-	2.0×10^{13}	2.0×10^{13}
	21	17	17	23.1	-	-	10	20	-	20	20
	24.0	16.7	21.6	20.0	23.2	23.7	15.6	19.6	11.8	24.5	24.5
	2.9	390	780	3500	1320	2400	-	1962	2000	1200	1200

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

	2242	2247D	2249G	2252	2253E	2253G	2270C	2270J	2272F	2273B	2274S
	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
	Strong adhesiveness Peel strength	Later penetration type Strong adhesiveness Excellent flowability under heat	Strong adhesiveness High peel-adhesive strength	High peel-strength adhesiveness Low viscosity Crack resistance	Strong adhesiveness	Flexibility	Excellent heat dissipation property Low cure shrinkage Reduced separation and uncuring issue High Tg	Excellent heat dissipation property Low cure shrinkage Good curability at low temperature	Incombustibility	Strong adhesiveness	For mounting CSP/BGA Underfill Agent
	Black	Milky white	Black	Black	Milky white	White	Gray	White	Black	Milky white	Blue
	53.0	45.0	75.0	24.0	90.0	37.0	65.0	150	75.0	32.0	3.8
	-	-	-	-	-	-	-	-	-	-	-
	1.46	1.17	1.59	1.15	1.55	1.48	1.95	2.86	1.64	1.30	1.17
	100°C/40 min 120°C/30 min	150°C/30 min	160°C/30 min	120°C/60 min	120°C/60 min 150°C/30 min	120°C/60 min	100°C/40 min 120°C/30 min 150°C/20 min	100°C/40 min	100°C/60 min	150°C/30 min	120°C/10 min
	D87	D84	D90	D81	D89	D65	D93	D96	D92	D90	-
	100	120	104	-	60	19	140	117	117	127	124
	3.3×10^{13}	-	1.0×10^{13}	4.7×10^{12}	1.2×10^{13}	-	-	1.5×10^{13}	2.0×10^{13}	-	1.6×10^{14}
	15	-	33	21	-	-	-	19	24	-	-
	23.0	35.8	34.8	26.0	26.5	12.5	21.6	9.0	21.0	33.2	23.0
	1600	2300	4210	4500	2350	-	314	-	460	5900	-
									Non-flammable grade UL94 V-0 Certified Product		

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

	2286T	2286U	2287	2287B	2287D	2287F	2287G	2296	2296B
	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
	For motor coil coating	For motor coil coating Low linear expansion coefficient	Cut core-impregnating adhesion Low viscosity Excellent impregnation	Cut core-impregnating adhesion Low viscosity Excellent impregnation	For motor coil impregnation and fixing High heat resistance	Cut core-impregnating adhesion	Cut core-impregnating adhesion	Fast curing at low temperature Good shape retention Low halogen	Fast curing at low temperature Good shape retention Low halogen
	Milky white	Milky white	Reddish brown	Reddish brown	Brown	Reddish brown	Light yellow to Orange	Black	Black
	1800	1150	-	-	25.0	-	-	12.0	18.5
	-	-	120	170	-	110 to 190	76.8	-	-
	1.58	1.40	1.10	1.10	1.16	1.08	1.12	1.24	1.25
	160°C/30 min	160°C/30 min	150°C/ 5 to 15h	120°C/2h + 150°C/4h	160°C/30 min	150°C/4h	170°C/2h	80°C/10 min 60°C/30 min	80°C/10 min 60°C/30 min
	D91	D91	D86	-	D88	D75	D79	D82	D82
	120	110	65	-	135	-	48	48	47
	4.4×10 ¹³	4.0×10 ¹²	4.5×10 ¹²	4.5×10 ¹²	-	-	2.7×10 ¹¹	9.3×10 ¹³	6.3×10 ¹³
	33	-	-	-	-	-	22	22	21
	21.2	27.1	11.8	20.6	13.7	15.0	21.4	-	-
	2400	2300	120	160	-	-	-	-	-

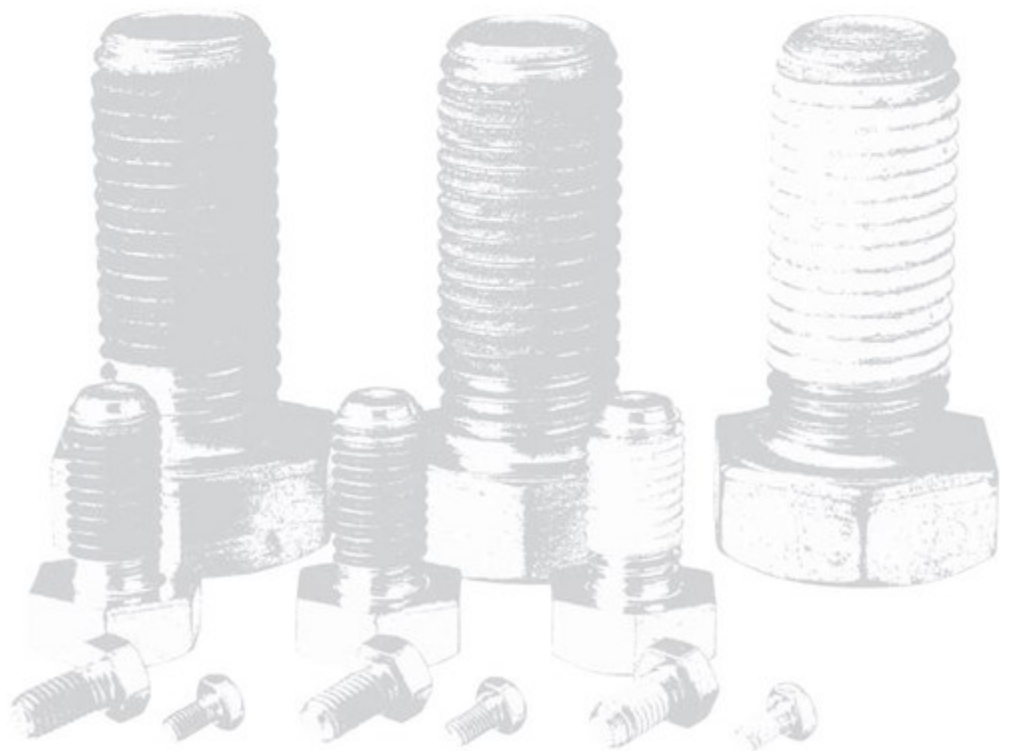
* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

ThreeBond 2300/2400 Series

**Prevention of Leaks and Loosening of Screws, or Bonding of Threaded Portion
Threelock and Sealock Processes/Bolts and Nuts Pre-Coated by MEC process**



Threelock and Sealock Processes to Prevent Leaks and Loosening of Screws

This is the process for coating the sealant and locking agent to the thread portion of screws, bolts, pipes, etc. to add sealing and locking functions to screws themselves.

Pre-coated screws maintain stability, and have sealing or locking functions when tightened.

Pre-coating of bolts includes bolts pre-coated by MEC Processing where a microencapsulated reactive adhesive is applied, Threelock Processing where nylon is fused, and Sealock Processing where a sealing function is added.

■ Threelock Processing

Fusion processing of nylon resin with excellent elastic modulus, wear resistance, chemical resistance, lubricity, and weather resistance.

When processed screws are tightened, excellent loosening prevention is achieved by the nylon resin elastic force generated in the screw clearance.

Because of the nylon resin's excellent elastic modulus, wear resistance, and adhesion to the screw, it is possible to use them more than five times with compliance to JIS (JIS B 1056).

They can be used in a wide temperature range from -50°C to 120°C (approx.).

■ Sealock Processing

This is a baked-on processing of special synthetic resin.

When processed screws are tightened, the screw clearance receives deformed filling by the special synthetic resin and sealing is achieved immediately.

The heat-resistant type can achieve sealing with hydraulic pressure at approximately 170°C.

■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket



2358

Sealock Processing / Heat-Resistant Type

This is a sealing process that uses fluoropolymer as the main component. Because it is a baked-on type, the sealing function can be achieved by simply tightening the screw.

It has excellent heat resistance, and the sealing function works up to approximately 170°C.

It has excellent chemical resistance.

2365B

2365C

Threelock Processing / Standard Type

Prevailing type loosening prevention coating for small screws using nylon as the main component.

Because it is a fusion type, the loosening prevention function and drop-preventing function can be achieved by simply tightening the screw.

Functions are maintained even at 120°C (approx.).

It has excellent repeatability.

The applied screw diameter is M1.6 to M40, allowing it to be used for a wide range of applications.

Property Table

Product name					2358	
Characteristics			Unit			
Main component					Fluoropolymer	
Features					For sealing	
Appearance					White	
Applied screw diameter					-	
Sealability	Air tight ^{*1}	25°C	M10 bolt	MPa	2 or higher	
			1/8 PT plug	MPa	2 or higher	
			3/4 PT plug	MPa	2 or higher	
	Water tight ^{*1}	25°C	M10 bolt	MPa	2 or higher	
			1/8 PT plug	MPa	2 or higher	
			3/4 PT plug	MPa	2 or higher	
		80°C	M10 bolt	MPa	12 or higher	
			1/8 PT plug	MPa	12 or higher	
			3/4 PT plug	MPa	12 or higher	
	Oil tight ^{*2}	150°C	M10 bolt	MPa	12 or higher	
			1/8 PT plug	MPa	12 or higher	
			3/4 PT plug	MPa	12 or higher	
	170°C	M10 bolt	MPa	12 or higher		
		1/8 PT plug	MPa	12 or higher		
		3/4 PT plug	MPa	12 or higher		
Operating temperature range (Est.)			°C	Seal 170		
Remark(s)					Sealock processing	

*1: Iron seal block / Tightening torque M10 bolt: 30N·m, 1/8 plug: 4N·m, 3/4 plug: 44N·m, Maximum applied pressure 2MPa

*2: Iron seal block / Tightening torque M10 bolt: 30N·m, 1/8 plug: 4N·m, 3/4 plug: 44N·m, Maximum applied pressure 12MPa

