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ThreeBond

General Catalog Products Guide

ThreeBond

General Catalog Products Guide

Sealants / Adhesives / Maintenance / Automobile Aftermarket Products / Application Equipment

ThreeBond **General Catalog Products Guide** Version 6

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Market Introduction

ThreeBond Products Market

ThreeBond products can be applied to various fields including automobile related products, transportation equipment, industrial materials and public works, construction and building materials, as well as electrical / electronics and automotive aftermarket fields. ThreeBond products have become essential to the production process of various products in various fields.

Transportation Equipment Sector

Used for vehicle powertrains and electrical components, construction machines, and marine vessels.

Electrical and Electronics Sector

Used for electrical appliances such as mobile phones and computers.

Industrial Materials and Public Works Sector

Used for infrastructure, construction, and general machines.

Automotive Aftermarket Sector

Used for automobile aftermarket products.

ThreeBond Network

We at ThreeBond have established ourself as a top provider of sealants and adhesives for industrial use, and we have gained the trust of our customers through our production and sales systems in Japan, North and Central America, South America, Europe, Asia, and China.

Worldwide Network

ThreeBond Europe S.A.S.

ThreeBond Chemicals Co., Ltd.

Shanghai Songjiang ThreeBond Chemical Industry Co., Ltd.

(Moraine Plant)

ThreeBond Co.,Ltd.

ThreeBond Hong Kong Co., Ltd.

ThreeBond Singapore Pte Ltd.

ThreeBond Manufacturing (Thailand) Co., Ltd.

ThreeBond Technology (Thailand) Co., Ltd.

ThreeBond VIV Sales (Thailand) Co., Ltd.

ThreeBond International, Inc.

ThreeBond Do Brasil ind. E Comercio Ltda.

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* Be sure to check the laws and regulations in your country or region before using any of these products.

Sealing refers to the "action on joint surfaces of equipment or pipes to prevent leakage of inner fluids".
Sealants are sorted as either solid (solid gasket or solid packing) or liquid (liquid gaskets). Their performance is a combination of adhesion between the sealant and joint surface (interface), resistance of the sealant itself to the inner fluid, and conformability to the joint surface, etc.
Based on this, when selecting a sealant, it is important to consider, among other things, the type of joint surface, compatibility between the sealant and inner fluid, the required pressure resistance, and environmental conditions, in addition to the priority of considering "what will be sealed and in what position". By considering whether the joint will be disconnected and considering workability during use, it is possible to select the optimal sealant.

* By referencing the sealant selection flow chart on the opposite page, it is possible to narrow down the optimal sealant system according to the following "Sealant Property Comparison Table".

Sealant Selection Flow Chart

Confirm that it matches the **"Main usage"** according to the parts used and the inner fluid that will be sealed. >> Confirm the adequacy with the inner fluid that will be sealed according to the **"Main usage"**, **"Chemical resistance"** and **"Heat resistance"**. >> Confirm the **"Clearance applicability"** according to the clearance at the usage location. >> Confirm the **"Adhesion"** and **"Displacement Conformability"** according to whether there is movement at the usage location. >> If sealability is required immediately after assembly to the used portion, confirm the **"Initial pressure resistance"**. >> If it is necessary to remove the portion where it is used regularly, confirm the **"Removability"**. >> Select a sealant and then select a product from the detailed description pages of the corresponding representative grade.

Sealant Property Comparison Table

◎ Highly suitable ○ Suitable △ Not very suitable ✕ Unsuitable

Sealant type		Sealing function	Sealant lineup	Curing method	Cured material characteristic	Main usages		Chemical resistance: Oil	Chemical resistance: Water	Chemical resistance: Acid	Chemical resistance: Inorganic bases	Heat resistance	Clearance applicability	Adhesion	Displacement Conformability	Pressure resistance: Initial	Pressure resistance: After curing	Removability	Representative grade
Reaction type		The sealing function works by forming an elastic adhesion layer on the joint surface due to condensation or polymerization reaction. Excellent sealability is achieved even on joint surfaces with large clearances.	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like	Vehicle oil pan and gear case FIPG*1 Sealing of general use machines and general pipes * Special grade for sealing water supply pipes available		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	1200 Series
			Modified silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like	Agricultural machine oil pan and gear case FIPG*1 Sealing of general use machines and general pipes		○	△	△	△	△	◎	○	◎	○	◎	△ to ○	1206 Series
			Moisture-curing acrylate-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like	Vehicle oil pan FIPG*1 Sealing of general use machines		○	○	○	○	○	◎	○	◎	○	◎	△ to ○	1158
			Anaerobic curing acrylate-based	Anaerobic curing * Radical polymerization reaction by oxygen isolation and metal contacts	Rubber-like	Vehicle gear case FIPG*1 Sealing of plugs and general pipes		○	○	○	○	○	○	○	○	○	◎	△	1133 J
			Curing under UV light acryl rubber-based	Curing under UV light * Radical polymerization reaction by UV light irradiation	Rubber-like	Vehicle electrical component CIPG*2		○	○	○	○	○	○	○	△	○	○	○	3081 J
			Two-component fluororubber-based	Two-component mixture * Condensation reaction by mixing Agents A and B	Rubber-like	Transportation equipment fuel system, seal plants, sealing of pipes		◎	◎	◎	◎	◎	◎	○	◎	○	◎	△ to ○	1119
			Heat-curing olefin-based	Heat-curing * Polymerization reaction by heating	Rubber-like	FIPG and CIPG for fuel cell batteries*1 *2 Gas seal, methanol seal		○	○	○	○	○	○	△	○	-	○	○	1152 C, 1153 C
			Moisture-curing olefin-based	Moisture-curing * Condensation reaction by moisture in the air	Putty (mastic type)	Sealing of city gas and LPG piping		○	○	○	○	○	◎	△	◎	△	○	○	4333 B
Non-reactive type	Solventless (non-drying) type	Sealability works by adhesion to the joint surface and by its fluid resistance. It is easy to remove because it does not cure.	Solventless, synthetic resin-based	Non-drying * Initial status is maintained	Putty	Sealing of general use machines and general pipes Supplementary sealing used with solid packing Sealing of city gas and LPG piping		○	○	○	○	△	△	-	△	○	○	◎	4320 B
	Solvent type	Sealability works by forming an elastic adhesion layer on the joint surface due to vaporization of the solvent (including water). Curing shrinkage is large due to vaporization of the contained solvent.	Organic solvent, synthetic resin-based	Solvent vaporization * Volatilization and drying of contained solvent	Solid to rubber-like	Sealing for vehicles, general use machines, and general pipes * Special grade for sealing water supply pipes available		○	○	○	○	○	△	○	○	△	○	△ to ○	1102 , 1103 B
			Organic solvent, synthetic rubber-based	Solvent vaporization * Volatilization and drying of contained solvent	Rubber-like	Sealing for vehicles, general use machines, and general pipes Sealing of city gas and LPG piping		○	○	○	○	○	△	○	○	△	○	△ to ○	1184 Series
	Aqueous type		Acrylic emulsion-based (water-based)	Vaporization * Volatilization and drying of contained moisture	Rubber-like	Sealing for vehicles and general use machines Supplementary sealing used with solid packing		○	○	○	○	○	△	○	○	△	○	△ to ○	1141 Series
	Solid packing	Sealability works by adhesion to the joint surface due to the repulsive force that occurs from the fastening contact pressure.	Fiber impregnated with synthetic resin	-	Sheet-like (solid)	Sealing for vehicles and general use machines		○	○	○	○	○	△	-	△	○	○	○	Solid Sheet Packing Series
	Solid packing	Sealability works by adhesion to the joint surface due to the repulsive force that occurs from the fastening contact pressure.	Unbaked fluororesin	-	Tape-like (solid)	Sealing of general pipe screws		◎	◎	◎	◎	◎	△	-	△	○	○	◎	ThreeBond Tape

*1 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.
*2 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).

Property Comparison Table According to Sealant Application

◎ Highly suitable ○ Suitable △ Not very suitable ✕ Unsuitable

Applications	Sealant lineup	Curing method	Cured material characteristic		Chemical resistance				Heat resistance	Clearance applicability	Adhesion	Displacement Conformability	Pressure resistance		Removability	Representative grade
					Oil	Water	Acid	Inorganic bases					Initial	After curing		
Vehicle, agricultural machine, construction machine, general use machine, and other FIPG*	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	1200 Series
	Modified silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	△	△	△	△	◎	○	◎	○	◎	△ to ○	1206 Series
	Moisture-curing acrylate-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	○	○	○	◎	○	◎	○	◎	△ to ○	1158
	Anaerobic curing acrylate-based	Anaerobic curing * Radical polymerization reaction by oxygen isolation and metal contacts	Rubber-like		○	○	○	○	○	○	○	○	○	◎	△	1133 J
	Heat-curing olefin-based	Heat-curing * Polymerization reaction by heating	Rubber-like		○	○	○	○	○	○	△	○	-	○	○	1152 C, 1153 C
General-purpose sealing for vehicles, agricultural machines, construction machines and general use machines, etc.	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	1211 , 1212 , 1215
	Solventless synthetic resin-based	Non-drying * Initial status is maintained	Putty		○	○	○	○	△	△	-	△	○	○	◎	1101 , 1121
	Organic solvent, synthetic resin-based	Solvent vaporization * Volatilization and drying of contained solvent	Solid to rubber-like		○	○	○	○	○	△	○	○	△	○	△ to ○	1102 , 1103 B
	Organic solvent, synthetic rubber-based	Solvent vaporization * Volatilization and drying of contained solvent	Rubber-like		○	○	○	○	○	△	○	○	△	○	△ to ○	1184 Series
	Acrylic emulsion-based (water-based)	Vaporization * Volatilization and drying of contained moisture	Rubber-like		○	○	○	○	○	△	○	○	△	○	△ to ○	1141 Series
	Fiber impregnated with synthetic resin	-	Sheet-like (solid)		○	○	○	○	○	△	-	△	○	○	○	Solid Sheet Packing Series
High-temperature sealing of mufflers for vehicles, agricultural machines, construction machines and general use machines, etc.	Organic solvent, synthetic resin-based	Solvent vaporization * Volatilization and drying of contained solvent	Solid to putty		○	○	○	○	◎	△	○	○	△	○	△ to ○	1107 D, 1109 J
Highly chemical-resistant sealant for vehicles, agricultural machines, construction machines and general use machine plants, etc.	Two-component fluororubber-based	Two-component mixture * Condensation reaction by mixing Agents A and B	Rubber-like		◎	◎	◎	◎	◎	◎	○	◎	○	◎	△ to ○	1119
Sealing of general pipes	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	1211 , 1212 , 1215
	Organic solvent, synthetic resin-based	Solvent vaporization * Volatilization and drying of contained solvent	Dry adhesion		○	○	○	○	○	△	○	△	△	○	△ to ○	4002
	Organic solvent, synthetic rubber-based	Solvent vaporization * Volatilization and drying of contained solvent	Rubber-like		○	○	○	○	○	△	○	○	△	○	△ to ○	1184 Series
	Anaerobic curing acrylate-based	Anaerobic curing * Radical polymerization reaction by oxygen isolation and metal contacts	Solid		○	○	○	○	○	○	○	○	○	◎	△	1110 Series
	Unbaked fluororesin	-	Tape-like (solid)		◎	◎	◎	◎	◎	△	-	△	○	○	◎	ThreeBond Tape
Sealing of city gas and LPG piping	Moisture-curing olefin-based	Moisture-curing * Condensation reaction by moisture in the air	Putty (mastic type)		○	○	○	○	○	◎	△	◎	△	○	○	4333 B
	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	4332 C
	Solventless, synthetic resin-based	Non-drying * Initial status is maintained	Putty		○	○	○	○	△	△	-	△	○	○	◎	4320 B
	Organic solvent, synthetic rubber-based	Solvent vaporization * Volatilization and drying of contained solvent	Rubber-like		○	○	○	○	○	△	○	○	△	○	△ to ○	4004 D, 4314 D
Sealing of hot water supply pipes	Organic solvent, synthetic resin-based	Solvent vaporization * Volatilization and drying of contained solvent	Dry adhesion		○	○	○	○	○	△	○	△	△	○	△ to ○	4221 , 4221 B
	Silicone-based	Moisture-curing * Condensation reaction by moisture in the air	Rubber-like		○	○	△	△	◎	◎	○	◎	○	◎	△ to ○	4230

* 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.

Liquid Gaskets

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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).

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.

1107 D

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.

1109 J

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.

1133 J

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.

1141 G

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.

1152 C, 1152 D, 1153 C

This is an olefin-based heat-curing liquid gasket for fuel cell batteries.
The cured material has rubber elasticity with excellent chemical resistance.
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 FIPG.
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.

1171 F, 1171 G

This is a volatile solvent-type liquid gasket for batteries.
Special synthetic rubber is the main component, and it forms a rubber-like elastic body with low moisture permeability.
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.

1206 D

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.

1207 B

This is an acetone type single-component, moisture-curing, silicone-based liquid gasket for FIPG.
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.

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

Characteristics		Unit	1101	1102	1102D	1102G	1103B	1105	1105B	1107D
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
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Liquid Gaskets

Property Table

Product name			1108	1109J	1109M	1111B	1111C	1119		1121	1121C		1130	1133C	1133J	1133K	1141G	1141H	1141J
Characteristics		Unit																	
Main component			Vinyl modified resin Natural resin	Liquid glass	Synthetic rubber	Natural resin Synthetic resin	Phenol resin Rosin modified resin	Fluorine-based resin		Saturated polyester resin	Saturated polyester resin		Acrylate	Acrylate	Acrylate	Acrylate	Acrylic emulsion	Acrylic emulsion	Acrylic emulsion
Curing method			Solvent vaporization	Solvent evaporation reaction	Solvent vaporization	Solvent vaporization	Solvent vaporization	Mixture of two fluids (alcohol-releasing type)		Non-drying	Solvent vaporization Non-drying		Anaerobic curing	Anaerobic curing	Anaerobic curing	Anaerobic curing	Vaporization	Vaporization	Vaporization
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	For flanges	For flanges	Water-based type Nonflammable	Water-based type Nonflammable	Water-based type Nonflammable
Appearance			Brown	Gray	Black	Black	Black	Agent A Black	Agent B White	Gray	Gray		White	Blue	Blue	Yellow	Gray	Gray	Gray
Viscosity		Pa-s	0.75	Paste	5.0	5.3	4.5	150	260	330	11.0		50.0	100	100	250	15.0	0.9	10.0
Specific gravity			0.94	1.65	1.2	1.22	1.30	1.76	1.80	1.35	1.27		1.15	1.1	1.10	1.9	1.26	1.22	1.26
Non-Volatile Content		%	53.0	65.0	54.0	74	78	99.3	93.5	100	87.3		100	-	-	-	68.0	60.0	68.0
Tack free time		min	-	-	-	-	-	10 (Pot life)		Non-drying	Non-drying		-	-	-	60 (Set time)	-	-	-
Physical characteristics after curing	State		-	Dry	Rubber-like	Dry	Dry	Rubber-like		Non-drying	Non-drying		Rubber-like	Rubber-like	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	11.0	17.0	-	-	-
	Tensile shear bond strength (Aluminum)	MPa	-	1.8	-	-	-	0.59		-	-		-	10.0	10.0	17.7 (Cured at 80°C)	-	-	-
Pressure resistance	Room temperature	MPa	8.5	9.0	10.0	9.5	8.0	-		9.0	9.0		11.0	-	-	10 or higher	10 or higher	10 or higher	10 or higher
	80°C	MPa	8.0	8.5	6.5	6.5	7.0	-		7.0	7.0		11.5	-	-	-	10 or higher	9.5	10 or higher
	150°C	MPa	4.0	-	6.0	0.5	4.0	-		6.5	6.5		4.0	-	-	-	9.5	8.5	9.0
Chemical resistance Mass change rate	Water*1	%	-5.3	-	-0.4	-5.0	-2.0	-		-5.5	-5.5		+0.25	-	-	-	-2.3	-2.1	-2.5
	Gasoline*2	%	+2.3	-	-21.3	-20.0	-4.2	-3		-4.4	-4.4		-0.85	-	-	-	-7.5	-7.0	-7.2
	Lubricating oil No.2*3	%	-	-	-3.8	-	-	-		-	-		-	-	-	-	-	-	-
Removability			Good	Relatively difficult	Normal	Difficult	Difficult	Normal		Good	Good		Normal	Difficult	Difficult	Difficult	Good	Good	Good
Operating temperature range (Est.)		°C	-40 to 140	-40 to 400	-40 to 150	-40 to 150	-40 to 150	-30 to 150		-40 to 130	-40 to 130		-40 to 130	-40 to 130	-40 to 130	-40 to 130	-40 to 140	-40 to 140	-40 to 140
Remark(s)				Sealant for mufflers		Sealant for screws					1121 low-viscosity product diluted with alcohol						pH: 9.0	pH: 9.0	pH: 9.0