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Product name				2365B		2365C		
Characteristics			Unit					
Main component					Nylon resin		Nylon resin	
Features					Repeated usage		Repeated usage	
Appearance					Green		Red	
Applied screw diameter					M1.6 to 40		M1.6 to 40	
Repetitive torque	M1.6×P0.35 (0.05N·m tightening)	Screw torque		N·m	0.017	0.017		
		Loosening torque		N·m	0.012	0.012		
		Loosening torque		N·m	0.007	0.007		
	M4×P0.7 (2N·m tightening)	Screw torque		N·m	0.47	0.47		
		Loosening torque		N·m	0.40	0.40		
		Loosening torque		N·m	0.22	0.22		
	M10×P1.5 (30N·m tightening)	Screw torque		N·m	8.1	8.1		
		Loosening torque		N·m	6.5	6.5		
		Loosening torque		N·m	4.3	4.3		
Torque by temperature	Screw torque			N·m	4.7 to 6.5	4.7 to 6.5		
	25°C	Unwinding torque		N·m	24.0	24.0		
		Loosening torque		N·m	4.9	4.9		
	80°C	Unwinding torque		N·m	21.5	21.5		
		Loosening torque		N·m	3.5	3.5		
	100°C	Unwinding torque		N·m	23.6	23.6		
		Loosening torque		N·m	2.8	2.8		
	120°C	Unwinding torque		N·m	20.8	20.8		
		Loosening torque		N·m	2.1	2.1		
	150°C	Unwinding torque		N·m	20.1	20.1		
		Loosening torque		N·m	1.7	1.7		
	Operating temperature range (Est.)			°C	-50 to 120	-50 to 120		
Remark(s)					Threelock Processing		Threelock Processing	

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Pre-Coating of Bolts and Nuts to Prevent Screws from Loosening and Leaking

This is the process for coating the sealant and locking agent to the thread portion of screws, bolts, and pipes, etc. to add sealing and locking functions to screws themselves.

Pre-coated screws maintain stability, and have sealing or locking functions when tightened.

Pre-coating of bolts includes bolts pre-coated by MEC Processing where a microencapsulated reactive adhesive is applied, Threelock Processing where nylon is fused, and Sealock Processing where a sealing function is added.

■ Bolts pre-coated by MEC process

A microencapsulated reactive adhesive is used for the coating process.

The microcapsules are broken up when the processed screws are tightened, and the packaged adhesive quickly cures by polymerization.

After 24 to 48 hours, it reaches final strength, and it forms a tough cured material with excellent oil resistance, chemical resistance, heat resistance, and weather resistance.

It has good heat resistance. The lock function works up to approximately 100°C (approximately 150°C for the heat-resistant type), and the sealing function works up to approximately 170°C.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

2418

Bolts pre-coated by MEC process / Acrylic medium-strength heat-resistant type

It is good for bonding and sealing screws that may need to be removed.

It has good heat resistance. The lock function works up to approximately 150°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M3.
The standard curing conditions are 25°C×24h.

2448
2448B**Bolts pre-coated by MEC process / High-strength epoxy type**

This is good for permanent adhesion and sealing of screws that do not need to be removed.

It has good heat resistance. The lock function works for 2448 up to approximately 150°C and for 2448B up to approximately 160°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M2.
The standard curing conditions are 25°C×24 h.

2458

Bolts pre-coated by MEC process / Acrylic low-strength type

It is good for bonding and sealing screws that will be removed.

The lock function works up to approximately 100°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M3.
The standard curing conditions are 25°C×24h.

2458B

Bolts pre-coated by MEC process / Acrylic low-strength less-scum type

It is good for bonding and sealing screws that will be removed.

The lock function works up to approximately 100°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M3.
The standard curing conditions are 25°C×24h.

2468

Bolts pre-coated by MEC process / Acrylic medium-strength type

It is good for bonding and sealing screws that may need to be removed.

The lock function works up to approximately 100°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M3.
The standard curing conditions are 25°C×24h.

2478

Bolts pre-coated by MEC process / Acrylic high-strength less-scum type

This is good for permanent adhesion and sealing of screws that do not need to be removed.

It has good heat resistance. The lock function works up to approximately 130°C, and the sealing function works up to approximately 170°C.

The minimum applied screw diameter is M3.
The standard curing conditions are 25°C×24h.

2488

Nuts pre-coated by MEC process / Acrylic type

It is good for bonding nuts that may need to be removed.

It has good heat resistance. The lock function works up to approximately 130°C.

The minimum applied nut diameter is M3.
The standard curing conditions are 25°C×24 h.

2400 Series



Bolts and Nuts Pre-Coated by MEC process

Property Table

Product name		2418	2446	2446B	2448	2448B	2457	2458	2458B	
Characteristics	Unit									
Main component		Acrylic resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Acrylic resin	Acrylic resin	Acrylic resin	
Strength		Medium strength	High strength	High strength	High strength	High strength	Low strength	Low strength	Low strength	
Standard curing conditions		25°C×24h	25°C×48h	25°C×48h	25°C×24h	25°C×24h	25°C×24h	25°C×24h	25°C×24h	
Appearance		Yellow	Blue	Orange	Blue	Orange	Green	Green	Green	
Applied screw diameter		M3 or larger	M2 to 40	M2 to 40	M2 to 40	M2 to 40	M4 to 40	M3 or larger	M3 or larger	
Fixing strength to each material ¹⁾	Iron	N·m	49.8	53.7	53.7	62.6	64.6	40.2	38.2	39.2
	Zinc-chromate plating	N·m	49.1	56.1	56.1	67.0	70.7	35.9	37.4	39.3
	Chromium plating	N·m	50.3	52.3	52.3	67.8	62.1	37.9	32.9	40.3
	Nickel plating	N·m	50.4	54.9	54.9	73.9	65.1	38.8	37.3	40.7
	Unichromate plating	N·m	50.2	47.6	47.6	72.0	66.5	37.3	36.3	39.4
	Black oxide	N·m	46.1	53.3	53.3	62.4	64.1	39.8	33.5	39.6
	SUS304	N·m	47.8	49.0	49.0	64.6	66.8	35.1	31.9	38.5
	Brass	N·m	26.2	-	-	38.3	37.8	29.0	27.0	28.4
	Aluminum	N·m	26.8	26.9	26.9	36.4	40.9	21.4	20.6	20.9
Hot strength ²⁾	25°C	N·m	49.1	58.0	58.0	70.3	70.7	35.3	37.4	39.3
	60°C	N·m	45.6	39.2	39.2	52.2	54.4	35.1	32.6	38.0
	80°C	N·m	42.9	-	-	50.3	52.0	34.1	32.0	31.9
	100°C	N·m	40.5	37.2	37.2	46.8	47.6	32.4	30.8	31.5
	120°C	N·m	-	33.7	33.7	-	-	29.4	26.0	-
	130°C	N·m	38.3	-	-	37.0	42.0	-	-	26.1
	150°C	N·m	33.2	29.5	29.5	31.6	38.0	21.2	20.4	25.9
	180°C	N·m	26.2	24.7	24.7	21.4	21.0	16.5	19.5	21.3
Sealability ³⁾	25°C	MPa	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher
	150°C	MPa	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher	10 or higher
	170°C	MPa	10 or higher	-	-	10 or higher	10 or higher	-	10 or higher	10 or higher
Operating temperature range (Est.)	°C	Locking 150°C Sealing 170°C	Locking 150°C Sealing 150°C	Locking 150°C Sealing 150°C	Locking 150°C Sealing 170°C	Locking 160°C Sealing 170°C	Locking 120°C Sealing 150°C	Locking 100°C Sealing 170°C	Locking 100°C Sealing 170°C	
Remark(s)		Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	

*1: M10×P1.5 bolt/nut, Tightening torque 30N·m (15N·m for brass and aluminum)

*2: M10×P1.5 zinc-chromate plated bolt/nut, Tightening torque 30N·m

*3: Iron seal block/Hydraulic pressure, M10×P1.5 bolt, Tightening torque 30N·m, Maximum pressure 10MPa

*4: 2488 is a grade for nuts, processing is done to nuts for testing, and measurement is done using a protrusion rate of 50% to bolts

	2468	2475	2478	2488**
	Acrylic resin	Acrylic resin	Acrylic resin	Acrylic resin
	Medium strength	High strength	High strength	Medium strength
	25°Cx24h	25°Cx24h	25°Cx24h	25°Cx24h
	Red	Blue	Blue	Blue
	M3 or larger	M2 to 40	M3 or larger	M3 or larger
	45.4	56.1	52.5	43.1
	44.9	46.1	52.3	44.9
	43.4	46.1	49.8	42.5
	42.2	44.5	52.8	40.8
	45.8	44.9	48.4	41.5
	43.8	42.1	42.5	40.8
	42.6	42.1	45.5	41.1
	28.8	-	29.6	36.5
	24.8	24.9	22.3	22.4
	44.9	46.1	52.3	44.9
	36.4	43.1	44.3	37.5
	33.5	38.9	38.9	36.4
	30.1	41.4	37.5	34.7
	26.9	39.4	34.1	33.4
	-	-	31.0	31.4
	22.9	32.1	30.1	27.4
	18.4	25.9	21.1	21.1
	10 or higher	10 or higher	10 or higher	-
	10 or higher	10 or higher	10 or higher	-
	10 or higher	-	10 or higher	-
	Locking 100°C Sealing 170°C	Locking 150°C Sealing 150°C	Locking 130°C Sealing 170°C	Locking 130°C
	Aqueous type	Aqueous type	Aqueous type	Aqueous type * For nuts

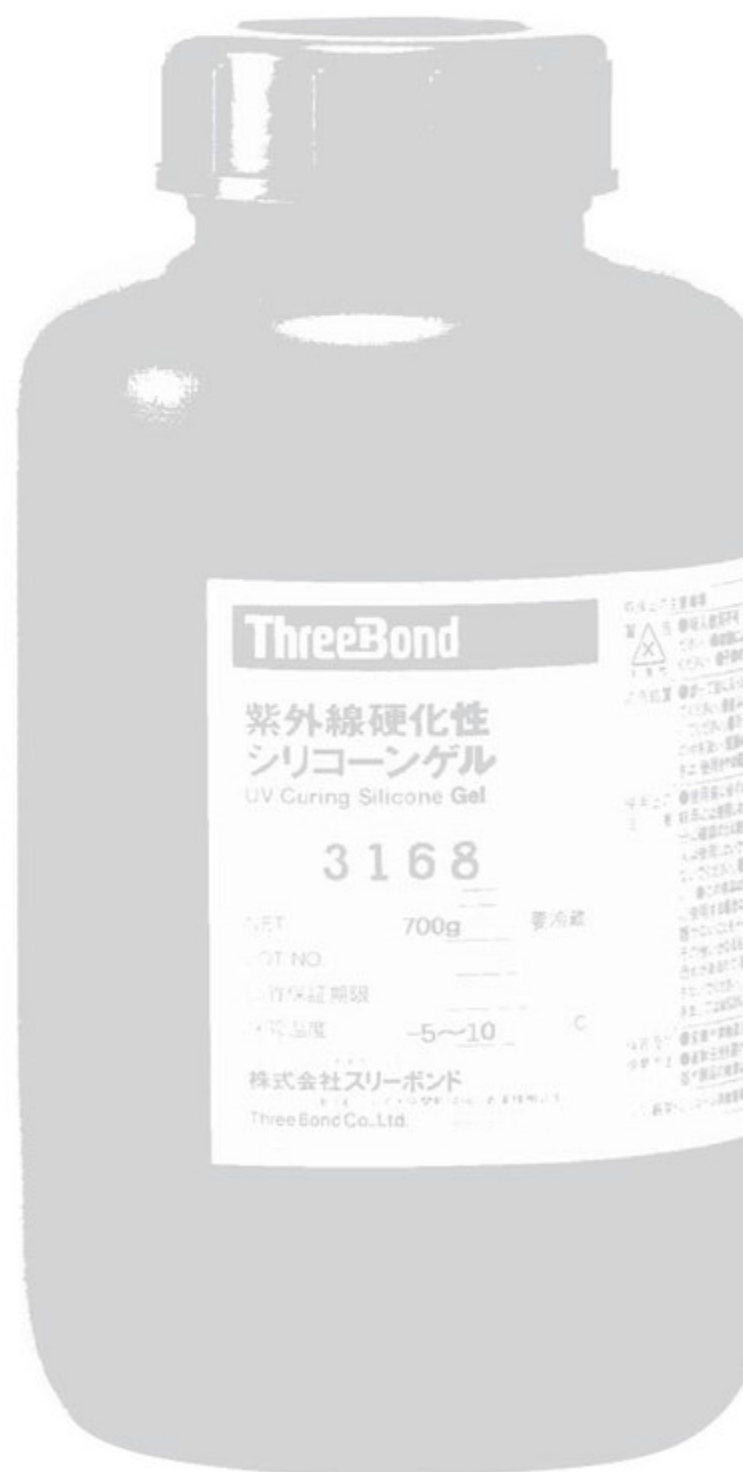
* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

ThreeBond 3000/3100 Series

UV Curing Resin



3000/3100 Series

UV Curing Resin

These are single-component solventless type adhesives with curing in several seconds by UV light irradiation.

They have excellent adhesion to various materials such as metals, plastics, and glass, and are used for many purposes including bonding, sealing, casting, and coating of electric and electronic devices, automobile parts, optical parts, and accessories, etc.

There are many variations available including acrylate-based, epoxy-based, and silicone-based products, and there are grades with different curability including visible-light-curing, anaerobic curing, heat-curing, moisture-curing, and primer curing in addition to curing under UV light. Therefore, it is possible to cure portions that do not receive UV light and to bond materials that do not transmit UV light. There are many grades available according to physical properties including a type that forms a tough cured material with high hardness and a type that forms a flexible cured material with rubber elasticity.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

3013

This is soft with excellent impact strength. It is used for bonding optical pick-up lenses and optical parts. There are variations available according to viscosity, curing characteristics, adhesion characteristics, etc.

3013Q

This uses acrylic rubber polymer as the main component and forms a rubber-like elastic body with excellent heat and chemical resistance. It maintains rubber elasticity in a wide temperature range, and continuous usage is possible at approximately 120°C. It has excellent chemical resistance for engine oil and AT oil, so it is used for electrical device adhesion, sealing, etc.

3017

This is soft with high peel-strength adhesiveness. It has excellent adhesion with difficult-to-bond materials such as PET and PPS, PEN (polyethylene naphthalate), and olefin-based materials. It forms a cured material with a low water absorption rate and low moisture permeability. There are grades with different viscosities.

3017D

3017E

3017F

This forms a soft cured material with excellent surface curability. It has good adhesion with difficult-to-bond materials such as olefin-based materials, and is used for bonding optical parts. It also has LED curing capability. This is a low-halogen product. There are grades with different viscosities.

3020B

This is colored and formed into a black hardened material by ultraviolet radiation. It is used for exterior coating of electric/electronic parts, and coating or adhesion of parts that require sealing.

3026
Series

This is an exclusive product for sealing of liquid crystal filling ports of LCD panels that has excellent adhesion to glass. There are variations available according to viscosity, curing characteristics, adhesion characteristics, etc.

3027G 3027H

This is an electrode-protection molding grade product with low water absorption. It is used as a protective agent for ITO electrodes of LCD panels. The balance of the cured material strength and adhesion strength was adjusted, and repair is also possible. 3027H can be used in low halogen products.

3030 3031 3033F 3034

This has flexibility and has excellent adhesion with plastic materials. It is used for electric and electronic devices and optical parts. There are variations available according to viscosity, curing characteristics, adhesion characteristics, etc.

3035B

This is a sealant for dye-sensitized solar cells with low moisture permeability and resistance to liquid electrolytes. It can be used for main sealing and end sealing.

3036G

This forms a cured material with small cure shrinkage and a low linear expansion coefficient. It is used for fixing optical parts requiring accurate positioning such as optical pick-up parts. There are variations available according to viscosity, curing characteristics, adhesion characteristics, etc. It also has LED curing capability.

3042 Series

This has excellent adhesion with glass and metal. It forms a transparent cured material with excellent surface curability. There are products with different viscosities and colors available.

3046

This forms a water soluble cured material with strong adhesion to glass. It is possible to peel using water after bonding, so it is used for temporary fixing during the cutting process for products that use glass and quartz. There are grades with different viscosities.

3050C

This has excellent adhesion with glass and metal. It is used for fixing of pin lead with LCDs. There are variations available including a high glass transition temperature-adopted type and heat cycle resistance-improved type.

3055

This is a type with primer curing property that can be cured in shaded areas, etc. during UV light irradiation by using the primer. It has excellent adhesion strength and durability. It is used for bonding motor magnets and fixing of pin lead with LCDs. There are products with different colors available.

3056F

It is a moisture-curing type that can be cured by moisture in the air, etc., and in shaded area, etc. during UV light irradiation. It has excellent adhesion with glass, metals, and plastics. It is used for bonding, sealing, and coating of electric and electronic parts.

3057

This is a type with heat-curing property that can be cured in shaded areas, etc., during UV light irradiation. It has excellent adhesion with metal. There are grades with different viscosities, and the low-viscosity grade is used as a coating agent for preventing burrs of a stepping motor when grinding.

3000/3100 Series

3062
3064E
3065E
3067

This is a type with anaerobic curing property that can be quickly cured in the small gap of metal surfaces which is shaded during UV light irradiation.

It has excellent adhesion with glass, metal and plastic, and it is used for bonding motor magnets and electrical parts.

There are many variations available according to viscosity, curing characteristics, and adhesion characteristics, etc.

3074C

This has a great transparency, and forms hardened material with minimal yellowing by heating.

It is suitable to adhesion of optical parts and transparent materials, and protective coating of control boards.

It is of a low halogen grade.

3075

This forms a soft, transparent cured material with excellent surface curability.

It has excellent crack resistance and is used as a soft coat material for nameplates and accessories.

3081J
3081L

This forms a rubber-like elastic body, and is used as a precure type CIPG (on-site formed gasket).

It has rubber elasticity over a wide temperature range, and has excellent sealability due to its small compression set.

It also has excellent shape retention during application, and is used for electrical parts.

3084
3084E

This is an exclusive product for correcting the balance of rotating bodies such as motors and polygon mirrors (balancing resins).

It forms a cured material with high specific gravity that has shape retention during application.

3088
3088B

This is a two-component type product. In addition to UV light irradiation, it can also be quickly cured by two-component mixture reaction, so there is no need to worry about it being uncured in shaded areas or about thickness restrictions.

It can be used for potting sensors and for coating, etc., in shaded areas.

There is a soft type and a hard type available.

3094
3094B
3094C

These have great adhesiveness on plastic materials such as polycarbonates, and are used for medical instruments, such as adhesion of a syringe and hub.

They are suited to LED hardening.

3094 is a ISO10993 (biological safety evaluation) compliant product.

3094B is a blue low viscosity type, and 3094C is a blue high viscosity type.

3114

This is a UV curing resin that uses epoxy resin as the main component.

It has small cure shrinkage, and is used for fixing optical parts that require accurate positioning such as optical pick-up parts and CMOS.

There are grades with different characteristics including a low halogen grade.

3118

This is a sealant for dye-sensitized solar cells with low moisture permeability and excellent resistance to liquid electrolytes. It can be used for main sealing.

3121D
3121E

This has low hardening shrinkage, and forms a soft hardened material.

It has adhesive strength for a wide variety of materials such as glasses, metals, plastics, etc., and is used to adhere and fix optical parts such as camera lens parts.

3161
3163
3164D

This is a UV curing resin that uses silicone resin as the main component.

It cures by UV light irradiation and humidity, forming a rubber-like elastic body.

It has excellent heat resistance, freeze resistance, and heat cycle resistance, and also has excellent adhesion to engineering plastics. With its low content of low-molecular siloxane, the product is free from contact failures.

3168
3168E

This is a UV curing resin that uses silicone resin as the main component.

It becomes a soft gel cured material with excellent adhesion and has excellent vibration absorption.

It is used as a damping agent for optical pick-up parts.

Customized products are available.

3170B

This is a visible-light-curing resin. It can be cured by visible light in addition to UV light, so bonding is possible even with UV-cutting transparent materials.

It has excellent adhesion with glass, metals, and plastics.

It is used for electric and electronic devices and optical parts.

There are grades with different characteristics including a low halogen grade.

3177

This is a UV curing resin and instant adhesive hybrid type product.

It cures by visible light, and has excellent adhesion for a wide range of materials including metals, plastics, and rubber.

It has excellent moisture resistance and heat resistance, so it can be used outdoors.