*1 : Immersion conditions 90°C×24h
*2 : Immersion conditions 50°C×24h
*3 : Immersion conditions 100°C×24h

* - : Unmeasured
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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 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
Physical characteristics after curing: Elongation rate	%	280	230		221	275	300	300
Physical characteristics after curing: Tensile strength	MPa	2.6	1.7		3.0	1.2	1.7	1.8
Physical characteristics after curing: 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 120	-30 to 150	-30 to 150	-30 to 150
Remark(s)		For fuel cell FIPG	For fuel cell FIPG		For fuel cell CIPG	Oil resistance, exellent ATF property	High-viscosity and high-thixotropic type of TB1156B	One component moisture-curing acrylic sealant, paintable type

* - : Unmeasured
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Liquid Gaskets

Property Table

Product name		1170	1170E	1171F	1171G
Characteristics	Unit				
Main component		Special synthetic rubber	Special synthetic rubber	Special synthetic rubber	Special synthetic rubber
Curing method		Solvent vaporization	Solvent vaporization	Solvent vaporization	Solvent vaporization
Features		Low moisture permeability	Low moisture permeability	Chemical resistance	Low moisture permeability
Appearance		Blue	Blue	Black	Colorless
Viscosity	mPa-s	230	220	1800	600
Specific gravity		0.87	0.86	0.91	0.79
Non-Volatile Content	%	8.0	8.5	14.5	5.6
Physical characteristics after curing: State		Dry	Rubber-like adhesive film	Rubber-like elastic film	Rubber-like adhesive film
Physical characteristics after curing: Moisture permeability (40°C×95%RH)	g/m^2/24h	-	2.0	-	6.8
Physical characteristics after curing: Moisture permeability (60°C×95%RH)	g/m^2/24h	9.20	-	-	-
Chemical resistance (Mass change rate): Polyprene carbonate	%	5.0	-2.3	0.5	-1.9
Chemical resistance (Mass change rate): Gamma-Butyrolactone	%	6.0	-0.7	0.6	-1.4
Chemical resistance (Mass change rate): Dimethoxyethane	%	-7.0	-2.5	-0.8	21
Chemical resistance (Mass change rate): Potassium hydroxide (10%)	%	2.9	-	-	-
Chemical resistance (Mass change rate): Hydrochloric acid (10%)	%	-1.9	-	-	-
Remark(s)		For Batteries	For Batteries	For Batteries	For Batteries

* - : Unmeasured
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Liquid Gaskets

Property Table

Characteristics	Unit	1184	1184D	1184E	1184J	1184Y
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		Multi-use type Chemical resistance	Multi-use type Chemical resistance	Multi-use type Chemical resistance	Multi-use type Chemical resistance	Multi-use type Chemical resistance
Appearance		Gray	Cream	Black	Gray	Gray
Viscosity	Pa-s	9.5	29.0	8.5	6.5	9.5
Specific gravity		1.26	1.32	1.20	1.23	1.35
Non-Volatile Content	%	57.5	63.0	55.0	54.0	53.9
Tack free time	min	12	12	12	12	10
Physical characteristics after curing: State		Rubber-like	Rubber-like	Rubber-like	Rubber-like	Rubber-like
Physical characteristics after curing: Hardness		A23	A22	A28	A22	-
Physical characteristics after curing: Elongation rate	%	1720	1000	700	1200	-
Physical characteristics after curing: Tensile strength	MPa	0.17	0.15	0.21	0.13	-
Physical characteristics after curing: Tensile shear bond strength (Iron)	MPa	3.3	-	-	-	-
Physical characteristics after curing: Tensile shear bond strength (Aluminum)	MPa	2.7	-	-	-	-
Pressure resistance: Room temperature	MPa	10.0	10.0	10.0	10.0	10.0
Pressure resistance: 80°C	MPa	8.5	8.0	8.5	8.0	8.5
Pressure resistance: 150°C	MPa	8.5	8.0	8.0	8.0	-
Chemical resistance: Mass change rate: Water*1	%	-1.9	-1.9	-2.5	-3.0	-2.9
Chemical resistance: Mass change rate: Gasoline*2	%	-2.8	-1.8	-3.8	-3.7	-2.6
Chemical resistance: Mass change rate: Lubricating oil No.2*3	%	-3.6	-1.1	-1.9	-	-
Removability		Normal	Normal	Normal	Normal	Normal
Operating temperature range (Est.)	℃	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150
Remark(s)		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

*1 : Immersion conditions 90℃×24h
*2 : Immersion conditions 50℃×24h
*3 : Immersion conditions 100℃×24h

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Characteristics	Unit	1201E	1206C	1206D	1206E	1207B	1207C	1207D	1207F
Main component		Silicone	Modified Silicone	Modified Silicone	Modified Silicone	Silicone	Silicone	Silicone	Silicone
Curing method		Solvent vaporization Oxime	Solvent vaporization Alcohol	Solvent vaporization Alcohol	Solvent vaporization Alcohol	Solvent vaporization Acetone	Solvent vaporization Acetone	Solvent vaporization Acetone	Solvent vaporization Acetone
Features		Solvent dilution type Low viscosity	Paintable Oil resistance	Paintable Oil resistance	Paintable Oil resistance	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance	Fast-curing Cooling liquid resistance
Appearance		Gray	Black	Gray	Gray	Black	Reddish brown	Aluminum color	Aluminum color
Viscosity	Pa-s	3.6	-	-	72.0	250	200	200	-
Apparent viscosity (SOD)	Pa-s	-	90	80	-	100	70	70	180
Specific gravity		1.18	1.45	1.46	1.43	1.01	1.47	1.46	1.45
Tack free time	min	105	30	5	16	3	3	5	5
Physical characteristics after curing: Hardness		40	A45	A41	A33	A30	A60	A60	A56
Physical characteristics after curing: Elongation rate	%	250	400	470	350	400	200	170	190
Physical characteristics after curing: Tensile strength	MPa	2.5	2.0	2.2	1.8	1.9	4.2	4.0	3.7
Physical characteristics after curing: Tensile shear bond strength (Iron)	MPa	-	2.3	-	-	1.6	1.7	2.0	2.3
Physical characteristics after curing: Tensile shear bond strength (Aluminum)	MPa	-	-	2.3	1.7	1.1	1.7	2.0	2.2
Pressure resistance: Initial (When uncured) clearance: 0.2mm	MPa	-	-	0.14	0.14	0.18	0.14	0.14	0.23
Pressure resistance: Initial (When uncured) clearance: 0.5mm	MPa	-	0.11	-	-	0.07	0.05	0.05	0.12
Pressure resistance: After curing (Room temperature)	MPa	10	-	-	-	10 or higher	10 or higher	10 or higher	10 or higher
Chemical resistance: Appropriateness: Engine oil		-	△ (Lower heat resistance)	△ (Lower heat resistance)	△ (Lower heat resistance)	○	○	○	○
Chemical resistance: Appropriateness: Gear oil		-	△ (for agricultural equipment)	△ (for agricultural equipment)	△ (for agricultural equipment)	×	×	×	×
Chemical resistance: Appropriateness: AT oil		-	×	×	×	×	×	×	×
Chemical resistance: Appropriateness: MT oil		-	×	×	×	×	×	×	×
Chemical resistance: Appropriateness: Coolant		-	×	×	×	○	○	○	○
Chemical resistance: Mass change rate: Water*1	%	-0.1	-	-	-	-0.6	-0.4	-	-
Chemical resistance: Mass change rate: Gasoline*2	%	-7	-	-	-	+5.0	-0.3	-	-
Chemical resistance: Mass change rate: Lubricating oil No.2*3	%	4.0	-	-	-	-6.0	+5.8	-	-
Removability		Good	Normal	Normal	Normal	Relatively difficult	Good	Good	Normal
Operating temperature range (Est.)	℃	-60 to 200 (250)	-40 to 120	-40 to 120	-40 to 120	-60 to 200 (250)	-60 to 200 (250)	-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 improved thermal degradation	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	FIPG: Engine oil and Cooling liquid sealing

*1 : Immersion conditions 90℃×24h
*2 : Immersion conditions 50℃×24h
*3 : Immersion conditions 100℃×24h

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Liquid Gaskets

Property Table

Characteristics	Unit	1207H	1211	1211E	1211F	1211G	1211H	1212	1212D	1212E	1215	1215B	1215H	1216	1216B	1216C	1216E	1216F	1216J	1217
Main component		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
Curing method		Solvent vaporization Acetone	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime
Features		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	For general use Chemical resistance	For general use Chemical resistance	Multi-grade	Mission oil resistance	Mission oil resistance	Multi-grade Fast-curing	Good adhesion to magnesium alloy material	Chemical resistance CVT fluid resistance	Chemical resistance ATF resistance
Appearance		Gray	White	White	Clear	White	White	White	Aluminum color	Black	Gray	Black	Ivory	Gray	Black	Light reddish brown	Gray	Gray	Reddish brown	Gray
Viscosity	Pa-s	-	70.0	5.0	70.0	4.3	63.0	300	300	-	75.0	85.0	70	-	-	-	-	-	-	-
Apparent viscosity (SOD)	Pa-s	200	-	-	-	-	-	100	100	100	20	20	20	120	120	170	215	270	95	140
Specific gravity		1.47	1.01	1.05	1.04	1.04	1.03	1.04	1.05	1.55	1.50	1.45	1.53	1.40	1.50	1.48	1.36	1.52	1.61	1.47
Tack free time	min	3	40	60	40	35	16	7	7	5	10	11	30	5	20	5	6	5	13	20
Physical characteristics after curing — Hardness		A57	A26	A25	A24	A20	A21	A30	A30	A28	A50	A40	52	A60	A50	A48	A57	A50	A61	A57
Physical characteristics after curing — Elongation rate	%	230	300	200	300	250	280	300	300	380	320	380	310	240	500	470	300	400	250	400
Physical characteristics after curing — Tensile strength	MPa	3.0	2.5	1.0	2.5	1.8	1.9	2.0	2.0	1.7	1.2	1.2	1.32	3.0	2.0	2.1	3.3	3.0	1.8	2.1
Physical characteristics after curing — Tensile shear bond strength (Iron)	MPa	1.1	-	0.8	-	-	-	-	1.7	1.8	0.9	0.9	1.0	2.3	-	1.1	-	-	1.1	-
Physical characteristics after curing — Tensile shear bond strength (Aluminum)	MPa	1.2	1.4	0.8	1.2	0.8	1.0	1.0	1.5	1.5	0.8	0.8	1.0	2.2	1.7	1.3	2.5	2.7	1.1	2.3
Pressure resistance — Initial (When uncured) clearance: 0.2mm	MPa	-	0.04	0.01	0.04	0.01	0.04	0.15	0.1	0.15	0.05	0.05	0.05	0.21	0.17	0.18	0.25	0.29	0.20	0.18
Pressure resistance — Initial (When uncured) clearance: 0.5mm	MPa	0.10	0.01	-	0.01	-	0.01	0.06	0.03	0.06	0.01	0.01	0.01	0.10	0.07	0.06	0.10	0.19	0.09	0.07
Pressure resistance — 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	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
Chemical resistance — Appropriateness — Engine oil		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Chemical resistance — Appropriateness — Gear oil		×	×	×	×	×	×	×	×	×	○	○	○	○	△	△	○	○	△	△
Chemical resistance — Appropriateness — AT oil		×	×	×	×	×	×	×	×	×	×	×	×	△	○	○	△	△	○	△
Chemical resistance — Appropriateness — MT oil		×	×	×	×	×	×	×	×	×	○	○	○	○	○	○	○	○	○	○
Chemical resistance — Appropriateness — Coolant		○	×	×	×	×	×	×	×	×	×	×	×	△	×	×	△	△	×	×
Chemical resistance — Mass change rate — Water[*1]	%	-	-0.5	-	-	-	-	+1.3	+1.3	-	-1.0	-0.4	-0.4	-	-	-	-	-	-	-
Chemical resistance — Mass change rate — Gasoline[*2]	%	-	-20.2	-	-	-	-	-15.1	-15.1	-	-5.0	-4.7	-4.7	-	-	-	-	-	-	-
Chemical resistance — Mass change rate — Lubricating oil No.2[*3]	%	-	+5.0	-	-	-	-	+5.0	+5.0	-	+5.0	+4.9	+4.9	-	-	-	-	-	-	-
Removability		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Operating temperature range (Est.)	℃	-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)	-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 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	FIPG: Engine oil pan and Gear case sealing 1215 Color difference	FIPG: Engine oil pan and Gear case sealing 1215 Color difference	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℃×24h
*2 : Immersion conditions 50℃×24h
*3 : Immersion conditions 100℃×24h

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Liquid Gaskets

Property Table

Characteristics		Unit	1217B	1217C	1217D	1217E	1217F	1217G	1217H	1217M	1217N	1217P	1227D	1280	1280B	1281B	1281D	1282B
Main component			Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
Curing method			Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Alcohol	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Oxime	Solvent vaporization Acetone
Features			Chemical resistance ATF resistance	Chemical resistance ATF resistance	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	High elasticity Oily surface adhesiveness Compliant with MEKO regulations	Compliant with MEKO regulations Coolant resistance	Engine oil resistance	Initial pressure resistance	ATF resistance	Gear oil resistance	Initial pressure resistance Liquid coolant resistance
Appearance			Reddish brown	Black	Gray	Reddish brown	Gray	Gray	Gray	Black	Gray	Black	Black	Aluminum color	Gray	Reddish brown	Gray	Black
Viscosity		Pa-s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apparent viscosity (SOD)		Pa-s	150	150	120	140	210	301	330	280	280	260	200	100	200	115	150	200
Specific gravity			1.45	1.50	1.51	1.50	1.39	1.37	1.36	1.37	1.45	1.36	1.46	1.04	1.06	1.45	1.41	1.07
Tack free time		min	20	20	10	5	6	5	5	7	6	6	90	6	3	10	4	3
Physical characteristics after curing	Hardness		A56	A52	A52	A53	A60	A60	A51	A45	A35	A57	A33	A30	A33	A60	A65	A46
	Elongation rate	%	350	320	400	260	210	430	470	500	440	430	410	400	480	220	200	330
	Tensile strength	MPa	1.9	2.0	1.8	1.6	3.0	2.6	2.6	2.5	3.1	2.4	2.3	2.0	2.5	4.8	3.0	3.3
	Tensile shear bond strength (Iron)	MPa	-	-	-	1.3	1.9	2.1	2.3	-	2.6	-	2.3	1.4	1.8	2.0	1.8	1.8
	Tensile shear bond strength (Aluminum)	MPa	1.7	1.7	1.7	1.4	1.9	2.0	2.3	1.6	2.7	1.9	2.2	1.4	2.0	2.0	2.1	1.7
Pressure resistance	Initial (When uncured) clearance: 0.2mm	MPa	0.20	0.21	0.17	0.20	0.34	-	-	-	-	-	0.19	0.13	0.17	0.15	0.11	0.11
	Initial (When uncured) clearance: 0.5mm	MPa	0.10	0.10	0.09	0.10	0.14	0.10	0.15	-	0.15	-	-	0.06	0.13	0.06	0.05	0.06
	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	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		○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	△
	Appropriateness: Gear oil		△	△	×	×	×	×	×	×	×	×	×	×	×	×	○	×
	Appropriateness: AT oil		○	○	×	○	×	×	×	×	×	×	×	×	×	○	×	×
	Appropriateness: MT oil		×	×	×	○	×	×	×	×	×	×	×	×	×	×	○	×
	Appropriateness: Coolant		×	×	×	×	○	×	×	×	×	×	○	×	×	×	×	○
	Mass change rate: Water*1	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mass change rate: Gasoline*2	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mass change rate: Lubricating oil No.2*3	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Removability			Normal	Normal	Normal	Normal	Good	Relatively difficult	Relatively difficult	Normal	Normal	Normal	Normal	Good	Good	Normal	Normal	Normal
Operating temperature range (Est.)		℃	-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)	-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, AT case and Gear case sealing	FIPG: Engine oil pan, AT case and Gear case sealing	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 sealing	FIPG: Engine oil pan for coolant sealing	FIPG: Engine oil pan sealing	FIPG: Engine oil pan sealing 1280 thickening agent	FIPG: AT case sealing	FIPG: Differential gear sealing	FIPG: Engine oil pan for coolant sealing

*1 : Immersion conditions 90℃×24h
*2 : Immersion conditions 50℃×24h
*3 : Immersion conditions 100℃×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.