3000/3100 Series



UV Curing Resin

Property Table

Product name		3003J	3006D	3006F	3013	3013B	3013D	3013M	3013Q
Characteristics	Unit								
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acryl rubber
Additional curability		-	Heating	-	-	-	-	-	-
Features		Low viscosity Flexibility	Rubber elasticity Heat resistance	Rubber elasticity Heat resistance Oil resistance	Soft Impact strength	Soft Impact strength	Soft Impact strength	Soft Impact strength	Rubber elasticity Heat resistance Oil resistance
Main usages		Sealing/ potting of terminals and screws	Wire harness connector Automotive electronics Electrical parts	Wire harness connection, electrical components, potting of electrical and electronic parts	Optical pick- up lens Optical part	Optical pick- up lens Optical part	Optical pick- up lens Optical part	Optical pick- up lens Optical part	Automotive electronics Electrical part potting
Appearance		Light yellow	Blue	Blue	Light yellow	Pale greenish brown	Pale green	Blue	Blue
Viscosity	Pa·s	1.3	2.0	2.3	6.0	1.0	-	8.5	23.0
	mPa·s	-	-	-	-	-	680	-	-
Specific gravity		1.11	1.07	1.07	1.00	1.02	1.03	1.01	1.11
Curing conditions (Cumulative light intensity)	kJ/m ²	30	30	30	30	30	30	30	45
Physical characteristics after curing	Hardness	A93	A50	A67	A90 to 95	A90	A90	-	A32
		-	-	-	D20	-	-	D42	-
Volume resistivity	Ω·m	1.2×10 ¹⁵	2.6×10 ⁸	2.2×10 ⁹	2.1×10 ¹¹	2.0×10 ¹¹	2.0×10 ¹¹	-	9.4×10 ⁹
Dielectric breakdown strength	kV/mm	26	30	27	-	-	-	-	21
Tensile shear bond strength	Glass/Glass	MPa	6.5	5.3	5.0	-	-	-	-
	Glass/Acrylic	MPa	6.8	3.1	4.5	-	-	-	-
	Glass/Polycarbonate	MPa	7.0	4.0	3.6	-	-	-	-
	Glass/Glass epoxy	MPa	6.8	5.2	4.4	-	-	-	-
	Glass/ABS	MPa	7.0	-	-	-	-	-	-
	Glass/LCP	MPa	4.1	-	-	-	-	4.9	-
	Glass/Iron	MPa	6.7	5.3	3.9	(Material failure)	(Material failure)	-	4.1
	Glass/Aluminum	MPa	6.7	6.1	3.1	-	-	-	2.8
	Glass/Stainless steel	MPa	7.7	5.2	4.0	-	-	-	5.1
	Polycarbonate/ Polycarbonate	MPa	6.2	-	-	-	-	-	-
Remark(s)									Excellent engine oil and AT oil resistance Continuous use at approx. 120°C

	3013Z	3014	3014C	3015F	3016	3016H	3017	3017B	3017D	3017E	3017F
	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
	Heating	-	-	-	-	-	-	-	-	-	-
	Soft Heat resistance Oil resistance	Soft Impact strength	Soft Impact strength Moisture resistance	Low cure shrinkage Low linear expansion coefficient	Rubber-like cured material Thick film curing	Rubber-like cured material Thick film curing	Low moisture permeability Peel strength	Low moisture permeability Peel strength	Compatible with LED light sources Adhesion strength with difficult-to-bond materials Low halogen content	Adhesion strength with difficult-to-bond materials Low halogen content	Adhesion strength with difficult-to-bond materials Low halogen content
	Adhesion/sealing of wire harness, connectors, and electrical components	Optical pick-up lens Optical part	Optical pick-up lens Optical part	Optical pick-up PD/LD Optical part	Electrical part potting Soft material adhesion	Electrical part potting	Difficult-to-bond materials such as PET, PEN, and PPS	Difficult-to-bond materials such as PET, PEN, and PPS	Olefin-based difficult-to-bond materials Optical part	Olefin-based difficult-to-bond materials Optical part	Olefin-based difficult-to-bond materials Optical part
	Yellow	Light yellow	Milky white	White	Light blue	Light blue	Yellow	Milky white	White	White	White
	2.0	17.0	10.0	14.1	20.0	20.0	46.0	16.0	13.0	25.0	7.5
	-	-	-	-	-	-	-	-	-	-	-
	1.2	0.99	1.06	1.57	1.18	1.17	0.87	1.05	0.93	0.93	0.93
	30	30	20	30	30	30	60	30	30	30	30
	A60	A80 to 85	A50	-	A25	A37	A20	A40	A41	A35	A58
	-	-	-	D86	-	-	-	-	-	-	-
	2.7×10^{11}	8.5×10^{10}	3.9×10^{12}	-	3.8×10^{12}	5.8×10^{15}	-	1.0×10^{13}	-	-	-
	23	-	12.4	-	-	-	-	22.1	-	-	-
	5.5	-	-	-	-	4.8	-	-	-	-	-
	5.1	-	-	-	-	4.2	-	-	-	-	-
	3.9	-	-	-	-	3.3	-	-	-	-	-
	4.9	-	-	-	-	2.8	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	2.1	-	-	-	-	-
	6.3	(Material failure)	-	-	-	2.1	-	-	-	-	-
	5.4	-	-	-	3.4	2.3	-	-	-	-	-
	3.4	-	-	-	5.5	2.1	-	-	-	-	-
	-	-	2.0	-	-	-	-	-	-	-	-
	Emits light with black light				Blue after curing	Blue after curing	PET/ Aluminum Peel strength : 1.1kN-m	PET/ Aluminum Peel strength : 1.2kN-m	ZEONEX */ LCP adhesion : 1.0MPa	ZEONEX */ LCP adhesion : 1.0MPa	ZEONEX */ LCP adhesion : 2.0MPa

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3018	3020B	3021J	3026B	3026E	3026G	3026J	3027G	
Characteristics	Unit									
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	
Additional curability		-	-	-	-	-	-	-	-	
Features		Soft Thick film curing	Blackening by UV radiation	Excellent surface curability Excellent transparency	Exclusive product for liquid crystal panel end sealing	Exclusive product for liquid crystal panel end sealing	Exclusive product for liquid crystal panel end sealing	Exclusive product for liquid crystal panel end sealing	Low water absorption rate Good repairability	
Main usages		Electrical part potting Soft material adhesion	Coating for exteriors such as for electrical and electronic parts	Bonding Coating	Liquid crystal panel end sealing	Liquid crystal panel end sealing	Liquid crystal panel end sealing	Liquid crystal panel end sealing	Display panel ITO electrode molding	
Appearance		Colorless	Light yellow	Light yellow	Milky white	Colorless	Light yellow	Faint brown	Light yellow to Pale white	
Viscosity	Pa-s	8.0	3.5	-	10.0	19.0	14.0	20.6	2.0	
	mPa-s	-	-	135	-	-	-	-	-	
Specific gravity		1.12	1.05	1.06	1.23	1.17	1.17	1.17	1.01	
Curing conditions (Cumulative light intensity)	kJ/m ²	45	30	30	10	20	30	30	30	
Physical characteristics after curing	Hardness	A62	-	-	-	-	-	-	A80	
		-	D54	D70	D85	D85	D80	D81	-	
	Volume resistivity	Ω-m	2.8×10 ¹¹	3.0×10 ⁷	-	8×10 ¹⁰	1.1×10 ¹²	-	-	1.0×10 ¹¹
Dielectric breakdown strength	kV/mm	-	14.0	-	20.1	-	-	-	18.4	
Tensile shear bond strength	Glass/Glass	MPa	3.3	8.0	6.9	6.9	(Material failure)	7.0	6.3	5.0
	Glass/Acrylic	MPa	-	7.6	-	-	-	-	-	-
	Glass/Polycarbonate	MPa	-	7.1	-	-	-	-	-	-
	Glass/Glass epoxy	MPa	(Material failure)	7.8	-	-	-	-	-	-
	Glass/ABS	MPa	2.4	6.8	-	-	-	-	-	-
	Glass/LCP	MPa	-	4.7	-	-	-	-	-	-
	Glass/Iron	MPa	-	9.4	-	-	-	-	-	-
	Glass/Aluminum	MPa	-	3.4	-	-	-	-	-	-
	Glass/Stainless steel	MPa	-	9.0	6.9	-	-	-	-	-
	Polycarbonate/Polycarbonate	MPa	4.2	3.7	5.9	-	-	-	-	-
	Remark(s)		Cures to 10mm or more at 30kJ/m ²	Supports LED light sources, Colored black after hardening						Boiling water absorption rate : 0.2%

	3027H	3027J	3030	3030B	3031	3031J	3033	3033B	3033F	3033G	3034
	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
	-	-	-	-	-	-	-	-	-	-	-
	Low water absorption rate, flexible, good visibility	Low halogen Light blocking type	Flexibility Heat cycle resistance Strong adhesiveness	Low viscosity Flexibility	Flexibility Strong adhesiveness	Curing in low light intensity	Strong adhesiveness Thick film curing Thixolabile	Flexibility Heat cycle resistance Strong adhesiveness	Flexibility Strong adhesiveness	Thixolabile Flexibility Strong adhesiveness	Excellent moisture resistance Strong adhesiveness Screen printing
	Display panel ITO electrode molding Low halogen	Liquid crystal panel, light blocking/adhesion of end faces	Plastic bonding Optical part	Lens bonding Glass bonding	Plastic bonding Optical part	Electronic device potting	Thick coating, moisture-proof coating of printed-circuit board	Engineering plastics bonding Optical part	Electronic device potting / Bonding	Adhesion/fixing of electrical and electronic parts	Engineering plastics bonding
	Red	Black	Milky white	Light yellow	Light brown	Light yellow	Blue	Milky white	Blue	Yellow white	Milky white
	1.6	2.4	16.5	2.6	5.0	5.0	40.0	35.0	40.0	20.0	20.0
	-	-	-	-	-	-	-	-	-	-	-
	1.02	1.04	1.16	1.10	1.05	1.14	1.13	1.09	1.14	1.14	1.11
	30	30	30	30	30	10	30	30	30	30	30
	-	-	A95	-	-	-	-	-	-	-	A95
	D50	-	D63	D52	D70	D95	D95	-	D70	D65	D68
	1.2×10 ¹¹	2.2×10 ¹⁴	2.0×10 ¹⁴	-	8.1×10 ¹¹	-	3.0×10 ¹³	-	1.0×10 ¹³	5.8×10 ¹⁰	2.0×10 ¹²
	29	-	-	-	-	-	-	-	-	28.0	19.4
	5.2	7.1 (8.8)*	(Material failure)	7.5	-	-	-	(Material failure)	8.3	8.3	-
	6.8	6.6 (7.3)*	-	-	-	-	-	-	8.2	5.5	-
	4.9	7.8 (7.4)*	-	-	-	-	-	-	7.6	3.5	-
	6.6	8.1 (8.3)*	(Material failure)	-	-	-	-	-	8.5	5.4	-
	4.2	6.5 (6.9)*	(Material failure)	-	-	-	-	-	7.6	3.8	(Material failure)
	4.4	4.5 (4.8)*	-	-	-	-	-	-	3.8	3.3	-
	5.5	8.1 (8.6)*	-	-	-	-	-	-	9.6	7.2	-
	2.5	8.8 (8.8)*	-	-	-	-	-	-	8.9	7.6	-
	5.6	4.0 (5.5)*	-	-	-	-	-	-	8.5	-	-
	7.2	2.8 (2.6)*	4.0	-	-	-	-	6.4	5.4	9.2	(Material failure)
	Boiling water absorption rate: 0.2%	(UV-LED) * Material failure								Supports LED light sources	

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3034C	3035B	3036	3036E	3036G	3038	3038B	3042	
Characteristics	Unit									
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	
Additional curability		-	-	-	-	-	-	-	Heating	
Features		Flexibility Strong adhesiveness Thick film curing	Sealant for dye-sensitized solar cells	Low cure shrinkage Low linear expansion coefficient	Low cure shrinkage Low linear expansion coefficient	Compatible with LED light sources Low cure shrinkage	Compatible with LED light sources Strong adhesiveness	Compatible with LED light sources Low cure shrinkage	Transparency Low viscosity High hardness	
Main usages		Sealing of terminals	Main sealing / end sealing of dye-sensitized solar cells	Optical pick-up lens Optical part	Optical pick-up lens Optical part	Various light source parts	Optical pick-up Optical part	Optical part	Coating agent preventing burrs of stepping motors when grinding Glass/metal bonding	
Appearance		Blue	White	Grayish white	Light orange	White	White	Blue	Colorless	
Viscosity	Pa-s	27.0	51.0	35.0	10.5	29.0	13.0	12.5	-	
	mPa-s	-	-	-	-	-	-	-	20	
Specific gravity		1.13	1.30	1.53	1.54	1.53	1.17	1.56	1.07	
Curing conditions (Cumulative light intensity)	kJ/m ²	30	30	30	30	60 (LED)	70 (LED)	3000	15	
Physical characteristics after curing	Hardness	-	-	-	-	-	-	D75	-	
		D69	D48	D77	D58	D40	D70	-	D82	
	Volume resistivity	Ω-m	3.2×10 ¹³	1.5×10 ¹⁴	-	-	-	5.0×10 ¹⁰	5.0×10 ¹⁰	2.3×10 ¹³
Dielectric breakdown strength	kV/mm	-	23	-	-	-	30	30	-	
Tensile shear bond strength	Glass/Glass	MPa	7.8	(Material failure)	-	-	-	(Material failure)	(Material failure)	
	Glass/Acrylic	MPa	-	2.36	-	-	-	(Material failure)	(Material failure)	-
	Glass/Polycarbonate	MPa	-	2.3	-	-	-	2.6	(Material failure)	-
	Glass/Glass epoxy	MPa	-	4.6	-	-	-	(Material failure)	(Material failure)	(Material failure)
	Glass/ABS	MPa	-	3.6	-	-	-	-	(Material failure)	2.1
	Glass/LCP	MPa	-	3.6	5.1	-	-	3.7	3.8	-
	Glass/Iron	MPa	(Material failure)	5.4	-	-	4.5	4.3	(Material failure)	-
	Glass/Aluminum	MPa	-	6.8	10	-	3.8	6.1	5.2	-
	Glass/Stainless steel	MPa	(Material failure)	-	9.4	-	(Material failure)	(Material failure)	(Material failure)	-
	Polycarbonate/Polycarbonate	MPa	-	1.3	10	-	-	-	2.1	3.7
Remark(s)						PPS/Glass Material failure ZnDc/Glass Material failure				

	3042B	3042C	3042D	3042G	3043B	3046	3046B	3050B	3050C	3051	3051E
	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
	-	-	-	-	-	-	-	-	-	-	-
	Transparency Low viscosity High hardness	Transparency Low viscosity High hardness	High hardness Moisture resistance Heat cycle resistance	Good adhesion on glass and metals	Flexibility Nylon adhesion	Water soluble Glass adhesion	Water soluble Glass adhesion	Excellent low-temperature properties	Heat resistance	Glass adhesion	Metal adhesion
	Injection needle adhesion accessory coating Glass/metal bonding	Injection needle adhesion accessory coating Glass/metal bonding	Lens Optical part	Fixing prisms and lenses	Nylon fiber binding Strings for tennis	Temporary fixing of glass or quartz products while being cut	Temporary fixing of glass or quartz products while being cut	Liquid crystal panel pin lead fixing	Liquid crystal panel pin lead fixing	Liquid crystal panel glass fixing end-sealing	Battery insulating sealant
	Colorless	Colorless	Milky white	Green	Light yellow	Light yellow	Light yellow	Transparent green	Light yellow	Light brown	Light transparent yellow
	-	1.5	15.0	8.0	1.6	-	10.0	4.5	9.0	5.0	1.5
	500	-	-	-	-	5.0	-	-	-	-	-
	1.10	1.11	1.13	1.1	1.05	1.00	1.10	1.04	1.04	1.16	1.06
	15	30	30	30	15	18	18	20	15	30	15
	-	-	-	-	-	-	-	-	-	-	-
	D83	D83	D84	D80	D60	D80	D80	D65	D58	D85	D70
	8.1×10^{13}	5.5×10^{13}	-	-	-	-	-	4.16×10^{11}	1.05×10^{10}	3.5×10^{12}	-
	-	-	-	-	-	-	-	18.0	15.7	-	-
	(Material failure)	8.2	7.5	7.8	-	(Material failure)	5.0	-	-	(Material failure)	-
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	(Material failure)	-	-	-	-	2.8	-	-	-	(Material failure)	-
	(Material failure)	-	-	-	-	(Material failure)	-	-	-	(Material failure)	-
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	7.8	8.0	-	5.0	-	-	-	-
	-	-	-	-	6.0	-	-	-	-	-	-
	-	-	-	7.8	8.0	-	-	(Material failure)	(Material failure)	-	7.8
	4.1	-	-	2.1	4.0	4.8	-	-	-	1.8	-
		High viscosity of 3042	3042 with thixotropy				High viscosity grade of 3046				

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3051G	3052	3052B	3052C	3052D	3055	3055B	3055D	
Characteristics	Unit									
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	
Additional curability		-	-	-	-	-	Primer	Primer	-	
Features		Flexibility	Glass adhesion	Glass adhesion	Glass, metal adhesion	Weather resistance Heat cycle resistance	Adhesion Moisture resistance Impact strength	Adhesion Moisture resistance Impact strength	Good adhesion to various materials, color tone change by UV radiation	
Main usages		Bonding Temporary fixing Potting	Liquid crystal panel glass fixing end-sealing	Liquid crystal panel glass fixing end-sealing	Glass/Iron Polycarbonate Acrylic bonding	Glass/Iron Polycarbonate Acrylic bonding	Motor magnets Liquid crystal panel pin lead fixing	Motor magnets Liquid crystal panel pin lead fixing	Adhesion/fixing of electrical and electronic parts	
Appearance		Light transparent yellow	Light brown	Light yellow	Light yellow	Light yellow	Light yellow	Green	Pink	
Viscosity	Pa-s	6.5	11.0	9.0	8.0	43.0	15.0	15.0	13.0	
	mPa-s	-	-	-	-	-	-	-	-	
Specific gravity		1.08	1.17	1.17	1.05	1.04	1.06	1.06	1.06	
Curing conditions (Cumulative light intensity)	kJ/m ²	30	10	30	35	30	20	20	30	
Physical characteristics after curing	Hardness	-	-	-	-	-	-	-	-	
		D66	D90	D90	D65	D70	D70	D70	D70	
	Volume resistivity	Ω-m	2.1×10 ¹³	3.5×10 ¹²	3.5×10 ¹²	-	-	4.6×10 ¹⁰	4.6×10 ¹⁰	2.0×10 ¹⁴
Dielectric breakdown strength	kV/mm	30	-	-	-	-	14.2	14.2	23	
Tensile shear bond strength	Glass/Glass	MPa	-	(Material failure)	-	(Material failure)	(Material failure)	-	-	7.0
	Glass/Acrylic	MPa	-	-	-	-	-	-	-	8.5
	Glass/Polycarbonate	MPa	-	-	-	-	-	-	-	8.2
	Glass/Glass epoxy	MPa	-	(Material failure)	-	(Material failure)	(Material failure)	-	-	8.7
	Glass/ABS	MPa	-	(Material failure)	-	(Material failure)	(Material failure)	-	-	7.7
	Glass/LCP	MPa	-	-	-	-	-	-	-	4.1
	Glass/Iron	MPa	(Material failure)	-	(Material failure)	-	7.5	(Material failure)	(Material failure)	9.3
	Glass/Aluminum	MPa	-	-	-	-	-	-	-	3.9
	Glass/Stainless steel	MPa	-	-	-	-	-	-	-	-
	Polycarbonate/Polycarbonate	MPa	-	2.2	-	(Material failure)	(Material failure)	-	-	9.5
	Remark(s)		Iron/Acrylic (Material failure)						Green version of 3055	Supports LED light sources