Threelock and Sealock Processes to Prevent Leaks and Loosening of Screws

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

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.

2365 B, 2365 C

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 nut 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
	Oil tight*2	80°C	M10 bolt	MPa	12 or higher
			1/8 PT plug	MPa	12 or higher
			3/4 PT plug	MPa	12 or higher
		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 First rotation	N·m	0.012	0.012
		Loosening torque Fifth rotation	N·m	0.007	0.007
	M4×P0.7 (2N·m tightening)	Screw torque	N·m	0.47	0.47
		Loosening torque First rotation	N·m	0.40	0.40
		Loosening torque Fifth rotation	N·m	0.22	0.22
	M10×P1.5 (30N·m tightening)	Screw torque	N·m	8.1	8.1
		Loosening torque First rotation	N·m	6.5	6.5
		Loosening torque Fifth rotation	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

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

Pipe Sealants

Industrial Materials and Public Works

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.

1110 F, 1110 G

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 , 4221 B

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 161.
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 161.
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.

4314 D

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.

4320 B

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 , 4325 B

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.

4333 B

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.

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.

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.

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
		Gas resistance 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 161 compliant	JWWA K 161 compliant	JWWA K161 compliant

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

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	-	-	-	-	-
		Gas resistance 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 15A to 50A	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 fluororesin (tetrafluoride raw tape)	Unbaked fluororesin (tetrafluoride raw tape)
Appearance			White	White
Dimensions	Thickness	mm	0.1	0.1
	Width	mm	13	13
	Length	m	5	15
Physical properties	Tensile strength	MPa	6.8	7.0 or higher
	Elongation rate	%	20 or higher	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 fluororesin, 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

Transportation Equipment | Industrial Materials and Public Works | Automotive Aftermarket

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.

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 seems, 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.

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.

5264 B

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.

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.

5232 C

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.).

Caulking Agent

Property Table

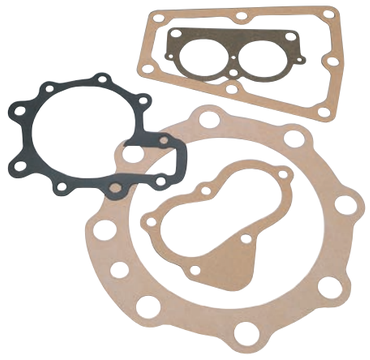
Characteristics	Unit	4101	4102	4108	5211	5222M	5223	5232C
Main component		Chloroprene rubber	Modified isobutylene-isoprene rubber	Urethane resin	Silicone	Modified Silicone	Silicone	Silicone
Curing method		Solvent vaporization	Solvent vaporization	Moisture-curing	Moisture-curing oxime type	Moisture-curing 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	500	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	10	60	15	35
Physical characteristics after curing — Hardness		-	-	A7	A23	A28	A30	A21
Physical characteristics after curing — Elongation rate	%	-	-	900	534	400	700	890
Physical characteristics after curing — Tensile strength	MPa	-	-	1.5	1.5	0.9	2.5	6.5
Tensile shear bond strength — Iron	MPa	-	-	-	1.4	1.2	-	-
Tensile shear bond strength — Aluminum	MPa	-	-	-	1.5	1.2	1.8	-
Tensile shear bond strength — Acrylic	MPa	-	-	-	1.1	0.5	-	-
Tensile shear bond strength — ABS	MPa	-	-	-	-	-	1.1	-
Tensile shear bond strength — Hard PVC	MPa	0.3	-	-	1.0	1.1	-	-
Tensile shear bond strength — Glass	MPa	-	-	-	1.2	-	1.8	-
Tensile shear bond strength — Tiles	MPa	-	-	-	1.23	-	-	-
Tensile shear bond strength — Concrete/Tiles	MPa	0.6	-	-	-	-	-	-
Tensile shear bond strength — Concrete	MPa	1.2	-	-	-	-	-	-
Tensile shear bond strength — Wood	MPa	0.6	-	-	0.84 (cedar) 0.94 (lauan)	-	-	-
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.

Characteristics	Unit	5262	5263	5264B	5268
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	30 or higher	30 or higher
Standard coating weight	g/m²	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.



Solid Sheet Packing

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

These are sheet-like gaskets that have the good points of both solid sheet gaskets and liquid gaskets.
A special viscous material is impregnated to a strong, long-fibered material so that penetration leakage and leakage from contact surfaces can be prevented, resulting in a highly reliable seal.
They have excellent oil resistance, and can be used in temperatures up to approximately 150°C (high surface pressure type).
There are four types available for different tightening surface pressures; a type for ultra-low contact pressure, for low contact pressure, for medium contact pressure, and a type for high surface pressure. Different thicknesses are also available for each type, making it possible to select the optimal product according to the usage.
The Solid Sheet Packing's optimum compression ratio is designed to be about 20%.
Two dimensions are available; roll products (25m, 50m) and 1m cut products (1m×1m). Punched out products can be manufactured by request.

202 F, 204 F, 206 F, 210 F

This is Solid Sheet Packing for ultra-low contact pressure.
Sheets are available in four thicknesses; 0.2mm, 0.4mm, 0.6mm and 1.0mm.
The operating temperature range is -40°C to 100°C (approx.).

203 T, 206 T, 210 T

This is Solid Sheet Packing for low contact pressure.
Sheets are available in three thicknesses; 0.3mm, 0.6mm and 1.0mm.
The operating temperature range is -40°C to 100°C (approx.).

201 , 203 S, 206 S, 210 S

This is Solid Sheet Packing for medium contact pressure.
Sheets are available in four thicknesses; 0.1mm, 0.3mm, 0.6mm and 1.0mm.
The operating temperature range is -40°C to 130°C (approx.).

203 H, 206 H, 210 H

This is Solid Sheet Packing for high surface pressure.
Sheets are available in three thicknesses; 0.3mm, 0.6mm and 1.0mm.
The operating temperature range is -40°C to 150°C (approx.).

Solid Sheet Packing

Property Table

Characteristics			Unit	202F	204F	206F	210F	203T	206T	210T	201		203S	206S	210S	203H	206H	210H
Features				For ultra-low contact pressure	For ultra-low contact pressure	For ultra-low contact pressure	For ultra-low contact pressure	For low contact pressure	For low contact pressure	For low contact pressure	For medium contact pressure		For medium contact pressure	For medium contact pressure	For medium contact pressure	For high surface pressure	For high surface pressure	For high surface pressure
Logo printing color				Without logo	Without logo	Without logo	Without logo	Orange	Orange	Orange	Navy blue		Navy blue	Navy blue	Navy blue	Green	Green	Green
Thickness			mm	0.2	0.4	0.6	1.2	0.3	0.6	1.0	0.1		0.3	0.6	1.0	0.3	0.6	1.0
Apparent density			g/m^3	0.65	0.75	0.78	0.80	0.84	0.85	0.79	0.86		0.84	0.85	0.79	0.84	0.85	0.79
Contact pressure standard			MPa	2.9 to 7.8	2.9 to 7.8	2.9 to 7.8	2.9 to 7.8	3.9 to 7.8	3.9 to 7.8	3.9 to 7.8	7.8 to 15.7		7.8 to 15.7	7.8 to 15.7	7.8 to 15.7	15.7 to 24.5	15.7 to 24.5	15.7 to 24.5
Chemical resistance	Mass change rate	ASTM No. 3 oil	%	+26	+75	+75	+80	+9	+11	+18	+16		+9	+14	+19	+13	+18	+23
		ASTM Fuel B	%	+22	+81	+81	+58	+16	+21	+25	+14		+18	+25	+29	+18	+31	+35
		Distilled water	%	+25	+45	+45	+36	+46	+52	+50	+61		+48	+58	+55	+51	+64	+62
		Ethylene glycol (50% aqueous solution)	%	+33	+61	+61	+50	+56	+64	+70	+69		+3	+69	+78	+60	+71	+85
	Extraction rate	ASTM No. 3 oil	%	-	-5	-3	-9	-6	+0.4	+2	-5		+0.6	+0.6	+0.4	-0.1	-1	+5
		ASTM Fuel B	%	-	-6	-5	-11	+3	+3	+3	-5		+5	+2	+2	+3	-2	+3
		Distilled water	%	-	-6	-6	-2	+11	+10	+15	-5		+21	+10	+13	+14	-	+15
		Ethylene glycol (50% aqueous solution)	%	-	-7	-5	-1	+18	+18	+20	-3		+20	+18	+18	+20	-1	+20
	Thickness variability rate	ASTM No. 3 oil	%	-	+55	+55	+68	-3	-2	+4	+5		-3	-1	+2	-3	+0.1	0
		ASTM Fuel B	%	-	+60	+70	+88	-2	-3	+2	-3		-1	-2	+5	-2	+6	+10
		Distilled water	%	-	+13	+16	+21	+10	+17	+8	+12		+10	+19	+10	+8	+17	+14
		Ethylene glycol (50% aqueous solution)	%	-	+15	+17	+20	+15	+0.4	-	+20		+15	-0.7	+22	+13	-0.3	+18
Physical properties	Compressibility		%	25	35	26	25	17	19	24	16		18	20	22	16	17	19
	Recovery		%	61	78	75	77	49	48	44	40		49	47	50	41	41	41
	Stress relaxation percentage		%	14	44	48	68	15	35	55	10		19	38	59	24	45	64
Pressure resistance	Contact pressure: 3.9MPa		MPa	1.1	1.4	1.5	1.2	-	-	-	-		-	-	-	-	-	-
	Contact pressure: 7.8MPa		MPa	1.5	2.2	2.3	1.9	-	-	-	-		-	-	-	-	-	-
Operating temperature range (approx.)			℃	-40 to 100	-40 to 100	-40 to 100	-40 to 100	-40 to 100	-40 to 100	-40 to 100	-40 to 130		-40 to 130	-40 to 130	-40 to 130	-40 to 150	-40 to 150	-40 to 150
Remark(s)				Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening		Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening	Leave it for 30 minutes after fastening

*1: Immersion condition: 25℃ x 22h (Ethylene glycol is 80℃)
*2: Surface pressure: 6.9MPa

* - : 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.

Adhesion refers to the "phenomenon where two solids (substrates) are combined by an adhesive". Adhesion strength is related to the bonding strength between the adhesive and the adhered material surfaces (interface), and to the strength of the cured adhesive itself.
When selecting an adhesive, keeping these things in mind, it is important to consider the compatibility between the substrate and adhesive, the physical force required for the adhesive itself, the environmental conditions to which it will be exposed, etc. By considering workability when using, it is possible to select the optimal adhesive.

* By referencing the adhesive selection flow chart on the opposite page, it is possible to narrow down the optimal adhesive system according to the following "Adhesive Property Comparison Table".

Adhesive Selection Flow Chart

Confirm items that are compatible with the type of adhered material from the **"Adhesion to materials"**. >> Confirm the **"Thermal Properties"** according to the operating temperature range. >> If there are other conditions such as exposure to chemicals, confirm the **"Chemical resistance"** and **"Electric insulation"**. >> If plastics such as ABS and polycarbonates will be nearby, which are easily damaged by solvents, confirm the **"Influence on plastic"**. >> Confirm the **"Adhesive strength"** and **"Cured material characteristic"** according to the force applied to the portion where it is used. >> Select an adhesive and then select a product from the detailed description page.

Adhesive Property Comparison Table

◎ Highly suitable ○ Suitable △ Not very suitable × Unsuitable

Adhesive lineup	Main applications	Curing method	Curability	Thermal properties	Adhesion to materials			Durability		Chemical resistance					Electric insulation	Influence on plastic[3]	Adhesive strength		Cured material characteristic	Representative grade
					Metal(s)	Plastic[1]	Rubber[2]	Continuous heat resistance	Moisture resistance	Water	Acid	Inorganic bases	Oil	Solvent			Tensile shear bond strength	Peel strength		
Silicone-based	Bonding for electric and electronic parts, insulation, sealing, general bonding for dampproof coating, etc.	Moisture-curing * Condensation reaction by moisture in the air	Skin formation time: 5 to 10 minutes Curing speed: Approx. 3mm/day	Rubber elasticity is maintained over a wide temperature range Can be used from approximately -60°C to 250°C (heat-resistant type upto 300°C)	◎	◎	△	180°C	◎	◎	△	△	○	×	◎	None	○	○	Rubber-like Maximum elongation of about 500%	1200 Series
Anaerobic	Bonding of general screws, interlocking adhesion with sealed metal parts, surface adhesion, and bonding of motor magnets	Anaerobic curing * Radical polymerization reaction by cutting oxygen and providing metal contact * Adhesives also curable under UV light are available	Set time: From approximately a few seconds to 5 min Practical strength: 30 to 60 min Final strength: 12 to 24 hours	Can be used from approximately -40°C to 150°C (heat-resistant type upto 200°C)	◎	×	×	150°C	◎	◎	◎	◎	◎	○	◎	Yes	○	△	Hard and solid with excellent chemical resistance	1300 Series
Rubber-based	General bonding for a wide range of substrates such as rubber, leather, and metal	Solvent vaporization * Volatilization and drying of contained solvent	Surface drying: 5 to 10 min Set time: Clamping after surface drying, and bonding after that allows for immediate fixing, and practical strength is from 10 to 24 hours or longer	Strength maintained from approximately -40°C to 80°C	◎	△	◎	80°C	○	○	○	○	△	×	○	Yes	○	◎	Rubber-like	1500 Series
Elastomeric adhesive	Bonding to various materials such as metals, plastics, rubber, wood, and inorganic materials	Moisture-curing * Condensation reaction by moisture in the air	Skin formation time: 5 to 10 minutes Practical strength: 24 hours Final strength: 3 to 5 days	Rubber elasticity is maintained over a wide temperature range Can be used from approximately -50°C to 150°C	◎	◎	◎	120°C	○	○	△	△	×	×	○	Partially affecting	○	◎	Rubber-like Maximum elongation of about 400%	1530 Series
Water-based adhesive	General bonding of urethane foam, polystyrene foam, wood, paper, leather, etc., and metals, plastics, rubber, etc.	Solvent vaporization * Volatilization and drying of contained solvent	Practical strength: 1 to 2 hours* Final strength: 1 to 2 days* Open time (Drying time before bonding): 20 min	Can be used from approximately -30°C to 60°C * Strength is maintained up to about 80°C	◎	◎	◎	100°C	△	△	△	△	×	×	○	None	○	◎	Elastic film with tackiness	1541 C
Tacky Adhesive	Adhesive for screen printing to plastic nameplates, labels, stickers, etc.	Solvent vaporization * Volatilization and drying of contained moisture or contained solvent	50°C to 60°C ×15 to 20 min	Heat resistance strength maintained from approximately 60°C to 80°C	◎	◎	◎	80 to 100°C	△	△	△	△	×	×	○	None	○	◎	Highly sticky paste	1549
Heat-bonding sheet adhesive	Laminated-type sheet for heat-activated thermal bonding for aluminum nameplates, labels, etc.	Thermofusion, resolidification * Melt by heat, pressed onto a surface, then cooled to solidify	Laminate on nameplate and then perform thermal pressure bonding at 100°C or higher for no more than 10 seconds	Can be used from approximately -40°C to 100°C	◎	×	×	60 to 80°C	○	○	○	○	△	×	○	None	○	○	Sheet-like dry film (with core)	1600 Series
Instant adhesive	Bonding to various materials such as metals, plastics, rubber, and wood	Anionic polymerization by moisture * Curing in several seconds by moisture of the adhered material surface	Set time: From approximately a few seconds to a few minutes Practical strength: 30 min to 2 hours Final strength: 12 to 24 hours	Can be used from approximately -40°C to 100°C (heat-resistant type can be used at approximately 120°C)	◎	◎	◎	100 to 120°C	△	△	○	○	◎	◎	◎	Partially affecting	◎	○	Hard and Solid * Various grades are available including high heat resistance, high moisture resistance, and high peelability * Primers for adhesion-difficult materials available	1700 Series 7700 Series
Epoxy resin-based	Bonding, sealing, casting, impregnation, and coating for various usages including for electric and electronic parts and for construction materials	Addition polymerization * Room-temperature curing by mixing the main agent and curing agent, or thermal curing of single-component	Various types including two-component type with room-temperature curing in 24 hours, and single-component type with heat-curing in a few minutes to a few hours	Can be used from approximately -60°C to 150°C (heat-resistant type can be used at approximately 200°C)	◎	○	○	120 to 150°C	◎	◎	◎	◎	◎	◎	◎	None	◎	△	Hard and Solid, tough	2000 Series 2100 Series 2200 Series
UV-curable resin-based	Bonding, sealing, casting, and coating for various usages including for electric and electronic parts and for general parts	Radical polymerization / cationic polymerization * Curing in several seconds by UV light * Many types with additional curing property such as anaerobic, humidity, heating, and primer are available	Curing in a few second to under a minute by UV light irradiation from UV light irradiation equipment	Can be used from approximately -40°C to 120°C (heat-resistant type can be used at approximately 150°C)	◎	◎	○	120°C	○	◎	◎	◎	◎	◎	◎	Partially affecting	◎	○	Various, from hard and solid to soft and flexible * Acrylic resin-based, acryl rubber-based, epoxy-based, and silicone-based types are available	3000 Series 3100 Series
Ceramic-based	Filling solidification for ceramics, glass, and metal requiring high heat resistance, filling adhesion for sensors and elements, and coatings	Condensation reaction, reaction with binder	Heat-curing at 150°C, leave at room temperature +100°C×30 min	Heat resistance of 1300°C or higher	○	×	×	1400°C	○	◎	◎	◎	◎	◎	◎	None	○	×	Solid and ceramic-like	3732
SGA (two-component acrylic resin-based structural adhesive)	Adhesion of structures for various materials such as metal, plastic, rubber, wood, and inorganic materials	Honeymoon type (contact) curing * Radical polymerization by contact between Agent A and Agent B	Set time: 4 to 7 min Practical strength: 15 to 30 min Final strength: 12 hours	Can be used from approximately -40°C to 130°C	◎	◎	◎	80 to 100°C	◎	◎	◎	◎	◎	◎	◎	Partially affecting	◎	◎	Tough	3921 , 3926