	3056F	3057	3057B	3057J	3059D	3060	3062	3062D	3062F	3062H	3062K
	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
	Humidity	Heating	Heating	Heating	-	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer
	Moisture-curing Flexibility Adhesion	Metal adhesion	Metal adhesion	Hard Adhesion	Low outgassing Thixotropic properties	Anaerobic curing	Flexibility Impact strength	Moisture resistance Impact strength Low viscosity	Flexibility Moisture resistance Impact strength	Flexibility Moisture resistance Impact strength	Flexibility Moisture resistance Impact strength
	Electrical parts sealing / bonding General-purpose adhesion	Electrical parts bonding	Electrical parts bonding	Electrical parts bonding	HDD parts Electrical parts bonding	Metallic joint Electrical parts bonding	Motor magnets Stator coil Adhesion of different materials	Metallic joint Electrical parts bonding	Motor magnets Sheet coil Adhesion of different materials	Motor magnets Piezoelectric element Adhesion of different materials	Metallic joint Adhesion of different materials
	Green	Turbid white	Turbid white	Light yellow	Milky white	Light yellow	Light yellow	Blue	Light yellow	Light yellow	Light yellow
	6.0	35.0	18.0	9.0	80.0	1.2	8.0	-	4.0	2.0	7.0
	-	-	-	-	-	-	-	150	-	-	-
	1.08	1.44	1.42	1.06	1.18	1.12	1.07	1.1	1.08	1.07	1.05
	30	30	30	30	30	30	35	35	35	30	70
	-	-	-	-	-	A90	-	-	-	-	-
	D65	D89	D80	D80	D86	D65	D70	D80	D45	D80	D65
	1.4×10^{11}	7.6×10^{12}	7.8×10^{12}	5.6×10^{12}	-	3.2×10^{11}	4.2×10^{12}	2.6×10^{12}	-	-	-
	27.5	28.4	28.4	31	-	17.2	-	-	-	-	-
	6.4	(Material failure)	-	6.9	8.0	(Material failure)	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	-	(Material failure)	-	-	-	(Material failure)	-	-	-	-	-
	-	0.2	-	-	-	3.5	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
	7.5	-	5.0	-	3.0	-	(Material failure)	18.0	-	(Material failure)	(Material failure)
	6.0	-	-	-	3.0	-	-	-	-	-	-
	7.8	-	-	-	5.0	-	-	-	-	-	-
	7.5	1.7	-	4.1	-	3.8	-	9.7	-	3.3	3.9
									Shear bond strength Iron: 10MPa		

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3062P	3062Q	3062S	3062U	3064E	3065E	3066	3067	
Characteristics	Unit									
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	
Additional curability		Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	
Features		Flexibility Moisture resistance Impact strength	Hard / Tough	Hard / Tough Metal/glass adhesion	Flexibility	Flexibility Surface adhesion	Flexibility Surface adhesion Low outgassing	Hard Chemical resistance	Hard Chemical resistance	
Main usages		Stator coil Resin Magnets Adhesion of different materials	Liquid crystal panel pin lead fixing General-purpose adhesion	Motor magnets Metal/glass bonding	Motor magnets Adhesion of different materials	Adhesion of different materials	Adhesion of different materials	Metallic joint Electrical parts bonding	Metallic joint Electrical parts bonding	
Appearance		Light yellow	Green	Light yellow	Light yellow to Brown	Light yellow to Brown	Light yellow	Light yellow	Light yellow	
Viscosity	Pa-s	15.0	12.0	8.0	1.0	-	7.0	-	-	
	mPa-s	-	-	-	-	700	-	230	600	
Specific gravity		1.07	1.06	1.05	1.07	1.07	1.05	1.13	1.18	
Curing conditions (Cumulative light intensity)	kJ/m ²	35	20	30	30	30	30	30	30	
Physical characteristics after curing	Hardness	-	-	-	-	-	-	-	-	
		D35	D65	D70	D70	D66	D65	D90 to 95	D90	
Physical characteristics after curing	Volume resistivity	Ω-m	-	-	-	2.9×10 ¹¹	5.8×10 ¹⁰	1.3×10 ¹³	7.6×10 ¹²	
	Dielectric breakdown strength	kV/mm	-	-	-	23	24.2	17.7	28.4	
Tensile shear bond strength	Glass/Glass	MPa	-	-	-	9.8	8.3	-	(Material failure)	
	Glass/Acrylic	MPa	-	-	-	-	7.5	-	-	
	Glass/Polycarbonate	MPa	-	-	-	-	8.0	-	-	
	Glass/Glass epoxy	MPa	-	-	-	8.8	7.6	-	(Material failure)	
	Glass/ABS	MPa	-	-	-	-	-	-	(Material failure)	
	Glass/LCP	MPa	-	-	-	-	4.3	-	-	
	Glass/Iron	MPa	4.4	4.4	10.0	12.7	10.4	12.0	-	4.9
	Glass/Aluminum	MPa	-	-	-	-	5.8	-	-	-
	Glass/Stainless steel	MPa	-	-	-	-	9.1	-	-	-
	Polycarbonate/ Polycarbonate	MPa	3.7	8.8	10.0	-	-	-	-	1.6
	Remark(s)		3062C with more viscosity							

	3067B	3067C	3068B	3069F	3074C	3075	3075E	3081J	3081L	3081P	3084
	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	-	-	-	-	-	-	-
	Hard Chemical resistance	Hard Chemical resistance	Flexibility	Hard / Tough Metal/glass adhesion	High transparency, no yellow discoloration over time	Clear/ Transparent Soft / Tough Crack resistance	Clear Flexibility	Rubber elasticity Heat resistance / Freeze resistance	Rubber elasticity Heat resistance / Freeze resistance	Rubber elasticity Heat resistance / Freeze resistance	High specific gravity Shape retention
	Metallic joint Electrical parts bonding	Metallic joint Electrical parts bonding	Metallic joint Electrical property bonding	Motor magnets Metal/glass bonding	Adhesion of optical parts	Soft coating for nameplates/ accessories Electronic device coating	Transparent insulating coating of substrate	CIPG for electric parts Elastic sealing application	CIPG for electric parts Elastic sealing application	CIPG for electric parts Elastic sealing application	Balance correcting agent for motors, polygon mirrors, etc.
	Dark blue	Turbid white	Red	Milky white	Colorless	Colorless	Colorless	Light yellow	Grayish white	Light yellow	Gray
	-	4.0	-	55.0	7.0	-	20.0	95.0	70.0	400	100
	120	-	280	-	-	700	-	-	-	-	-
	1.13	1.17	1.07	1.20	1.09	1.07	1.11	1.11	1.14	1.09	2.19
	30	30	30	30	30	27	30	45	30	45	30
	-	-	-	-	-	A49	D56	A27	A21	-	-
	D90 to 95	D88	D75	D90	D70	-	-	-	-	E19	D90 to 95
	7.8×10^{12}	7.6×10^{12}	2.1×10^{11}	6.4×10^{12}	1.5×10^{12}	2.2×10^9	1.1×10^{12}	1.2×10^{10}	-	8.8×10^8	9.8×10^{12}
	-	-	-	33.0	24.1	-	23.6	19.0	-	24.9	18.3
	-	-	-	8.9	6.5	7.0	(Material failure)	-	-	-	(Material failure)
	-	-	-	-	5.4	-	(Material failure)	-	-	-	-
	-	-	-	-	3.5	-	(Material failure)	-	-	-	-
	-	-	-	-	6.4	-	(Material failure)	-	-	-	-
	-	-	-	-	4.6	-	5.6	-	-	-	-
	-	-	-	-	5.4	-	4.3	-	-	-	-
	4.9	7.0	-	8.9	8.1	-	(Material failure)	-	-	-	(Material failure)
	-	-	-	3.0	2.2	-	4.1	-	-	-	-
	-	-	-	8.0	6.3	-	(Material failure)	-	-	-	-
	-	-	-	-	1.6	4.0	3.8	-	10.9	-	5.1
		3067 with added thixotropy		High-thixotropic							

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3084E	3087G	3088		3088B		3094	3094B	
Characteristics	Unit									
Main component		Acrylate	Acrylate	Acrylate		Acrylate		Acrylate	Acrylate	
Additional curability		-	-	Two-component mixture		Two-component mixture		-	-	
Features		High specific gravity Shape retention	2P molding Optical part molding	Soft Impact strength Short-time curing in shaded areas		Soft Impact strength Short-time curing in shaded areas		Good adhesion to plastic materials such as PC	Good adhesion to plastic materials such as PC	
Main usages		Balance correcting agent for motors, polygon mirrors, etc.	Optical part	Sensor potting UV light impermeable material adhesion		Sensor potting UV light impermeable material adhesion		Adhesion of medical devices, etc.	Adhesion of medical devices, etc.	
Appearance		Milky white	Light transparent yellow	Main agent Blue	Curing agent Pale green	Main agent Blue	Curing agent Pale green	Light yellow	Blue	
Viscosity	Pa-s	30.0	-	5.0	5.0	5.0	5.0	4.6	-	
	mPa-s	-	640	-	-	-	-	-	150	
Specific gravity		1.46	1.05	1.02	1.02	1.04	1.04	1.07	1.02	
Curing conditions (Cumulative light intensity)	kJ/m ²	30	30	30		30		30	30	
Physical characteristics after curing	Hardness	-	-	A50		-		-	-	
		D90	D69	-		D55		D60	D75	
	Volume resistivity	Ω-m	1.3×10 ¹²	-	1.5×10 ¹¹		5.7×10 ¹¹		-	-
Dielectric breakdown strength	kV/mm	32.0	-	-		-		-	-	
Tensile shear bond strength	Glass/Glass	MPa	7.1	-	-	-	-	7.9	7.0	
	Glass/Acrylic	MPa	-	-	-	-	-	6.8	6.4	
	Glass/Polycarbonate	MPa	-	-	-	-	-	7.3	7.1	
	Glass/Glass epoxy	MPa	-	-	-	-	-	7.6	7.9	
	Glass/ABS	MPa	-	-	3.4		6.4		6.9	7.0
	Glass/LCP	MPa	-	-	-	-	-	3.2	3.9	
	Glass/Iron	MPa	-	-	-	-	-	9.0	8.4	
	Glass/Aluminum	MPa	2.8	-	-	-	-	5.8	2.5	
	Glass/Stainless steel	MPa	8.0	-	-	-	-	6.0	5.3	
	Polycarbonate/Polycarbonate	MPa	-	(Material failure)	5.2		6.4		8.6	5.2
Remark(s)			Refractive index 1.49 Abbe's number 49 (cured material)	Can be used for static mixers		Can be used for static mixers		Supports LED light sources Compliant to ISO10993 for medical devices	Supports LED light sources	