*1) There are materials that are difficult to bond to such as polyethylene, polypropylene, silicone resin, and fluoropolymers.
*2) There are materials that are difficult to bond to such as silicone rubber, fluororubber, and urethane rubber.
*3) ABS, polycarbonate, polysulfone, polystyrene, and other materials that are easily damaged by solvents may dissolve or crack on the surface.

Silicone-Based Adhesives, Sealants and Potting Agents

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

1220 G, 1220 H

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.

1221 G, 1221 H

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.

1222 C

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.

1224 G

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.

1225 B

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.

1225 C

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.

1207 B

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 , 1208 B, 1208 C

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.

1234 B

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	1222C	1224G	1225B	1225C	1226	1230	1230	1234B
Characteristics	Unit																	
Main component		Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
Reaction type		Acetone	Acetone	Acetone	Acetone	Acetone	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Additional reactions	Additional reactions	Heat-curing
Features		Standard Type	Standard Type	Standard Type	Standard Type	Highly heat-resistant type	Standard Type	Standard Type	Standard Type	Standard Type	Incombus-tible type	Ultra-fluid type	For heat dissipation	For heat dissipation	Tin-free type	For potting, non-flammable	For potting, non-flammable,	Highly resistant type
Appearance		Black	White	White	White	Black	Milky white (Translucent)	White	Milky white (Translucent)	White	Gray	Milky white (Translucent)	White	Gray	Gray	Agent A: Reddish brown / Agent B: White	Agent A: Black / Agent B: White	Gray
Viscosity	Pa-s	100	55.0	3.3	-	140	65.0	65.0	-	-	-	1.2	18.0	70	97	5.3 / 5.0	9.0 / 1.2	400
Flowability		None	Yes	Yes	None	None	Yes	Yes	None	None	None	Yes	Yes	Yes	None	Yes / Yes	Yes / Yes	None
Tack free time	min	3	3	3	3	5	10	10	10	10	5	7	5	10	7	-	-	-
Content of low-molecular siloxane		-	-	-	-	Reduced product (300ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	Reduced product (200ppm or less)	-	Reduced product (500ppm or less)	-
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	1.32	1.00	2.6	2.90	1.37	1.53 / 1.54	1.34	1.18
Physical characteristics after curing: Hardness		A30	A30	A20	A30	A42	A20	A20	A28	A28	A45	A24	A74	A81	A27	A70	A35	A11
Physical characteristics after curing: Elongation	%	400	300	200	450	270	500	500	500	500	250	150	48	50	460	70	185	700
Physical characteristics after curing: Tensile strength	MPa	1.9	2.0	0.7	2.5	2.1	2.2	2.2	2.5	2.5	4.0	0.5	3.9	2.5	2.4	4.5	3.1	2.3
Physical characteristics after curing: 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}	4.0×10^{12}	5×10^{13}	2.0×10^{14}	1.1×10^{11}	4.3×10^{12}	7.8×10^{13}	1.5×10^{13}	7.8×10^{11}
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-	25	22	23	Not good for insulation	25	25	22	22	30	28	20	17.4	19	29	25	21
Physical characteristics after curing: Thermal conductivity	W/m-K	-	-	-	-	-	-	-	-	-	-	-	1.59	2.5	-	0.46	0.42	-
Tensile shear bond strength: Aluminum	MPa	1.1	1.4	2.5	0.5	1.7	1.0	1.0	1.0	1.0	1.0	0.6	0.9	1.1	2.2	Non-adhesive	1.3	1.7
Tensile shear bond strength: Glass	MPa	-	-	-	-	1.3	1.2	1.2	1.0	1.0	1.7	0.6	1.3	-	1.9	Non-adhesive	-	1.9
Tensile shear bond strength: Acrylic	MPa	-	-	-	-	-	1.3	1.3	1.2	1.2	2.2	0.5	-	-	2.1	Non-adhesive	-	-
Tensile shear bond strength: Polycarbonate	MPa	-	-	-	-	-	1.4	1.4	1.2	1.2	1.4	0.6	-	-	1.7	Non-adhesive	-	-
Remark(s)						Heat resistance of approx. 300℃					Non-flammable grade UL94 V-0 certified product		Heat conductivity 1.59W/m·K	Heat conductivity 2.5W/m·K		Non-flammable grade UL94 V-0 Certified Product Compounding ratio 100:100 Visible time: 6 hours Standard curing conditions: 100℃×10min	Self-adhesive type Non-flammable grade UL94 V-0 Certified Product Compounding ratio 100:100 Visible time: 40 hours Standard curing conditions: 100℃×1h Good adhesion	Standard curing conditions: 100℃×1h

* - : Unmeasured
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Anaerobic Adhesives and Sealants

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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°Cto 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.

1303 N, 1305 N

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.

1322 N, 1324 N

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.

1342 J, 1344 J

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.

1307 N, 1360 G

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.

1373 N, 1375 N, 1377 N

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.

1360 F

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.

1320 B

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.).

1372 D

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.).

1386 D, 1386 E, 1386 G, 1386 H, 1386 L

Exclusive product for sealing welch plugs

It was adjusted to make it easy to use with coating robots.
It is a low strength, slow-curing type.
It can be used in a temperature range from below -40°C to 150°C (approx.).

1354 , 1354 D

Halogen-free product with heat-curing property

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.

1389 F

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.).

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.).

1353 , 1355

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 D, 1357 K, 1359 , 1359 D, 1359 G

Grade for surface adhesion with UV curability

It is flexible, and it can be used for surface adhesion of metal parts, etc., because of its high peel strength.
It can be used in a temperature range from below -40°C to 150°C (approx.) (200°C for heat-resistant type).
1355D is a medium-high viscosity type, 1359 and 1359D are high viscosity types, 1357K and 1359G is a high viscosity, heat-resistant types.

1376 B

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.).

1390 F, 1390 K, 1390 R

Curing 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.

Anaerobic Adhesives and Sealants

Property Table

Product name		1301B	1303	1303B	1303N	1305	1305B	1305N	1305P		1307N	1314	1316	1320B	1322D	1322N	1323N	1324	1324B	1324N	1327
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		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
Strength		High strength	High strength	High strength	High strength	High strength	High strength	High strength	High strength		High strength	High strength	High strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength	Medium strength
Main usages		Screw	Screw	Screw	Screw	Screw	Screw	Screw	Screw		Screw	Screw Interlocking part	Screw Interlocking part	Screw Interlocking part	Screw	Screw	Screw	Screw	Screw	Screw Interlocking part	Screw
Features		Low viscosity	Low viscosity	Low viscosity	Fast-curing	Medium viscosity	Medium viscosity	Fast-curing Lubricity	Excellent water resistance		Fast-curing Lubricity	Excellent heat aging resistance	High torque Low rash type	Low viscosity Penetrability	Medium viscosity	Fast-curing	Ultrarapid curing	Medium viscosity	Medium viscosity	Fast-curing Lubricity	Compatible with high clearances
Appearance		Brown	Green	Purplish brown	Green	Green	Purplish brown	Green	Purple		Green	Green	Green	Green	Red	Red	Green	Red	Red	Red	Red
Viscosity	mPa-s	8.0	150	125	150	600	500	650	600		2300	250	410	18.0	150	150	90.0	650	600	600	2500
Specific gravity		1.07	1.11	1.07	1.12	1.11	1.07	1.11	1.16		1.12	1.10	1.09	1.10	1.10	1.11	1.16	1.13	1.13	1.12	1.11
Additional curability		-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Curing speed: Set time (Screws[*1])	sec	-	-	-	-	60	-	-	-		-	180	-	480	-	-	-	-	-	-	-
Curing speed: Set time (Interlocking part[*2])	sec	-	-	-	-	-	-	-	-		-	90	-	600	-	-	-	-	-	-	-
Curing speed: Set time (Interlocking part[*2]) When used with curing accelerator (1390K)	sec	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	120	120	-	-
Curing speed: Practical strength[*3] onset	h	2	2	2	1	2	2	1	1		1	1	3	2	1	1	0.5	2	2	1	2
Curing speed: Final strength onset	h	24	24	24	12	24	24	12	12		12	12	24	24	12	12	6	24	24	12	24
Breaking torque[*1]	N/m	33.0	33.0	33.0	45.3	33.0	33.0	46.0	20.0		42.0	45.0	32.0	20.8	25.5	24.0	20.6	22.0	22.0	27.0	30.0
Interlocking adhesion strength[*2]	MPa	35.0	35.0	35.0	40.0	35.0	35.0	45.0	40.0		40.0	41.0	35.0	20.4	28.0	28.0	25.0	28.0	28.0	30.0	32.0
Operating temperature range (Est.)	℃	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		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 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
Remark(s)		For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion	For permanent adhesion			For large-diameter bolts and high tensile bolts	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

* - : Unmeasured
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Anaerobic Adhesives and Sealants

Property Table

Characteristics	Unit	1333B	1342H	1342J	1344H	1344J	1353	1354	1354D	1355	1355D	1357K	1359	1359D	1359G	1360	1360F	1360G	1360K	1360N
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	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
Strength		Medium strength	Low strength	Low strength	Low strength	Low strength	Medium strength	High strength	High strength	Medium-high strength	High strength	High strength	High strength	High strength	Medium strength	Medium strength	High strength	Medium-high strength	Medium strength	Medium strength
Main usages		Screw	Screw	Screw	Screw	Screw	Interlocking part	Interlocking part	Interlocking part	Interlocking part	Surface adhesion	Surface adhesion	Surface adhesion	Surface adhesion Interlocking part	Surface adhesion	Screw	Screw Interlocking part	Screw	Screw	Screw
Features		Low viscosity	Low viscosity	Fast-curing	Medium viscosity	Fast-curing	Low outgassing	Low outgassing Low halogen content	Low outgassing Low halogen content	Low outgassing	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
Appearance		Red	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red	Blue	Red	Red	Red
Viscosity	mPa-s	125	150	150	650	650	650	1000	1000	1300	900	12000	12000	14000	23000	1000	500	1800	1700	800
Specific gravity		1.07	1.05	1.06	1.05	1.06	1.11	1.10	1.10	1.12	1.10	1.10	1.07	1.05	1.10	1.07	1.10	1.10	1.13	1.07
Additional curability		-	-	-	-	-	Heating UV light	Heating UV light	Heating UV light	Heating UV light	UV light	UV light	UV light	UV light	UV light	-	-	-	-	-
Curing speed: Set time (Screws[*1])	sec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-
Curing speed: Set time (Interlocking part[*2])	sec	-	-	-	-	-	90	120 to 180	300	120	100 to 110	300	120	-	300 to 360	240	240	-	-	-
Curing speed: Set time (Interlocking part[*2]) When used with curing accelerator (1390K)	sec	-	-	-	-	-	-	5 to 10	5 to 10	-	10 to 15	10 (1390R)	-	-	60 to 70	15	15	-	-	-
Curing speed: Practical strength[*3] onset	h	4 to 6	2	1	2	1	1	-	1	1	-	-	-	-	-	6	1	2	6	6
Curing speed: Final strength onset	h	24	24	12	24	12	24	-	24	24	-	-	-	-	-	24	12	24	36	36
Breaking torque[*1]	N/m	12.0	16.7	24.1	14.5	23.7	-	-	-	-	-	-	-	-	-	29.0	41.6	37.6	25.0	22.5
Interlocking adhesion strength[*2]	MPa	-	-	-	-	-	26.0	33.2	36.0	25.0	38.2	30.9	41.2	32.0	22.8	23.0	36.6	-	25.0	25.0
Operating temperature range (Est.)	℃	below -40℃ to 120℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 125℃	below -40℃ to 125℃	below -40℃ to 125℃	below -40℃ to 125℃	below -40℃ to 150℃	below -40℃ to 175℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 200℃	below -40℃ to 200℃	below -40℃ to 200℃	below -40℃ to 200℃	below -40℃ to 180℃	below -40℃ to 200℃
Remark(s)			Good removability DOP-free product	Good removability DOP-free product	Good removability DOP-free product	Good removability DOP-free product						Emits light with black light					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

* - : Unmeasured
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Anaerobic Adhesives and Sealants

Property Table

Product name		1372D	1373B	1373N	1374	1375B	1375N	1375P	1376B		1377B	1377N	1386	1386B	1386D	1386E	1386G	1386H	1386L	1389F
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		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
Strength		High strength	High strength	High strength	High strength	High strength	High strength	High strength	High strength		High strength	High strength	Low strength	Low strength	Low strength	Low strength	Low strength	Low strength	Low to medium strength	Low strength
Main usages		Interlocking part	Interlocking part	Interlocking part	Screw	Interlocking part	Interlocking part	Interlocking part	Interlocking part		Interlocking part	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
Features		Strength at a high temperature	Low viscosity	Fast-curing	With axial force	Medium viscosity	Fast-curing	Medium viscosity	Low halogen content		High viscosity	Fast-curing	Lubricity	Lubricity	Slow curing Lubricity	Slow curing Lubricity	Slow curing Lubricity	Slow curing	Slow curing Lubricity	Rubber elasticity
Appearance		Green	Green	Green	Red	Green	Green	Green	Blue		Green	Green	Red	Yellow	Red	Blue	Dark purple	Fluorescent yellow	Blue	Blue
Viscosity	mPa-s	110	125	90.0	650	800	500	600	700		2000	1500	2000	2000	2000	2000	2000	2200	2000	60000
Specific gravity		1.07	1.10	1.10	1.11	1.11	1.12	1.12	1.10		1.12	1.12	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.12
Additional curability		UV light	-	UV light	-	-	UV light	UV light	UV light		-	UV light	-	-	-	-	-	-	-	-
Curing speed: Set time (Screws*1)	sec	-	-	-	-	-	-	-	-		-	-	-	-	-	-	50 (min)	-	15 (min)	-
Curing speed: Set time (Interlocking part*2)	sec	180	-	-	-	-	-	-	60 to 120		-	-	-	-	-	-	15 (min)	50 (min)	20 (min)	-
Curing speed: Set time (Interlocking part*2) When used with curing accelerator (1390K)	sec	-	-	-	-	-	-	-	5 to 10		-	-	-	-	-	-	-	10	-	-
Curing speed: Practical strength*3 onset	h	1	1.5	1	1 to 2	2	1	1	-		1.5	1	2	2	5	5	8	-	6	-
Curing speed: Final strength onset	h	24	24	24	24	24	24	24	-		24	24	24	24	36	36	24	-	24	-
Breaking torque*1	N/m	-	42.7	-	35.8	-	-	-	-		-	-	15 to 25	15 to 25	10 to 15	10 to 15	17.2	15.3	23.5	9.0
Interlocking adhesion strength*2	MPa	33.0	25 to 34	38.2	19 to 27	29 to 34	31.8	34.5	33.5		25 to 34	31.8	-	-	-	-	18.5	-	20.5	-
Operating temperature range (Est.)	℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 175℃	below -40℃ to 120℃	below -40℃ to 175℃	below -40℃ to 120℃		below -40℃ to 150℃	below -40℃ to 120℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃	below -40℃ to 150℃
Remark(s)																			Galling prevention Excellent coating properties	

*1: Iron bolts/nut M10×Pitch 1.5
*2: Iron pin / collar 6φ ×15mm, Clearance 1/100mm
*3: 1/2 of the final strength

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
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Anaerobic Adhesives and Sealants

Property Table

Product name / Characteristics	Unit	1390F	1390K	1390R
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.