	3094C	3111B	3113B	3114	3114B	3118	3121D	3121E	3161	3163	3164D
	Acrylate	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Silicone	Silicone	Silicone
	-	-	-	-	-	-	-	-	Humidity	Humidity	Humidity
	Good adhesion to plastic materials such as PC	Low moisture permeability	Surface curability Deep curability Low cure shrinkage	Surface curability Low cure shrinkage Low linear expansion	Low cure shrinkage	Sealant for dye-sensitized solar cells	Low cure shrinkage Good adhesion to various materials	Low cure shrinkage Soft Good adhesion to various materials	Rubber elasticity High and low temperature resistance	Rubber elasticity High and low temperature resistance	Rubber elasticity High and low temperature resistance Adhesion to engineering plastic
	Adhesion of medical devices, etc.	Main sealing for touch panel bonding	Optical pick-up parts Electrical parts bonding	Optical pick-up parts Electrical parts bonding Accurate adhesion of optical parts such as for digital cameras	Adhesion and fixing of optical parts such as optical pick-up parts	Main sealing of dye-sensitized solar cells	Adhesion and fixing of optical parts	Bonding/adhesion of polarizing plates	Electrical parts bonding / sealing / potting	Sealing for sliding portion of cleaner rotor Electrical parts bonding	Electrical parts bonding / sealing / potting
	Blue	White	Milky white	Grayish white	Grayish white	White	Light yellow	Light yellow	Light yellow	Blue	Pale white
	4.6	9.0	15.0	26.0	50.0	86.0	-	-	3.0	12.0	10.0
	-	-	-	-	-	-	850	750	-	-	-
	1.07	1.18	1.13	1.54	1.62	1.33	1.15	1.14	0.98	1.02	1.00
	30	30	20	30	30	30+80°C ×1h	30	30	30 (+Moisture-curing)	30 (+Moisture-curing)	30 (+Moisture-curing)
	-	-	-	-	-	-	-	A73	A30	A33	A32
	D60	D47	D72	D80	D82	D83	D65	-	-	-	-
	-	-	-	-	-	5.2×10 ¹³	-	2.1×10 ¹¹	4.0×10 ¹²	-	8.8×10 ¹²
	-	-	-	-	-	-	-	19.8	12.3	-	30
	6.5	7.2	-	(Material failure)	3.8	(Material failure)	7.3	9.2	6.0	3.9	4.0
	6.7	-	-	-	-	1.2	-	6.4	-	-	-
	7.3	-	-	-	-	1.3	-	5.9	-	-	-
	7.6	-	-	-	-	3.3	-	6.5	-	-	4.8
	7.4	-	-	-	-	3.8	-	7.1	-	-	3.4
	4.2	4.5	-	3.5	3.4	2.9	-	5.0	-	-	1.9
	9.1	-	-	-	-	4.5	-	9.1	2.0	-	-
	3.0	-	(Material failure)	-	-	3.1	-	5.6	0.66	-	0.5
	8.5	6.0	(Material failure)	-	-	4.3	-	6.6	0.9	-	-
	7.6	-	3.4	-	-	0.58	-	-	0.96	-	2.6
	Supports LED light sources	Moisture permeability 40g/m ² /24h (60°C×95%RH) (Film thickness 150µm)			Rate of contraction with hardening: 2.0%		Rate of contraction with hardening: 4.5%	Rate of contraction with hardening: 2.8%	Alcohol-releasing type Reduced content of Low molecular circular siloxane	Alcohol-releasing type Reduced content of Low molecular circular siloxane	Alcohol-releasing type Reduced content of Low molecular circular siloxane

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3000/3100 Series



UV Curing Resin Property Table

Product name		3168	3168E	3170B	3170D	3170E	3170F	3170J	3177	
Characteristics	Unit									
Main component		Silicone	Silicone	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	
Additional curability		-	-	Visible Light	Visible Light	Visible Light	Visible Light	Visible Light	Visible Light Humidity	
Features		Soft Gel Damping materials	Soft Gel Damping materials	Thick film curing Adhesion	Thick film curing Adhesion	Thick film curing Adhesion	Thick film curing Adhesion	Thick film curing Adhesion Heat cycle resistance	High and low temperature resistance Humidity resistance Adhesion	
Main usages		Damping agent for pick-ups	Damping agent for pick-ups	Transparent material that cuts UV light Electrical parts bonding	Transparent material that cuts UV light Electrical parts bonding	Transparent material that cuts UV light Electrical parts bonding	Transparent material that cuts UV light Electrical parts bonding	Transparent material that cuts UV light Electrical parts bonding	Light blocking materials Optical part Metal/plastic/rubber bonding	
Appearance		White	Red	Light yellow	Light yellow	Light yellow	Light yellow	Light yellow	Yellow to Light yellow	
Viscosity	Pa-s	15.0	90	1.8	37.0	11.2	18.0	4.5	-	
	mPa-s	-	-	-	-	-	-	-	1200	
Specific gravity		1.01	1.02	1.04	1.06	1.10	1.06	1.04	1.06	
Curing conditions (Cumulative light intensity)	kJ/m ²	30	60	30	30	30	30	30	10	
Physical characteristics after curing	Hardness	Gel (Penetration: 100)	Gel (Penetration: 100)	-	-	-	-	-	-	
		-	-	D70	D54	D44	D50	D10	D84	
	Volume resistivity	Ω-m	2.7×10 ¹²	-	-	-	-	-	1.0×10 ¹¹	9.2×10 ¹³
Dielectric breakdown strength	kV/mm	-	-	-	-	-	-	29	24	
Tensile shear bond strength	Glass/Glass	MPa	-	-	(Material failure)	-	-	(Material failure)	-	
	Glass/Acrylic	MPa	-	-	-	-	-	5.5	-	
	Glass/Polycarbonate	MPa	-	-	-	-	-	4.7	-	
	Glass/Glass epoxy	MPa	-	-	-	-	-	-	-	
	Glass/ABS	MPa	-	-	-	-	-	-	-	
	Glass/LCP	MPa	-	-	-	-	-	5.4	-	
	Glass/Iron	MPa	-	-	-	-	-	-	-	
	Glass/Aluminum	MPa	-	-	(Material failure)	-	-	(Material failure)	4.9	
	Glass/Stainless steel	MPa	-	-	(Material failure)	-	-	(Material failure)	7.6	
	Polycarbonate/Polycarbonate	MPa	-	-	5.0	-	-	6.9	4.5	5.8
	Remark(s)		Reduced content of Low molecular circular siloxane	Color fades to light yellow after curing						Hybrid instant adhesive

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.

- We offer applicators suitable for each type of the UV curing, anaerobic-curing, and moisture-curing agents.
- Auxiliary equipment needed for the process from application to curing is available.
- Equipment suitable for CIPG application (design of a special-purpose machine is possible)

*CIPG: Cured in Place Gasket

Syringe



Syringe dispenser (minicoater C5)

The discharge amount is adjusted by means of the dispensing time and air pressure. Automatic application by machine is possible.

Individual catalog number #11

250-g/1-kg bottle



Tank for 250-g/1-kg bottle (PT-005/PT-01) Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material. Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #3

Cartridge



Cartridge-type air gun (PG-100C)

Dispensing is done by pulling the gun lever. Automatic application by machine is impossible.

Individual catalog number #1



Cartridge-type tank (LVCT-AC) Diaphragm type automatic valve controller for pressure (coater S4) Desktop 3-axis robot (TRC-120R)

This unit pressure-feeds a material from the cartridge and controls the open/close valve to apply the material. When the controller is combined with a robot, it will apply the material to a programmed position. Automatic application by machine is possible.

Individual catalog number #15



Dedicated to surface application Adhesive discharging valve PV-SN Series

This is an adhesive discharging valve to apply material in plane-like or band-like form. Automatic application by machine is possible.

Individual catalog number #30

ThreeBond 3300 Series

Electrically Conductive Resins / Anisotropically Conductive Pastes



Electrically Conductive Resins/ Anisotropically Conductive Pastes

These are conductive adhesives that have conductive materials that consist of electro conductive fillers evenly dispersed in the synthetic resin that work as an adhesive/binder.

By applying and curing at bonding locations requiring conductivity, they show excellent adhesion and conductivity.

Silver, nickel, carbon, etc., are used as electro conductive fillers, and epoxy resin, urethane resin, silicone resin, synthetic rubber, etc., which have good physical properties, are used as binders. There are various grades available.

They have excellent adhesion with various materials including metals, plastics, glass, and rubber, and can be used for bonding lead wires and electrodes, and for semiconductor elements and EMI shield parts.

In addition, anisotropically-conductive adhesives for screen printing can be used for multiple-contact simultaneous connection of displays such as LCDs.



■ Applicable markets

Transportation
Equipment

Electrical and
Electronics

Industrial Materials
and Public Works

Automotive
Aftermarket

3301E

This is a soft type conductive adhesive for crystal oscillators that uses silver as an electro conductive filler and uses heat-curing epoxy resin as a binder. It has excellent heat aging property. In addition to quartz crystal, it can also be used for spot conductive adhesion. There are grades with different viscosities.

3301W

This is a highly-adhesive type solventless conductive adhesive that uses silver as an electro conductive filler and uses heat-curing epoxy resin as a binder. It is used for adhesion of fixed surfaces for quartz crystal. It can also be used for surface adhesion in addition to spot conductive adhesion.

3303B

This is a heat-resistant flexible type conductive adhesive for SMD-type crystal oscillators that uses silver as an electro conductive filler and uses heat-curing silicone resin as a binder. It has flexibility because of the silicone resin, and has excellent stress relaxation property, and its characteristics are stable over a wide temperature range. There are grades with different viscosities.

3303G (NEO)

This is a heat-resistant flexible type conductive adhesive for SMD-type crystal oscillators that uses silver as an electro conductive filler and uses heat-curing silicone resin as a binder. It has flexibility because of the silicone resin, and has excellent stress relaxation property, and its characteristics are stable over a wide temperature range. It has excellent adhesion with gold electrodes and silver electrodes. There are also grades that use slow-drying solvents.

3315E

This is a soft type conductive adhesive that uses carbon as an electro conductive filler and uses synthetic rubber as a binder. Hot-melt adhesion is possible for dried films from which the solvent has dried after application. It is used as a conductive adhesion for copy machine neutralization rollers, and as a ground for electronic devices.

3331D

This is a no-solvent type conductive adhesive that uses silver as an electro conductive filler, and one-component hardening type epoxy resin as a binder. It is hardened at a low temperature and can be used to conductively adhere and/or ground electronic parts. It is in a syringe form, therefore can be used for dispenser coating.

3333C

This is a heat-resistant flexible type conductive adhesive for SMD-type crystal oscillators that uses silver as an electro conductive filler and uses heat-curing silicone resin as a binder. It has flexibility and excellent stress relaxation property, and its characteristics are stable over a wide temperature range. In addition, it is used as an electrode connection for small quartz crystals and SAW filter piezoelectric elements.

3351C

This is a low-halogen, solvent-vaporization heating type conductive paint that uses nickel as an electro conductive filler and elastomer as a binder. It can be used for ensuring conductivity by film forming and spot welding, and for electronic device grounds.

3380

This is a solventless conductive adhesive that uses silver as an electro conductive filler and uses two-component room temperature curing epoxy resin as a binder. It can be used for bonding electronic device electrodes and carbon contact points, and for conductive adhesion of ceramic and glass portions where soldering cannot be done.

3350B

This is a solvent-vaporizing type conductive paint that uses silver as an electro conductive filler and uses acrylic resin as a binder. It is quick-drying and forms a cured film. It can be used for screw conductive locking, for electromagnetic wave shielding, for fixing of terminals, repairing of circuits, and for plating bases. There is also a low-resistance type available.

3373F

This is an anisotropically-conductive adhesive for screen printing that uses gold plated particles as an electro conductive filler and uses synthetic rubber as a binder. It is possible to form an anisotropically-conductive film directly on the substrate by screen printing, and multiple contact points can be connected at the same time via thermo compression bonding. It is used for general connections such as for touch panels and flexible substrates, membrane switches, and film substrates for EL backlights.

3381

This is a solventless conductive adhesive that uses nickel as an electro conductive filler and uses two-component room temperature curing acrylic resin as a binder. It is used for electronic device EMI shielding. It is used for bonding conductive plastic materials for EMI shields. It can also be used for conductive adhesion of large areas.

3300 Series



Conductive Resin Materials Property Table

Product name		3301E	3301F	3301M-1	3301W	3302B	3303B	3303R	3303G (NEO)	
Characteristics	Unit									
Binder		Epoxy-based	Epoxy-based	Epoxy-based	Epoxy-based	Urethane	Silicone-based	Silicone-based	Silicone-based	
Electro conductive filler		Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	
Features		Soft type	Soft type	Soft type	Solventless Surface adhesion- available	Soft type	Heat resistance Flexible type	Excellent adhesion with gold/ silver electrodes	Excellent adhesion with gold/ silver electrodes	
Main usages		Quartz crystal	Quartz crystal	Quartz crystal	Adhesion of fixed surfaces for quartz crystal	Quartz crystal	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	
Appearance		Silver	Silver	Silver	Silver	Silver	Silver	Silver	Silver	
Viscosity	Pa-s	31.0	23.0	67.0	37.0	15.0	22.0	50.0	40.0	
Specific gravity		3.08	3.40	-	3.20	2.73	2.30	-	-	
Standard curing conditions		130°C/40 min or 150°C/30 min	130°C/40 min or 150°C/30 min	150°C/30 min	120°C/60 min or 170°C/15 min	150°C/30 min	150°C/60 min or 170°C/30 min	180°C/60 min	180°C/60 min	
Physical characteristics after curing	Volume resistivity	Ω-m	1 to 2×10 ⁻⁶	1 to 2×10 ⁻⁶	0.9×10 ⁻⁶	1.6×10 ⁻⁶	2.0×10 ⁻⁶	3 to 4×10 ⁻⁵	2.8×10 ⁻⁶	2.5×10 ⁻⁶
	Pencil scratch hardness		4H	4H	-	4H	5B	Softer than 6B	Softer than 6B	Softer than 6B
	Chip bonding strength (Ceramic chip/Glass)	MPa	-	-	17	-	-	2.9	3.5	3.0
Remark(s)				3301M alternative product						

	3303M	3303N	3303Y	3303Z	3304	3304D	3315E	3331D	3333C	3350B	3350C
	Silicone-based	Silicone-based	Silicone-based	Silicone-based	Silicone-based	Silicone-based	Synthetic rubber-based	Epoxy-based	Silicone-based	Acrylic resin-based	Acrylic resin-based
	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Carbon-based	Silver-based	Silver-based	Silver-based	Silver-based
	Excellent adhesion with gold/silver electrodes (slow-drying type)	Excellent adhesion with gold/silver electrodes (slow-drying type)	Excellent adhesion with gold/silver electrodes (slow-drying type)	Excellent adhesion with gold/silver electrodes (Thixotropy added, quick-drying) (Applied in small amounts)	Excellent adhesion with gold/silver electrodes (Thixotropy added)	Excellent adhesion with gold/silver electrodes (Thixotropy added, quick-drying) (Applied in small amounts)	Can be used for conductive hot melting	Low temperature hardening, syringe type	Stress relaxation property (low elasticity)	Quick-drying Cured material	Low resistance
	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	SMD-type crystal oscillator / Transmitting element / SAW filter	Conductive adhesion for copy machine neutralization rollers Electronic device ground	Conduction fixing of electronic parts, earthing	Conductive adhesive for SMD-type crystal oscillator Small crystal oscillator / Transmitting element / SAW filter	Spot fixing Screw conductive locking Circuit repair Electromagnetic wave shielding	Spot fixing Screw conductive locking Circuit repair Electromagnetic wave shielding
	Silver	Silver	Silver	Silver	Silver	Silver	Black	Silver	Silver	Silver	Silver
	40.0	41.0	40.0	70.0	65.0	50.0	0.6	25.0	30.0	2.5	1.0
	3.07	3.02	-	-	-	-	0.87	-	3.2	1.90	2.20
	180°C/60 min	180°C/60 min	180°C/60 min	210°C/60 min	180°C/60 min	180°C/60 min	80°C/30 min	80°C/60 min	180°C/60 min	25°C/4h or 60°C/1h	25°C/24h or 60°C/1h
	1.9×10^{-6}	2.3×10^{-6}	2.7×10^{-6}	0.6×10^{-6}	1.8×10^{-6}	1.3×10^{-6}	4.3×10^{-2}	0.5×10^{-5}	8.0×10^{-6}	2 to 3×10^{-6}	2.0×10^{-6}
	Softer than 6B	Softer than 6B	Softer than 6B	Softer than 6B	Softer than 6B	Softer than 6B	-	Harder than 9H	Softer than 6B	3H	3H
	3.6	3.1	2.5	1.4	2.4	2.4	-	19.9	1.4	-	-
	3303F alternative product			Supported nozzles: inner diameter 0.13 mm or more		Supported nozzles: inner diameter 0.14 mm or more	Flexibility				

* - : Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.

3300 Series



Conductive Resin Materials Property Table

Product name		3351C	
Characteristics	Unit		
Binder		Elastomer synthetic resin	
Electro conductive filler		Nickel-based	
Features		Low halogen content	
Main usages		Ensuring conductivity by film forming / spot welding Electronic device ground	
Appearance		Gray	
Viscosity	Pa-s	3.0	
Specific gravity		1.5	
Standard curing conditions		90°C/60 min	
Physical characteristics after curing	Volume resistivity	$\Omega\cdot\text{m}$	8.0×10^{-5}
	Pencil scratch hardness		-
	Chip bonding strength (Ceramic chip/Glass)	MPa	-
Remark(s)		Halogen-free enabled	

- * -: Unmeasured
- * The value listed in the property table is an example of a measured value and is not the guarantee level.
- * Before using, confirm the adequacy and safety for the relevant application.



Anisotropically Conductive Pastes Property Table

Product name		3373C	3373F	3374
Characteristics	Unit			
Binder		Synthetic rubber-based	Synthetic rubber-based	Epoxy-based
Electro conductive filler		Gold plated particles	Gold plated particles	Gold plated particles
Features		For screen printing Anisotropically conductive adhesive	For screen printing Anisotropically conductive adhesive	For screen printing Anisotropically conductive adhesive
Main usages		Electrical connection, bonding between electrical circuits	Electrical connection, bonding between electrical circuits	Electrical connection, bonding between electrical circuits
Appearance		Light yellowish green	Grayish white	Brown gray
Viscosity	Pa-s	75.0	60.0	140
Specific gravity		1.00	1.08	1.40
Film formation (drying) conditions		100°C/10 to 20 min or 120°C/5 to 10 min	100°C/10 to 20 min or 120°C/5 to 10 min	-
Crimping conditions		140°C× 3MPa× 10s	140°C× 3MPa× 10s	120°C× 1.5MPa× 5 to 10 min
Physical characteristics after curing	Connection resistance	Ω	1 or less	1 or less
	Hardness		-	D93
Remark(s)		Isophorone Toluene	Aromatic solvent Halogen-free enabled	

- * -: Unmeasured
- * The value listed in the property table is an example of a measured value and is not the guarantee level.
- * Before using, confirm the adequacy and safety for the relevant application.

Product name		3380		3381	
Characteristics	Unit				
Binder		Epoxy-based		Acrylic resin-based	
Electro conductive filler		Silver-based		Nickel-based	
Features		Two-component room temperature curing Solventless		Two-component contact curing	
Main usages		Electrode/carbon contact point for various electrical devices / Conductive adhesion of yokes and ferrites		Electronic device EMI shielding Bonding of conductive plastic for EMI shielding Conductive adhesion for large areas	
Appearance		Main agent	Curing agent	Agent A	Agent B
		Silver	Grayish yellow	Black	Black
Viscosity	Pa-s	70.0	120	100	90.0
Specific gravity		3.30	2.68	2.80	2.70
Standard curing conditions		25°C/5 days or 60°C/24h or 80°C/1h		25°C/15h or 60°C/30 min	
Physical characteristics after curing	Volume resistivity	Ω-m	8.0×10 ⁶	7 to 10×10 ⁵	
	Pencil scratch hardness		3H	H	
	Chip bonding strength (Ceramic chip/Glass)	MPa	-	-	
Remark(s)		Compounding ratio 2:1		Compounding ratio 1:1 Toluene included	

* -: Unmeasured

* The value listed in the property table is an example of a measured value and is not the guarantee level.

* Before using, confirm the adequacy and safety for the relevant application.