Agents for Preventing Screw Loosening, Leaks and Rust

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.).

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.

Property Table

Characteristics		Unit	1401	1401B	1401C	1401D	1401E	1402	1402B
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)

* 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.

Volatile Solvent Type Adhesives

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

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.

1521 C

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.

1541 C

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			Light yellow	Light brown transparent	Black	Black	Light yellow	Milky yellow
Viscosity		mPa-s	5000	3200	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.

Elastomeric Adhesives

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

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 adhesion 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.

1538 B

It is an elastomeric adhesive that meets special standards.
Certified as UL Standard QOQW2 [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
Physical characteristics after curing: Elongation rate	%	280	380	200	220	280	270	140	360
Physical characteristics after curing: Tensile strength	MPa	5.9	3.0	4.1	3.2	2.1	2.5	1.6	1.8
Physical characteristics after curing: 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}	-
Physical characteristics after curing: 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
Tensile shear bond strength: Aluminum	MPa	6.6	4.4	4.3	2.5	2.8	2.5	2.9	2.4
Tensile shear bond strength: Acrylic	MPa	4.7	3.3	3.8	2.6	2.1	2.5	2.3	0.5
Tensile shear bond strength: 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	-
Peel strength: NBR	kN/m	1.60	1.50	1.40	-	-	-	0.29	-
Peel strength: CR	kN/m	1.40	1.60	1.00	-	-	-	0.04	-
Peel strength: 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

Elastomeric Adhesives

Property Table

Characteristics	Unit	1532D	1533	1533C	1533D	1533F	1533K	1535	1535B	1535C	1535D	1537	1537B	1537D	1538B	1538D	1539	1539B
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	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	Castor oil polymer	Castor oil polymer
Reaction type		Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Alcohol-releasing	Heat-curing Moisture-curing	Heat-curing Moisture-curing
Features		Flexibility	Standard type	Clear type	Low viscosity	Applicable to Adhesion-difficult Material	-	Standard type	-	Clear type	-	Incombustible type	Incombustible type	Incombustible type	Incombustible type	Standard type	Standard type	Standard type
Appearance		Black	White	Translucent	Gray	Gray	Black	White	Black	Colorless	Gray	White	Black	Gray	Black	Gray	Black	White
Viscosity	Pa-s	450	100	100	22.0	180	47.0	75.0	90	30.0	25	55.0	55.0	55.0	80.0	55.0	100	100
Specific gravity		1.55	1.39	1.30	1.39	1.21	1.24	1.43	1.43	1.04	1.38	1.67	1.67	1.67	1.44	1.67	1.34	1.34
Tack-free	min	60	7	7	7	-	12	4	5	3	5	4	4	4	9	7	-	-
Physical characteristics after curing: Hardness		A40	A40	A50	A26	A25	A30	A45	A45	A37	A36	A72	A74	A71	A50	A85	A70	A70
Physical characteristics after curing: Elongation rate	%	360	280	145	286	460	480	180	166	136	182	29	33	29	170	60	120	140
Physical characteristics after curing: Tensile strength	MPa	1.8	4.5	3.8	2.9	3.0	3.0	4.5	4.2	3.5	3.6	5.0	3.9	4.3	2.9	4.1	3.5	3.5
Physical characteristics after curing: 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}	5.0×10^{8}	4.7×10^{9}	2.5×10^{9}	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}
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-	21	25	21	26	19.0	25	20	28	19	25	24	26	17	20.6	19	22
Tensile shear bond strength: Iron	MPa	2.0	5.8	4.6	3.4	3.7	4.1	5.0	5.0	7.1	4.2	4.0	4.2	4.4	4.0	3.9	3.8	3.6
Tensile shear bond strength: Aluminum	MPa	2.4	5.7	4.7	2.8	3.9	4.4	5.8	5.0	8.7	3.9	4.3	4.3	4.3	4.2	3.5	4.3	4.1
Tensile shear bond strength: Acrylic	MPa	0.6	2.6	3.8	2.7	4.5	2.8	4.1	3.6	6.4	2.9	1.7	1.6	1.8	3.4	3.2	0.7	0.7
Tensile shear bond strength: Polycarbonate	MPa	1.6	4.3	3.2	2.1	4.2	3.3	3.1	2.9	5.5	1.4	3.7	3.6	3.6	3.2	3.5	1.5	1.4
Peel strength: Aluminum	kN/m	-	3.5	3.2	1.5	-	-	1.7	3.0	1.7	1.7	1.0	1.4	1.2	2.2	3.5	1.5	1.5
Peel strength: NBR	kN/m	-	2.30	1.0	1.3	-	-	1.2	0.6	0.7	1.6	0.10	0.11	0.09	0.30	-	-	-
Peel strength: CR	kN/m	-	2.10	0.7	1	-	-	1.3	0.6	0.4	0.8	0.06	0.05	0.06	0.10	-	-	-
Peel strength: Silicone rubber	kN/m	-	1.00	0.2	0.4	-	-	0.1	0.1	0.1	0.4	0.13	0.13	0.12	0.30	-	-	-
Remark(s)			DBT-free product	DBT-free product	DBT-free product	DBT-free product	DBT-free product	Tin-free product	Tin-free product	Tin-free product	Tin-free product	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 QOQW2 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

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

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.

1555 C

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.

Heat-Bonding Sheet Adhesives

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works

These are heating and pressing type sheet-like adhesives made from thermoplastic resin sheets.
Through thermal pressure bonding, the adhesive layer adheres via thermofusion to the adhered material surface, and when the temperature returns to room temperature, the adhesive becomes solid and provides adhesion.
They are widely used for aluminum nameplates on sound equipment and home appliances.
They are especially excellent for bonding to metals and thermoplastics.
Products come in rolls of 50m or 100m.

1615

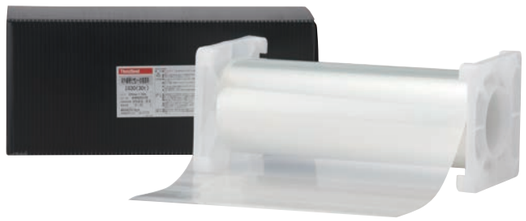
Middle temperature crimping type

It is suitable for plates that cannot be laminated, for example if the original plate to be adhered to is to be plated.
It can be used in a temperature range from below -40°C to 70°C (approx.).

Property Table

Product name / Characteristics	Unit	1615
Main component		Synthetic resin Synthetic rubber
Features		Medium-temperature adhesion Punching type
Appearance		Black
Film thickness	μm	130
Roll width	mm	500
Roll length	m	50
Release paper		None
Bonding temperature	℃	100 to 120
Adhesion strength (90° peel strength) * Aluminum/Aluminum	kN/m	2.6
Operating temperature range (Est.)		below -40°C to 70°C
Remark(s)		Place punched sheets between the substrates and perform thermo compression bonding Good for parts that are weak against heat

* -: 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.



Functional Sheet Adhesives

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works

These are reactive-curing type sheet-like adhesives that use technology that has been developed over many years with liquid adhesives. When compared to liquid adhesives, these functional adhesive sheets are especially good for bonding large areas with film thickness uniformity, and are good for bonding without air bubbles and overflow. Various functions has been added to meet the wide variety of needs including optical use such as flat panel displays, adhesion sealing of organic EL panels, and motor magnet bonding. There is a heat-curing type functional adhesive sheet and a type that cures under UV light.

* For more details about the bonding process and equipment, please contact our sales representative.

1631

This is a type of sheet-like adhesive that cures under UV light. By heat lamination, transferring and temporary adhesion occur, and then it cures by UV light irradiation. After curing, it becomes a highly transparent film (high visible light transmission) that is flexible and has excellent light resistance. It is good for usages that require transparency such as flat panel displays and other usages such as surface adhesion of optical parts. Also, it has excellent reliability under various environments after curing by UV light. It is available with various film thickness, therefore can be considered for bonding of various materials.

1652

This is a heat-curing type expanding adhesive sheet for adhesion of clearance.
Swelling capsules are mixed in an epoxy-based adhesive, so it expands when heated, and adhesion and curing occur.
First the sheet is transferred to a substrate. Then by inserting the substrate in the gap and by heating, the gap is filled resulting in stable adhesion strength.
It is good for bonding of IPM motor magnets, and bonding with parts that have a relatively large dimensional tolerance such as ceramics and castings.

1651 D

This is a type of heat curable sheet-like adhesive that is made by processing highly heat resistant epoxy based adhesive to sheet-like shape. By using a hot roll laminating machine or hot press machine, the epoxy resin which is the main component of the sheet is melted to get temporary adhesion, then by heating it continuously to cure the adhesive, excellent adhesion and attains high electric insulation. It has excellent adhesion to inorganic materials such as metal sheets and glass sheets, and film materials such as polyimide, PET film, etc.

1655

This is a heat-curing type sheet-like adhesive for sealing organic EL solids.
By thermal pressure bonding and heat lamination, transferring and temporary adhesion occur, and then it cures by continuous heating.
After curing, it becomes a cured material with high transparency and reliable sealing.
It is good for bonding and sealing element glass and sealing glass for organic EL display devices.

Property Table

Characteristics		Unit	1631			1655
Main component			Acrylic resin			Epoxy resin
Features			Highly transparent Applicable for various thick films			High transparency Glass adhesion
Appearance			Colorless and transparent			White translucent
Film thickness		µm	30	50	125	20
Curing method			UV light irraciation			Heating
Curing conditions			30kJ/m²			100℃ × 2 hours or 120℃× 30 min
Tensile shear bond strength	Glass/Glass	MPa	6.0*2	6.5*2	7.0*2	4.5
	Glass/Acrylic	MPa	-			-
	Iron/Iron	MPa	-			11.3
Total light transmittance		%	>91*1			>91*1
Remark(s)			Flexible cured material			Transparent after curing Good adhesion to glass

*1 Measured with reference air
*2 Compression shear bond strength

* -: 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.

Instant Adhesives
Gold Label Instant Adhesives

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

1721 D
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.

1771 E, 1771 M, 1773 E
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.

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.

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.

1795 C
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).

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.

7781 , 7782 , 7784 , 7785 , 7786
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.
It has excellent heat resistance.
It is a highly functional instant adhesive with special functionality.

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.

7761
Impregnation coating agent for 3 D 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.

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.

7797 , 7797 C
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.

Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name			1701	1702	1702B	1721D	1731	1733	1735	1739		1741	1741D	1741E	1743	1743D	1743F	1745	1747	1757	1771E	1771M
Characteristics		Unit																				
Main component			Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate		Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	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		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
Appearance			Colorless	Colorless	Blue	Light yellow	Light yellow	Light yellow	Light yellow	Colorless		Colorless	Blue	Colorless	Colorless	Blue transparent	Colorless	Colorless	Colorless	Light yellow	Yellow	Yellow to Yellowish green
Viscosity		mPa-s	3.0	35.0	35.0	6.0	20.0	150	1500	23000		2.0	2.0	3.0	100	100	100	500	2000	1200	2.0	2.0
Specific gravity			1.10	1.10	1.05	1.07	1.06	1.10	1.10	1.03		1.06	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.06	1.05	1.05
Set time	Iron	sec	10	30	40	40	30	40	60	30		5	5	5	10	10	20	10	10	30	3	10
	NBR	sec	5	15	5	2	60	70	120	30		5	5	5	10	10	20	10	10	20	2	2
Tensile shear bond strength	Iron	MPa	23.7	23.0	16.9	14.4	20.0	17.0	18.0	24.2		14.2	14.2	14.0	19.3	19.3	22.0	22.2	22.9	19.2	15.1	17.5
	Aluminum	MPa	15.3	17.0	8.4	13.2	11.0	11.0	10.0	11.5		16.5	16.5	12.0	16.6	16.6	14.0	16.6	17.3	16.0	10.6	13.3
	Polycarbonate	MPa	(Material failure)	(Material failure)	7.8	(Material failure)	(Material failure)	(Material failure)	1.4	5.8		(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	4.5	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	ABS	MPa	(Material failure)	(Material failure)	7.6	(Material failure)	(Material failure)	(Material failure)	(Material failure)	6.1		4.2	4.2	(Material failure)	5.2	5.2	(Material failure)	5.1	5.0	(Material failure)	(Material failure)	(Material failure)
	NBR	MPa	(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)
	Chloroprene rubber	MPa	(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)
Peel strength	Iron	kN/m	-	-	-	-	3.0	3.0	4.0	-		-	-	-	-	-	-	-	-	-	-	-
	Aluminum	kN/m	-	-	-	-	2.0	2.0	2.0	-		-	-	-	-	-	-	-	-	-	-	-
Operating temperature range (Est.)		℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃		below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 120℃	below -40℃ to 100℃	below -40℃ to 100℃
Remark(s)										Structural viscosity ratio 3.5										Continuous usage at 120℃ 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.

Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name			1773E	1781	1781F	1782	1783	1785B	1786	7721		7737	7738	7741	7761	7781	7782	7784	7785	7786	7789
Characteristics		Unit																			
Main component			Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate		Cyanoacrylate	Cyanoacrylate	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		High functionality Ultrahigh peel strength	High functionality Ultrahigh peel strength	High functionality Standard type	Impregnating reinforcement coating agent for 3D printers	High functionality Ultrarapid curing	High functionality Ultrarapid curing	High functionality Ultrarapid curing	High functionality Ultrarapid curing	High functionality Ultrarapid curing	Fast-curing gel
Appearance			Yellow	Colorless	Blue	Colorless	Colorless	Colorless	Colorless	Colorless to Light yellow		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
Viscosity		mPa-s	150	3.0	20.0	80.0	800	3.0	150	5.0		2000	5000	2.0	5.5	2.0	15.0	160	500	1000	25000
Specific gravity			1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.07		1.07	1.08	1.05	-	1.05	1.05	1.05	1.07	1.08	1.09
Set time	Iron	sec	5	10	10	10	10	5	5	15		90	90	3	-	2	2	3	3	4	10
	NBR	sec	2	5	5	5	5	3	3	2		90	90	2	120	2	2	2	2	2	7
Tensile shear bond strength	Iron	MPa	15.9	16.4	22.1	25.5	24.7	11.9	18.2	18.4		25.7	27.7	15.0	-	14.0	14.2	15.3	16.3	17.0	21.0
	Aluminum	MPa	11.2	15.3	12.8	17.8	17.7	12.0	13.2	12.9		20.4	21.4	15.1	-	14.9	15.3	16.1	14.6	14.9	15.9
	Polycarbonate	MPa	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	5.4	(Material failure)		(Material failure)	(Material failure)	(Material failure)	-	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)	(Material failure)
	ABS	MPa	(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)
	NBR	MPa	(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)
	Chloroprene rubber	MPa	(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)
Peel strength	Iron	kN/m	-	-	-	-	-	-	-	-		3.4	4.2	-	-	-	-	-	-	-	-
	Aluminum	kN/m	-	-	-	-	-	-	-	-		3.4	2.9	-	-	-	-	-	-	-	-
Operating temperature range (Est.)		℃	below -40℃ to 100℃	below -40℃ to 120℃	below -40℃ to 120℃	below -40℃ to 120℃	below -40℃ to 120℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃		below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃		below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃	below -40℃ to 100℃
Remark(s)			Standard curing condition 10kJ/m^2	Continuous usage at 100℃ possible	Continuous usage at 100℃ possible	Continuous usage at 100℃ possible	Continuous usage at 100℃ possible					Structural viscosity ratio 4.8	Structural viscosity ratio 5.0	Continuous usage at 80℃ possible	Impregnation coating for 3D printer shaped objects of plaster	Continuous usage at 80℃ possible Final strength within 30 min	Continuous usage at 100℃ possible Final strength within 30 min	Continuous usage at 100℃ possible Final strength within 30 min	Continuous usage at 100℃ possible Final strength within 30 min	Continuous usage at 100℃ possible Final strength within 30 min	Structural viscosity ratio 6.5

* - : Unmeasured
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Instant Adhesives and Gold Label Instant Adhesives

Property Table

Product name / Characteristics	Unit	1795C	1796	1796B	1796F	1796G	1796K	1797			7796	7797	7797C
Main component		Acetone	Amine compound	Amine compound	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	Bonding primer	Bonding primer
		-	-	Lower odor	Aerosol	Ordinance on Prevention of Organic Solvent Poisoning does not apply	Lower odor Aerosol	-			Slight odor type	Multi-primer	Multi-primer
Appearance		Colorless	Light yellow	Light yellow	Light yellow	Light yellow	Colorless to Light yellow	Light yellow			Colorless to Light brown	Colorless	Colorless
Viscosity	mPa-s	-	-	-	-	-	-	-			-	-	-
Specific gravity		0.90	0.82	0.82	0.81	0.82	0.76	0.80			0.75	0.67	0.68
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)	-	-
Set time – Polypropylene	sec	-	-	-	-	-	-	5 (TB1741)			-	3 (TB7784)	3 (TB7784)
Set time – 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)	-	-
Tensile shear bond strength – Polypropylene	MPa	-	-	-	-	-	-	(Material failure) (TB1741)			-	(Material failure) (TB7784)	(Material failure) (TB7784)
Remark(s)								For hard-to-bond materials				For hard-to-bond materials	For hard-to-bond materials (7797 variant with a different solvent)

*1: Tensile shear bond strength: After 1 minute of iron sheer 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.

Epoxy Resins

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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.

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.

2002 K, 2002 L

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).

2022 U

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)

2102 B

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.

2105 C

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.

2105 F

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

2106 G

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).

2131 D

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.

2080 Series
(Two-component epoxy resin adhesive set)

2081 D

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.

2082 C

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.

2083 L

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).

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).

2086 N

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)

2088 E

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.

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

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.

2212 B

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

2222 P

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.

2235 L

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.

2237 J

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.

2239 H

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.

2249 G

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.

2270 C

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).

2272 F

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.

2274 S

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

2280 E

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).

2284 F

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.

Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2001					2002K			2002K		2002L						2002M	
Characteristics	Unit	Main agent	2103	2105C	2105F	2163	Main agent	2105	2105C	2105F	2107	Main agent	2105	2105C	2105F	2105R	2107	Main agent	2105C
Main component		Epoxy resin	Aliphatic polyamine	Modified polyamido-amine	Modified polyamido-amine	Modified aromatic polyamine	Epoxy resin	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Epoxy resin	Aliphatic polyamine
Features		Adhesion strength Slight flexibility	Medium heat resistance Fast-curing	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Heat resistance Mechanical strength	Highly thixotropic Padding ability	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	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	High viscosity, appropriate hardness and flexibility	Adhesion of structures	For electronic device molding	For electronic device molding
Appearance		Light yellow	Light yellow	Reddish brown	Reddish brown	Black	Gray	Light yellow	Reddish brown	Reddish brown	Light brown	White	Light yellow	Reddish brown	Reddish brown	Reddish brown	Light brown	Black	Reddish brown
Viscosity	Pa-s	12.0	-	1.8	40.0	1.2	100	4.5	1.8	40.0	30.0	95.0	4.5	1.8	40.0	50.0	30.0	15.0	1.8
	mPa-s	-	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.16	0.97	0.95	0.96	1.10	1.21	0.95	0.95	0.96	0.96	1.25	0.95	0.95	0.96	0.86	0.96	1.17	0.95
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 9 to 10	100 / 45 to 50	100 / 80 to 100	100 / 20	-	100 / 40 to 50	100 / 40 to 50	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 / 40 to 50
Pot life (25°C / 100g when mixed)		-	23 min	65 min	60 to 90 min	5 hours	-	-	-	-	-	-	-	-	-	1.5 to 2h	-	-	-
Standard curing conditions		-	25°C/24h or 100°C/30min	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	100°C/3h and 150°C/2h	-	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	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	-	25°C/24h or 100°C/1h
Physical characteristics after curing	Hardness	-	D88	D84	D80	D90	-	D84	D84	D82	D70	-	D84	D84	D78	D80	D70	-	D85
	Glass transition temperature °C	-	90	81	64	150	-	-	-	-	-	-	-	-	-	-	-	-	-
	Volume resistivity Ω·m	-	1×10^{14}	1×10^{13}	1×10^{13}	2×10^{15}	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dielectric breakdown strength kV/mm	-	24	20	20	28	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	Tensile shear bond strength (When heat-cured) MPa	-	18.0	22.0	20.0	24.5	-	17.5	19.1	16.9	17.6	-	18.8	18.7	20.2	23.3	18.2	-	19.8
	Peel strength (When heat-cured) N·m	-	196	353	471	275	-	-	-	-	-	-	-	-	-	-	-	-	-
Remark(s)																			

* - : Unmeasured
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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2003							2003C		2003H		2004			2004J	2016F			
Characteristics	Unit	Main agent	2102B	2103	2105C	2105F	2106G	2106H	Main agent		Main agent	2105T	Main agent	2105C	2105F	Main agent	Main agent	2103	2105C	2105F
Main component		Epoxy resin	Modified aliphatic polyamine	Aliphatic polyamine	Modified polyamido-amine	Modified polyamido-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin		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
Features		Filling adhesion Usable as putty	Fast-curing	Medium heat resistance Fast-curing	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Balance between shear and peel-adhesive strength	Balance between shear and peel-adhesive strength	General-purpose adhesion Usable as putty		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
Appearance		Brown	Reddish brown	Light yellow	Reddish brown	Reddish brown	Light yellow	Light yellow	Black		Black	Milky white	White	Reddish brown	Reddish brown	Gray	Silver	Light yellow	Reddish brown	Reddish brown
Viscosity	Pa-s	Putty	2.8	-	1.8	40.0	3.0	6.5	Putty		Paste		60.0	1.8	40.0	90.0	Putty	-	1.8	40.0
	mPa-s	-	-	20.0	-	-	-	-	-		-		-	-	-	-	-	20.0	-	-
Specific gravity		1.53	1.06	0.97	0.95	0.96	1.06	1.06	1.53		1.80		1.40	0.95	0.96	1.18	1.31	0.97	0.95	0.96
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 12.5	100 / 4.5 to 5	100 / 20 to 25	100 / 40 to 50	100 / 25	100 / 30	-		-	100 / 100	-	100 / 32 to 40	100 / 64 to 80	-	-	100 / 6.3 to 7	100 / 28 to 35	100 / 56 to 70
Pot life (25°C / 100g when mixed)		-	25 min	30 min	75 min	2h	40 min	55 min	-		-	1 to 2h	-	50 to 60 min	90 min	-	-	-	-	-
Standard curing conditions		-	25°C/24h or 100°C/1h	25°C/24h or 100°C/1h	25°C/24h or 100°C/30 min	25°C/24h or 100°C/30 min	25°C/24h or 80°C/1h	25°C/48h or 80°C/2h	-		-	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
Physical characteristics after curing / Hardness		-	D82	D89	D85	D82	D88	D87	-		-	D80	-	-	-	-	-	D87	D84	D84
Physical characteristics after curing / Glass transition temperature	°C	-	-	-	-	-	80	81	-		-	40	-	-	64	-	-	-	-	-
Physical characteristics after curing / Volume resistivity	Ω·m	-	1×10^{14}	3×10^{14}	1×10^{13}	1×10^{13}	-	-	-		-	-	-	-	1×10^{13}	-	-	-	-	-
Physical characteristics after curing / Dielectric breakdown strength	kV/mm	-	20	25	25	20	-	-	-		-	-	-	-	-	-	-	-	-	-
Iron / Tensile shear bond strength (When heat-cured)	MPa	-	15.0	17.0	22.0	18.0	22.0	23.0	-		-	12.0 (When cured at room-temperature)	-	15.7	17.7	-	-	14.3	20.1	21.2
Iron / Peel strength (When heat-cured)	N·m	-	118	196	275	589	1000	1100	-		-	1900 (When cured at room-temperature)	-	-	-	-	-	-	-	-
Remark(s)																				

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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2022								2022					2022B	2022C		2022D	2022F	2022R
Characteristics	Unit	Main agent	2102	2102B	2103	2104	2105C	2105F	2105R	2106G	2106H	2107	2131D	2131P	Main agent	Main agent	2131D	Main agent	Main agent	Main agent
Main component		Epoxy resin	Modified aliphatic polyamine	Modified aliphatic polyamine	Aliphatic polyamine	polythiol	Modified polyamido-amine	Modified polyamido-amine	Modified polyamido-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Modified polyamido-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Epoxy resin	Epoxy resin
Features		Good overall characteristic balance	Fast-curing Some flexibility	Fast-curing	Medium heat resistance Fast-curing	Rubber-like cured material Curing at low temperatures Impact strength Freeze resistance	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	High viscosity, appropriate hardness and flexibility	Transparency Medium heat resistance	Transparency Medium heat resistance	Adhesive for structures	Transparency Low shrinkage Low viscosity	Low viscosity Low heat	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
Appearance		Light yellow	Light yellow	Light yellow	Light yellow	Light yellow	Reddish brown	Reddish brown	Reddish brown	Light yellow	Light yellow	Light brown	Light brown	Light yellow	Light yellow	Light yellow	Light yellow	Red	Blue	White
Viscosity	Pa-s	13.0	6.5	2.8	-	-	1.8	40.0	50.0	3.0	6.5	30.0	-	-	4.0	5.0	-	15.0	15.5	4.0
	mPa-s	-	-	-	20.0	950	-	-	-	-	-	-	10	14	-	-	10	-	-	-
Specific gravity		1.16	1.10	1.06	0.97	1.22	0.95	0.96	0.96	1.06	1.06	0.96	0.95	0.96	1.15	1.10	0.95	1.20	1.20	1.15
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 100	100 / 25	100 / 9 to 10	100 / 80 to 100	100 / 40 to 50	100 / 80 to 100	100 / 80 to 100	100 / 50	100 / 60	100 / 100	100 / 30 to 35	100 / 30 to 35	-	-	100 / 30 to 35	-	-	-
Pot life (25°C / 100g when mixed)		-	7 to 9 min	20 min	25 min	25 min	70 min	60 to 90 min	1.5 to 2h	65 min	77 min	2.5h	4 to 5h	1 to 1.5h	-	-	4 to 5h	-	-	-
Standard curing conditions		-	25°C/12h	25°C/24h 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	25°C/24h or 100°C/1h	25°C/48h or 100°C/1h	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	25°C/24h or 100°C/1h	-	-	80°C/4h or 100°C/1h	-	-	-
Physical characteristics after curing — Hardness		-	D74	D82	D88	D70	D84	D81	D81	D87	D87	D70	D85	D84	-	-	D80	-	-	-
Physical characteristics after curing — Glass transition temperature	°C	-	-	70	90	37	80	63	-	78	73	60	82	86	-	-	80	-	-	-
Physical characteristics after curing — Volume resistivity	Ω·m	-	-	1×10^{13}	2×10^{14}	1×10^{13}	1×10^{13}	1×10^{13}	-	-	-	2.9×10^{12}	1×10^{13}	-	-	-	1×10^{13}	-	-	-
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	19	20	25	18	23	20	-	-	-	-	27	-	-	-	25	-	-	-
Iron — Tensile shear bond strength (When heat-cured)	MPa	-	15.0 (When cured at room-temperature)	16.0	17.0	18.0	22.0	20.0	21.3	18.0	19.0	26.0	16.0	16.7	-	-	16.0	-	-	-
Iron — Peel strength (When heat-cured)	N·m	-	-	235	235	1962	353	589	-	500	500	1961	392	275	-	-	589	-	-	-
Remark(s)																				

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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2022S		2022U		2023				2023						2023B			2023D	
Characteristics	Unit	Main agent	2105C	Main agent	2103	Main agent	2102B	2103	2105C	2105F	2105R	2106G	2106H	2131D	2163	Main agent	2106G	2106H	Main agent	2105C
Main component		Epoxy resin	Modified polyamido-amine	Epoxy resin	Aliphatic polyamine	Epoxy resin	Modified aliphatic polyamine	Aliphatic polyamine	Modified polyamido-amine	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	Modified polyamido-amine
Features		High strength		High strength Adhesive for structures	Medium heat resistance Fast-curing	Low viscosity	Fast-curing	Medium heat resistance Fast-curing	Adhesion strength Flexibility Chemical resistance	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	Adhesion strength Flexibility Chemical resistance
Appearance		Light yellow	Reddish brown	Black	Light yellow	Light yellow	Reddish brown	Light yellow	Reddish brown	Reddish brown	Reddish brown	Light yellow	Light yellow	Light yellow	Black	Light yellow	Light yellow	Light yellow	Light yellow	Reddish brown
Viscosity	Pa-s	13.0	1.8	11.2	-	-	2.8	-	1.8	40.0	50.0	3.0	6.5	-	1.15	-	3.0	6.5	-	1.8
	mPa-s	-	-	-	20.0	900	-	20.0	-	-	-	-	-	10.0	-	200	-	-	800	-
Specific gravity		1.15	0.95	1.15	0.97	1.13	1.06	0.97	0.95	0.96	0.96	1.06	1.06	0.95	1.10	1.13	1.06	1.06	1.07	0.95
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 40 to 50	-	100 / 10	-	100 / 25	100 / 9 to 10	100 / 40 to 50	100 / 80 to 100	100/ 80 to 100	100 / 50	100 / 60	100 / 30 to 35	100 / 20	-	100 / 50	100 / 60	-	100 / 40 to 50
Pot life (25°C / 100g when mixed)		-	70 min	-	13 min	-	22 min	27 min	80 min	2h	1.5 to 2h	90 min	108 min	4 to 5h	5h	-	50 min	70 min	-	40 to 60 min
Standard curing conditions		-	25°C/24h or 100°C/1h	-	25°C/24h	-	25°C/48h or 100°C/1h	25°C/48h or 100°C/1h	25°C/48h or 100°C/2h	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	-	80°C/24h or 25°C/24h+ 60°C/3 to 4h
Physical characteristics after curing / Hardness		-	D84	-	D76	-	D80	D85	D82	D80	D78	D84	D85	D81	D88	-	D81	D81	-	D70 to 75
Physical characteristics after curing / Glass transition temperature	°C	-	75	-	103	-	68	80	76	60	-	63	55	79	140	-	46	42	-	-
Physical characteristics after curing / Volume resistivity	Ω·m	-	-	-	-	-	1×10^{13}	1×10^{14}	1×10^{13}	1×10^{13}	-	-	-	1×10^{13}	2×10^{14}	-	-	-	-	5 to 8×10^{12}
Physical characteristics after curing / Dielectric breakdown strength	kV/mm	-	-	-	-	-	20	22	20	20	-	-	-	20	40	-	-	-	-	14 to 18
Iron / Tensile shear bond strength (When heat-cured)	MPa	-	24.5	-	25	-	16.0	16.0	20.0	18.0	19.8	18.0	19.0	17.0	24.0	-	17.0	16.0	-	11.8 to 14.7
Iron / Peel strength (When heat-cured)	N·m	-	1766	-	613 (When cured at room-temperature)	-	196	275	392	981	-	500	500	235	235	-	600	400	-	-
Remark(s)																				

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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2023J		2023K	2023M	2023S	2024B			2024B		2025		2045		2061F		2074B	
Characteristics	Unit	Main agent	2104	Main agent	Main agent	Main agent	Main agent	2103	2105C	2105F	2163	Main agent	2104	Main agent	2145	Main agent	2105C	Main agent	Curing agent
Main component		Epoxy resin	Polythiol	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Aliphatic polyamine	Modified polyamido-amine	Modified polyamido-amine	Modified aromatic polyamine	Epoxy resin	Polythiol	Epoxy resin	Alicyclic polyamine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Polyamido-amine
Features		Low viscosity Black type of TB2023	Rubbery hardened material, low-temperature hardening, impact resistance, cold resistance	White type of TB2023	Low viscosity White type of TB2023	Low viscosity Insulation property	Low shrinkage Heat dissipation property Insulation property	Medium heat resistance Fast-curing	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Heat resistance Insulation property	Thermal impact Insulation property Flexibility	Rubbery hardened material, low-temperature hardening, impact resistance, cold resistance	Two-component fire-resistant Epoxy resin Certified with UL94 V-0 Formaldehyde emissions「F☆☆☆☆」		Casting Potting	Adhesion strength Flexibility Chemical resistance	Low viscosity High-thixotropic	
Appearance		Black	Light yellow	Light yellow	White	Colorless	Light yellow	Light yellow	Reddish brown	Reddish brown	Black	Light gray	Light yellow	Black	Orange	Light brown	Reddish brown	White	Black
Viscosity	Pa-s	-	-	2.5	-	-	11.0	-	1.8	40	1.15	25.0	-	180	1.6	2.0	1.8	25.0	9.0
	mPa-s	900	950	-	900	500	-	20.0	-	-	-	-	950	-	-	-	-	-	-
Specific gravity		1.13	1.22	1.15	1.14	1.09	1.45	0.97	0.95	0.96	1.10	1.52	1.22	1.82	0.99	1.10	0.95	1.27	1.16
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 80 to 100	-	-	-	-	100 / 5.4 to 6	100 / 24 to 30	100 / 48 to 60	100 / 12	-	100 / 40 to 50	100 / 10		-	100 / 30	100 / 50	
Pot life (25°C / 100g when mixed)		-	30 min	-	-	-	-	30 min	75 min	-	5h	-	23 min	100 min		-	60 to 80 min	50 min	
Standard curing conditions		-	25°C/24h or 100°C/1h	-	-	-	-	25°C/48h or 100°C/1h	25°C/48h or 100°C/1h	25°C/48h or 100°C/1.5h	100°C/3h + 150°C/2h	-	25°C/24h or 100°C/1h	25°C/72h		-	80°C/2h	25°C/48h or 120°C/1h	
Physical characteristics after curing: Hardness		-	D67	-	-	-	-	D87	D82	D85	D88	-	D69	D87		-	A55	D84	
Physical characteristics after curing: Glass transition temperature	°C	-	3	-	-	-	-	85	75	63	140	-	-4.3	53		-	-	-	
Physical characteristics after curing: Volume resistivity	Ω·m	-	-	-	-	-	-	2×10^{14}	1×10^{13}	-	2×10^{14}	-	-	5.9×10^{12}		-	4.7×10^{10}	-	
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-	-	-	-	-	-	25	20	-	40	-	-	-		-	1.3×10^{13}	-	
Iron: Tensile shear bond strength (When heat-cured)	MPa	-	8.2	-	-	-	-	16.0	20.0	19.6	24.0	-	11.9	10		-	-	20.4	
Iron: Peel strength (When heat-cured)	N·m	-	564	-	-	-	-	235	392	3924	235	-	766	300		-	-	-	
Remark(s)														Certified with UL94 V-0, 「F☆☆☆☆」					

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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2077D		2081D		2082C		2082E			2082F		2083J		2083L		2084		2084B	
Characteristics	Unit	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent		Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
Main component		Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine Tertiary amine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified polyamido-amine		Epoxy resin	Modified polyamido-amine	Epoxy resin	polyamido-amine	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Modified aliphatic polyamine
Features		Low viscosity Flexible hardened material		Soft PVC adhesion		High shear bond strength		General-purpose adhesive filling repair			Adhesive for repair of metallic parts		Filling adhesion for wet surfaces		Structural adhesive for wet surfaces		For repair of metallic parts (iron-based)		For repair of metallic parts (aluminum-based)	
Appearance		Milky white	Light brown	Light yellowish white to pale rose	Brown	White	Brown	White translucent	Gray		Black	Light yellow	Gray	Dark brown	Light gray	Blue-green	Black	Brown	Silver	Brown
Viscosity	Pa-s	2.9	28.6	11.0	10.0	15.0	16.0	90.0	150		5500	-	Putty	Putty	Putty	Putty	250	2.4	Paste	-
	mPa-s	-	-	-	-	-	-	-	-		-	850	-	-	-	-	-	-	-	250
Specific gravity		1.24	0.96	1.16	0.98	1.19	0.98	1.20	1.07		2.60	0.95	1.76	1.54	1.60	1.50	3.04	0.95	1.20	0.95
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 80		100 / 100		100 / 100		100 / 100			100 / 10		100 / 100		100 / 100		100 / 10		100 / 10	
Pot life (25°C / 100g when mixed)		-		60 min		70 min		60 min			60 min		25 to 45 min		15 min		30 to 40 min		30 to 50 min	
Standard curing conditions		-		25°C/24h or 60°C/1h		25°C/24h or 60°C/1h		25°C/24h or 80°C/1h			25°C/24h or 80°C/1h		25°C/24h		25°C/24h		25°C/24h or 100°C/30 min		25°C/24h or 100°C/30 min	
Physical characteristics after curing	Hardness	D54		D60 to 65		D76		D78			D85		D65		D77		D87		D85	
	Glass transition temperature °C	45		-		-		93.1			66.5		-		-		76		58.0	
	Volume resistivity Ω·m	-		-		-		-			-		-		2.2×10^{10}		1×10^{10}		1×10^{10}	
	Dielectric breakdown strength kV/mm	-		-		-		-			-		-		22		4.3		-	
Iron	Tensile shear bond strength (When heat-cured) MPa	15.0		13.7		25.5		16.5			20.8		6.8 (When cured at room-temperature)		14.6		15.7		9.81	
	Peel strength (When heat-cured) N·m	2300		3730		1720		-			-		-		-		-		-	
Remark(s)																				

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Epoxy Resins

Property Table

Product name / Main agent / Curing agent		2084E		2086M		2086N		2086T			2087		2087N		2087W		2088E		2088J	
Characteristics	Unit	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent		Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent	Main agent	Curing agent
Main component		Epoxy resin	Modified polyamido-amine	Epoxy resin	Polythiol	Epoxy resin	Polythiol	Epoxy resin	Polythiol		Epoxy resin	Polyamido-amine	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified polyamido-amine	Epoxy resin	Polyamido-amine	Epoxy resin	Polyamido-amine
Features		For repair (quartz-based)		Fast curing at low temperature		Fast curing at low temperature		Fast curing at low temperature Twin cartridge type			Adhesion of structures		For HDD parts, other out-gas		High shear bond strength Twin cartridge type		High thermal adhesiveness		High heat resistance High moisture resistance	
Appearance		Colorless	Brown	Colorless	Light yellow	Light yellow	Gray	White	Yellow-brown		Light yellow	Light yellow	Milky white	Blue	White	Light yellow	Yellow	Yellow-brown	White	Brown
Viscosity	Pa-s	13.0	1.9	13.0	10.0	110	50.0	29.0	9.2		13.0	30.0	12.0	5.0	15.0	16.0	40.0	4.0	13.0	4.5
	mPa-s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Specific gravity		1.16	0.96	1.17	1.15	1.29	1.20	1.18	1.13		1.16	0.96	1.17	1.05	1.17	0.98	1.19	1.03	1.17	0.95
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 50		100 / 100		100 / 100		100 / 100			100 / 100		100 / 50		100 / 100		100 / 25		100 / 30	
Pot life (25°C / 100g when mixed)		40 to 50 min		5 min		5 min		3 min			60 min		25 to 30 min		70 min		70 min		4h	
Standard curing conditions		25°C/24h or 100°C/30 min		25°C/30 min or 5°C/20h		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		25°C/24h or 60°C/1h		25°C/24h or 100°C/1h		80°C/2h	
Physical characteristics after curing — Hardness		(Rockwell R55)		D85		D70		D78			D70		D80		D80		D82		-	
Physical characteristics after curing — Glass transition temperature	°C	-		44.7		29.7		52.0			72.0		80.0		-		170 (150°C/1h)		100	
Physical characteristics after curing — Volume resistivity	Ω·m	-		-		-		7.2×10^{14}			-		-		-		-		-	
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-		-		-		29			-		-		-		-		-	
Iron — Tensile shear bond strength (When heat-cured)	MPa	23.7		20.3 (When cured at room-temperature)		14.0 (When cured at room-temperature)		15.5			21.4		30.3		25.5		22.9		20.0	
Iron — Peel strength (When heat-cured)	N·m	-		-		-		-			1220		-		1720		-		-	
Remark(s)				Twin cartridge type available																

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Epoxy Resins

Property Table

Characteristics	Unit	2202	2202C	2202P	2204	2206	2206S	2206V	2210		2210C	2210K	2212	2212B	2212C	2212E	2212Q	2215	2215D	2217	2219C
Main component		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
Features		Curing at low temperatures	Curing at low temperatures	Curing at low temperatures Low outgassing No flowing while curing Strong adhesiveness	Curing at low temperatures	Curing at low temperatures Peel strength	Low halogen content	Low halogen content	Low viscosity Penetrability Small heat generation while curing		Low viscosity Reduced separation and uncuring issue	Low viscosity Curing at low temperatures	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	Screen printing possible Curing in 1 min at 150°C	High viscosity Low flowing while curing
Appearance		Black	White	Purple	Black	Black	Black	Black	Black		Black	Black	Black	Black	Reddish brown	Black	Black	Black	Black	Reddish brown	Black
Viscosity	Pa-s	13.0	27.0	13.0	28.0	120	15.0	42.2	10.0		8.0	3.5	13.0	25.0	25.0	35.0	15.0	80.0	140	265	250
	mPa-s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.14	1.39	1.16	1.23	1.20	1.36	1.34	1.18		1.17	1.15	1.39	1.39	1.39	1.40	1.69	1.40	1.30	1.44	1.37
Recommended curing conditions		70°C/50 min 80°C/20 min	70°C/50 min 80°C/ 15 to 30 min 100°C/ 10 to 15 min 120°C/ 5 to 10 min 150°C/ 2 to 7 min	90°C/ 20 to 30 min	70°C/50 min 80°C/20 min	70°C/50 min 80°C/20 min	80°C/30 min	80°C/30 min	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	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	80°C/30 min 100°C/20 min 120°C/10 min 150°C/ 1 min	80°C/ 30 to 40 min 100°C/ 20 to 30 min 120°C/ 10 to 20 min 150°C/ 1 to 7 min
Physical characteristics after curing — Hardness		D88	D90	D88	D89	D85	D87	D87	D86		D87	D87	D92	-	D93	D92	D92	D94	D85	D90	D90
Physical characteristics after curing — Glass transition temperature	°C	111	101	115	109	104	106	114	120		120	92	100	109	109	94	105	125	110	120	95
Physical characteristics after curing — Volume resistivity	Ω·m	1.3×10^{15}	-	-	1.7×10^{14}	1.4×10^{13}	4.8×10^{13}	3.7×10^{13}	1.5×10^{14}		-	-	5.7×10^{14}	1.6×10^{14}	1.6×10^{14}	5.7×10^{14}	-	5.7×10^{14}	-	-	5.8×10^{13}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	16	-	-	16	16	31	24	23		-	-	23	23	23	23	32	23	-	24	34
Iron — Tensile shear bond strength (When heat-cured)	MPa	9.29	12.2	23.0	9.39	13.6	12.0	10.2	16.3		14.7	16.5	10.8	10.2	8.89	11.7	10.0	14.7	17.7	9.8	19.0
Iron — Peel strength (When heat-cured)	N·m	331	235	-	419	-	-	-	204		-	400	329	338	349	297	-	-	-	-	-
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.

Epoxy Resins

Property Table

Product name		2221D	2222P	2222R	2223	2223S	2224	2224C	2225G (NEO)		2230	2230B	2232	2233B	2234C	2234E	2235L	2236	2237H	2237J	2239H
Characteristics	Unit																				
Main component		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
Features		Excellent flowability Reduced separation and uncuring issue	Heat resistance for soldering Thermal shock resistance Shear, peel strength	Heat resistance for soldering Thermal shock resistance Low linear expansion coefficient Shear, peel strength	Heat resistance for soldering Good electric insulation	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	Excellent flowability Heat resistance Glossy cured material	Excellent flowability Heat resistance for soldering Glossy cured material	High glass transition temperature Heat resistance Low linear expansion coefficient	Heat resistance Excellent flowability Electric insulation	Low halogen content Screen printability	High glass transition temperature Heat resistance Low linear expansion coefficient Peel-adhesive strength	Low linear expansion coefficient
Appearance		Reddish brown	Black	Black	Reddish brown	Black	Reddish brown	Black	Black		Hazel	Black	White	Black	Gray	Black	Black	Grayish white	White	White	Grayish white
Viscosity	Pa-s	13.0	45.0	65.0	45.0	42.9	80.0	64.0	50.0		8.0	8.0	27.0	55.0	110	70.0	80	120	47.0	115	-
	mPa-s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.30	1.60	1.70	1.40	1.60	1.40	1.70	1.35		1.28	1.28	1.23	1.16	1.35	1.42	1.69	1.35	1.49	1.64	1.55
Recommended curing conditions		100°C/40 min 120°C/30 min	100°C/60 min	90°C/90 min 100°C/60 min 120°C/20 min	100°C/40 min 120°C/30 min 150°C/10 min	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 150°C/30 min	120°C/60 min 150°C/30 min	140°C/30 min	120°C/60 min 150°C/30 min	120°C/30 min	120°C/60 min	120°C/60 min 130°C/50 min 150°C/30 min
Physical characteristics after curing	Hardness		D91	D89	D91	D93	D91	D95	D94	D87		D84	D84	D90	D75	D92	D92	D92	D92	-	D89	D92
	Glass transition temperature	°C	123	115	115	127	118	125	140	132		70	70	130	75	142	142	155	142	106	150	115
	Volume resistivity	Ω·m	2.1×10^{14}	-	-	1.1×10^{14}	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}	4.9×10^{15}	2.0×10^{13}	2.9×10^{14}	5.9×10^{15}	1.7×10^{14}
	Dielectric breakdown strength	kV/mm	19	-	-	17	21	17	17	23.1		-	-	10	20	20	20	23	20	-	24	29
Iron	Tensile shear bond strength (When heat-cured)	MPa	17.7	25.5	21.4	18.7	24.0	16.7	21.6	20.0		23.2	23.7	15.6	19.6	24.5	24.5	23.0	23.0	16.0	26.0	21.5
	Peel strength (When heat-cured)	N·m	200	1740	776	390	2900	390	780	3500		1320	2400	-	1962	1200	1200	2000	1180	-	3600	1600
Remark(s)																						

* - : Unmeasured
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Epoxy Resins

Property Table

Product name / Characteristics	Unit	2239M	2239N	2239P	2242	2247D	2249G	2252	2253G		2263B	2270C	2270J	2272F	2273B	2274S	2280C	2280E	2284D	2284E	2285
Main component		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin
Features		Strong adhesiveness	Strong adhesiveness	Strong adhesiveness	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	Flexibility		Low specific gravity Thermal insulation	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	Incombusti-bility	Strong adhesiveness	For mounting CSP/BGA Underfill Agent	Low viscosity Small heat generation while curing	Low viscosity Small heat generation while curing	Resin for balancing a motor Strong adhesion when not cured	Resin for balancing a motor Nonmagnetic type	For motor coil impregnation and fixing Excellent penetrability under heat High heat resistance Strength when highly heated
Appearance		Gray	Greenish gray	Greenish gray	Black	Milky white	Black	Black	White		Black	Gray	White	Black	Milky white	Blue	Colorless	Black	Brown	Brown	Milky white
Viscosity	Pa-s	510	510	230	53.0	45.0	75.0	24.0	37.0		111	65.0	150	75.0	32.0	3.8	1.0	1.0	Putty	Putty	140
	mPa-s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.47	1.47	1.51	1.46	1.17	1.59	1.15	1.48		0.69	1.95	2.86	1.64	1.30	1.17	1.16	1.16	3.2	3.42	1.56
Recommended curing conditions		150°C/30 min	150°C/30 min	150°C/30 min	100°C/40 min 120°C/30 min	150°C/30 min	160°C/30 min	120°C/60 min	120°C/60 min		100°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	120°C/120 min	120°C/120 min	100°C/40 min 120°C/20 min 150°C/10 min	100°C/40 min 120°C/20 min 150°C/10 min	120°C/60 min 150°C/30 min
Physical characteristics after curing / Hardness		D90	D92	D90	D87	D84	D90	D81	D65		D71	D93	D96	D92	D90	-	D87	D87	D90	D93	D90
Physical characteristics after curing / Glass transition temperature	°C	118	119	118	100	120	104	-	19		89	140	117	117	127	124	125	125	120	120	180
Physical characteristics after curing / Volume resistivity	Ω·m	8.5×10^{13}	5.4×10^{13}	8.5×10^{13}	3.3×10^{13}	-	1.0×10^{13}	4.7×10^{12}	-		2.5×10^{13}	-	1.5×10^{13}	2.0×10^{13}	-	1.6×10^{14}	-	-	8.9×10^{12}	-	2.3×10^{14}
Physical characteristics after curing / Dielectric breakdown strength	kV/mm	-	-	-	15	-	33	21	-		17.3	-	19	24	-	-	20	20	-	-	20
Iron / Tensile shear bond strength (When heat-cured)	MPa	23.0	26.0	23.0	23.0	35.8	34.8	26.0	12.5		16.8	21.6	9.0	21.0	33.2	23.0	10.8	12.4	9.8	8.8	24.0
Iron / Peel strength (When heat-cured)	N·m	2000	2900	2000	1600	2300	4210	4500	-		-	314	-	460	5900	-	-	217	-	-	543
Remark(s)														Non-flammable grade UL94 V-0 Certified Product							

* - : Unmeasured
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Epoxy Resins

Property Table

Product name		2286D	2286G	2286L	2286T	2286U	2287	2287B	2287D		2287F	2287G	2296B
Characteristics	Unit												
Main component		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin		Epoxy resin	Epoxy resin	Epoxy resin
Features		For motor coil impregnation and fixing High heat resistance Low shrinkage while curing Impact strength	For motor coil coating Heat resistance Low linear expansion coefficient	For motor coil coating Low linear expansion coefficient High viscosity No flowing while curing	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
Appearance		Grayish white	Pale red	Milky white	Milky white	Milky white	Reddish brown	Reddish brown	Brown		Reddish brown	Light yellow to Orange	Black
Viscosity	Pa-s	330	325	590	1800	1150	-	-	25.0		-	-	18.5
	mPa-s	-	-	-	-	-	120	170	-		110 to 190	76.8	-
Specific gravity		1.66	1.66	1.68	1.58	1.40	1.10	1.10	1.16		1.08	1.12	1.25
Recommended curing conditions		150°C/30 min	150°C/30 min	160°C/30 min	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
Physical characteristics after curing	Hardness		D94	D93	D94	D91	D91	D86	-	D88		D75	D79	D82
	Glass transition temperature	°C	182	155	142	120	110	65	-	135		-	48	47
	Volume resistivity	Ω·m	-	-	-	4.4×10^{13}	4.0×10^{12}	4.5×10^{12}	4.5×10^{12}	-		-	2.7×10^{11}	6.3×10^{13}
	Dielectric breakdown strength	kV/mm	-	-	-	33	-	-	-	-		-	22	21
Iron	Tensile shear bond strength (When heat-cured)	MPa	21.0	23.0	27.0	21.2	27.1	11.8	20.6	13.7		15.0	21.4	-
	Peel strength (When heat-cured)	N·m	-	-	-	2400	2300	120	160	-		-	-	-
Remark(s)														

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

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

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

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 process 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.

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

2448 , 2448 B

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 nut diameter is M2.
The standard curing conditions are 25°C×24h.

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

2458 B

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 nut 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 nut 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 nut 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×24h.

Bolts and Nuts Pre-Coated by MEC process

Property Table

Characteristics		Unit	2418	2446	2446B	2448	2448B	2457	2458	2458B		2468	2475	2478	2488[*4]
Main component			Acrylic resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Acrylic resin	Acrylic resin	Acrylic resin		Acrylic resin	Acrylic resin	Acrylic resin	Acrylic resin
Strength			Medium strength	High strength	High strength	High strength	High strength	Low strength	Low strength	Low strength		Medium strength	High strength	High strength	Medium 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		25°C×24h	25°C×24h	25°C×24h	25°C×24h
Appearance			Yellow	Blue	Orange	Blue	Orange	Green	Green	Green		Red	Blue	Blue	Blue
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		M3 or larger	M2 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		45.4	56.1	52.5	43.1
	Zinc-chromate plating	N·m	49.1	56.1	56.1	67.0	70.7	35.9	37.4	39.3		44.9	46.1	52.3	44.9
	Chromium plating	N·m	50.3	52.3	52.3	67.8	62.1	37.9	32.9	40.3		43.4	46.1	49.8	42.5
	Nickel plating	N·m	50.4	54.9	54.9	73.9	65.1	38.8	37.3	40.7		42.2	44.5	52.8	40.8
	Unichromate plating	N·m	50.2	47.6	47.6	72.0	66.5	37.3	36.3	39.4		45.8	44.9	48.4	41.5
	Black oxide	N·m	46.1	53.3	53.3	62.4	64.1	39.8	33.5	39.6		43.8	42.1	42.5	40.8
	SUS 304	N·m	47.8	49.0	49.0	64.6	66.8	35.1	31.9	38.5		42.6	42.1	45.5	41.1
	Brass	N·m	26.2	-	-	38.3	37.8	29.0	27.0	28.4		28.8	-	29.6	36.5
	Aluminum	N·m	26.8	26.9	26.9	36.4	40.9	21.4	20.6	20.9		24.8	24.9	22.3	22.4
Hot strength[*2]	25°C	N·m	49.1	58.0	58.0	70.3	70.7	35.3	37.4	39.3		44.9	46.1	52.3	44.9
	60°C	N·m	45.6	39.2	39.2	52.2	54.4	35.1	32.6	38.0		36.4	43.1	44.3	37.5
	80°C	N·m	42.9	-	-	50.3	52.0	34.1	32.0	31.9		33.5	38.9	38.9	36.4
	100°C	N·m	40.5	37.2	37.2	46.8	47.6	32.4	30.8	31.5		30.1	41.4	37.5	34.7
	120°C	N·m	-	33.7	33.7	-	-	29.4	26.0	-		26.9	39.4	34.1	33.4
	130°C	N·m	38.3	-	-	37.0	42.0	-	-	26.1		-	-	31.0	31.4
	150°C	N·m	33.2	29.5	29.5	31.6	38.0	21.2	20.4	25.9		22.9	32.1	30.1	27.4
	180°C	N·m	26.2	24.7	24.7	21.4	21.0	16.5	19.5	21.3		18.4	25.9	21.1	21.1
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		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		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		10 or higher	-	10 or higher	-
Operating temperature range (Est.)		℃	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		Locking 100°C Sealing 170°C	Locking 150°C Sealing 150°C	Locking 130°C Sealing 170°C	Locking 130°C
Remark(s)			Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type		Aqueous type	Aqueous type	Aqueous type	Aqueous type * For nuts

*1: M10×P1.5 bolt/nut, Tightening torque 30N·m (15N·m for brass and aluminum)
*2: M10×P.1.5 zinc-chromate plated bolt/nut, Tightening torque 30N·m
*3: Iron seal block/Hydraulic pressure, M10×P.15 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

* - : 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.

Heat Dissipating Agents

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works

This is a series of one-part moisture-curing resins for heat dissipation that use a silyl-containing special polymer as the base resin and contain a thermally conductive filler.
They are in a liquid state, so they have excellent adhesion and filling property resulting in good heat dissipation.
In addition, they are reaction type products, so there is no increase of flowability or separation over time. All grades do not contain low molecular weight cyclic siloxane, which can cause electrical contact failure, so they can be used for insulation and heat dissipation with various electronic parts including switching power supplies, power ICs, and computer CPUs.

2955 P

This is an alcohol-releasing type.
The surface cures gradually by the moisture in the air, which prevents dripping after assembling parts.
It has excellent electric insulation together with thermal conductivity.

2955 Q

This is an alcohol-releasing type.
The surface cures gradually by the moisture in the air, which prevents dripping after assembling parts.
It has excellent electric insulation together with high thermal conductivity.

Moisture-curing heat-dissipating resin

Property Table

Characteristics		Unit	2955P	2955Q
Main component			Silyl group-containing special polymer thermal conductivity filler	Silyl group-containing special polymer thermal conductivity filler
Features			Alcohol-releasing Moisture-curing type	Alcohol-releasing Moisture-curing type
Appearance			Gray	Gray
Viscosity		Pa-s	120	103
Specific gravity			3.1	3.1
Tack free time		h	24 or less	24
Physical characteristics after curing	Thermal conductivity (25°C)	W/m-K	4.8	4.5
	Dielectric breakdown strength	kV/mm	19	15
Remark(s)				

* 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.

UV Curing Resins

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works

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.

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.

3013 Q

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.

3017 D, 3017 E, 3017 F

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.

3020 B

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.

3027 G, 3027 H

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 , 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.

3035 B

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.

3036 G

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.

3050 C

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.

3056 F

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.

3062 , 3064 E, 3065 E, 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.

3074 C

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.

3081 J, 3081 L

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 , 3084 E

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 , 3088 B

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 , 3094 B, 3094 C

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 , 3114 J

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.

3121 D, 3121 E

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 , 3164 D

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 , 3168 E

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.

3170 B

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.

UV Curing Resin

Property Table

Product name			3003J	3006D	3006F	3013	3013B	3013D	3013M	3013Q		3013Z	3014	3014C	3015F	3016	3016H	3017	3017B	3017D	3017E	3017F
Characteristics		Unit																				
Main component			Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acryl rubber		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
Additional curability			-	Heating	-	-	-	-	-	-		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		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
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		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
Appearance			Light yellow	Blue	Blue	Light yellow	Pale greenish brown	Pale green	Blue	Blue		Yellow	Light yellow	Milky white	White	Light blue	Light blue	Yellow	Milky white	White	White	White
Viscosity		Pa-s	1.3	2.0	2.3	6.0	1.0	-	8.5	23.0		2.0	17.0	10.0	14.1	20.0	20.0	46.0	16.0	13.0	25.0	7.5
		mPa-s	-	-	-	-	-	680	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity			1.11	1.07	1.07	1.00	1.02	1.03	1.01	1.11		1.2	0.99	1.06	1.57	1.18	1.17	0.87	1.05	0.93	0.93	0.93
Curing conditions (Cumulative light intensity)		kJ/m^2	30	30	30	30	30	30	30	45		30	30	20	30	30	30	60	30	30	30	30
Physical characteristics after curing	Hardness		A93	A50	A67	A90 to 95	A90	A90	-	A32		A60	A80 to 85	A50	-	A25	A37	A20	A40	A41	A35	A58
			-	-	-	D20	-	-	D42	-		-	-	-	D86	-	-	-	-	-	-	-
	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}		2.7×10^{11}	8.5×10^{10}	3.9×10^{12}	-	3.8×10^{12}	5.8×10^{15}	-	1.0×10^{13}	-	-	-
	Dielectric breakdown strength	kV/mm	26	30	27	-	-	-	-	21		23	-	12.4	-	-	-	-	22.1	-	-	-
Tensile shear bond strength	Glass/Glass	MPa	6.5	5.3	5.0	-	-	-	-	-		5.5	-	-	-	-	4.8	-	-	-	-	-
	Glass/Acrylic	MPa	6.8	3.1	4.5	-	-	-	-	-		5.1	-	-	-	-	4.2	-	-	-	-	-
	Glass/Polycarbonate	MPa	7.0	4.0	3.6	-	-	-	-	-		3.9	-	-	-	-	3.3	-	-	-	-	-
	Glass/Glass epoxy	MPa	6.8	5.2	4.4	-	-	-	-	-		4.9	-	-	-	-	2.8	-	-	-	-	-
	Glass/ABS	MPa	7.0	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	Glass/LCP	MPa	4.1	-	-	-	-	-	4.9	-		-	-	-	-	-	2.1	-	-	-	-	-
	Glass/Iron	MPa	6.7	5.3	3.9	(Material failure)	(Material failure)	-	-	4.1		6.3	(Material failure)	-	-	-	2.1	-	-	-	-	-
	Glass/Aluminum	MPa	6.7	6.1	3.1	-	-	-	-	2.8		5.4	-	-	-	3.4	2.3	-	-	-	-	-
	Glass/Stainless steel	MPa	7.7	5.2	4.0	-	-	-	-	5.1		3.4	-	-	-	5.5	2.1	-	-	-	-	-
	Polycarbonate/ Polycarbonate	MPa	6.2	-	-	-	-	-	-	-		-	-	2.0	-	-	-	-	-	-	-	-
Remark(s)										Exellent engine oil and AT oil resistance Continuous use at approx. 120℃		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

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

UV Curing Resin

Property Table

Product name			3018	3020B	3021J	3026B	3026E	3026G	3026J	3027G		3027H	3027J	3030	3030B	3031	3031J	3033B	3033G	3034	3034C	3035B
Characteristics		Unit																				
Main component			Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate		Acrylate	Acrylate	Acrylate	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		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	Flexibility Heat cycle resistance Strong adhesiveness	Thixolabile Flexibility Strong adhesiveness	Excellent moisture resistance Strong adhesiveness Screen printing	Flexibility Strong adhesiveness Thick film curing	Sealant for dye-sensitized solar cells
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		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	Engineering plastics bonding Optical part	Adhesion/ fixing of electrical and electronic parts	Engineering plastics bonding	Sealing of terminals	Main sealing / end sealing of dye-sensitized solar cells
Appearance			Colorless	Light yellow	Light yellow	Milky white	Colorless	Light yellow	Faint brown	Light yellow to Pale white		Red	Black	Milky white	Light yellow	Light brown	Light yellow	Milky white	Yellow white	Milky white	Blue	White
Viscosity		Pa-s	8.0	3.5	-	10.0	19.0	14.0	20.6	2.0		1.6	2.4	16.5	2.6	5.0	5.0	35.0	20.0	20.0	27.0	51.0
		mPa-s	-	-	135	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity			1.12	1.05	1.06	1.23	1.17	1.17	1.17	1.01		1.02	1.04	1.16	1.10	1.05	1.14	1.09	1.14	1.11	1.13	1.30
Curing conditions (Cumulative light intensity)		kJ/m^2	45	30	30	10	20	30	30	30		30	30	30	30	30	10	30	30	30	30	30
Physical characteristics after curing	Hardness		A62	-	-	-	-	-	-	A80		-	-	A95	-	-	-	-	-	A95	-	-
			-	D54	D70	D85	D85	D80	D81	-		D50	-	D63	D52	D70	D95	-	D65	D68	D69	D48
	Volume resistivity	Ω·m	2.8×10^{11}	3.0×10^{7}	-	8×10^{10}	1.1×10^{12}	-	-	1.0×10^{11}		1.2×10^{11}	2.2×10^{14}	2.0×10^{14}	-	8.1×10^{11}	-	-	5.8×10^{10}	2.0×10^{12}	3.2×10^{13}	1.5×10^{14}
	Dielectric breakdown strength	kV/mm	-	14.0	-	20.1	-	-	-	18.4		29	-	-	-	-	-	-	28.0	19.4	-	23
Tensile shear bond strength	Glass/Glass	MPa	3.3	8.0	6.9	6.9	(Material failure)	7.0	6.3	5.0		5.2	7.1 (8.8)*	(Material failure)	7.5	-	-	(Material failure)	8.3	-	7.8	(Material failure)
	Glass/Acrylic	MPa	-	7.6	-	-	-	-	-	-		6.8	6.6 (7.3)*	-	-	-	-	-	5.5	-	-	2.36
	Glass/Polycarbonate	MPa	-	7.1	-	-	-	-	-	-		4.9	7.8 (7.4)*	-	-	-	-	-	3.5	-	-	2.3
	Glass/Glass epoxy	MPa	(Material failure)	7.8	-	-	-	-	-	-		6.6	8.1 (8.3)*	(Material failure)	-	-	-	-	5.4	-	-	4.6
	Glass/ABS	MPa	2.4	6.8	-	-	-	-	-	-		4.2	6.5 (6.9)*	(Material failure)	-	-	-	-	3.8	(Material failure)	-	3.6
	Glass/LCP	MPa	-	4.7	-	-	-	-	-	-		4.4	4.5 (4.8)*	-	-	-	-	-	3.3	-	-	3.6
	Glass/Iron	MPa	-	9.4	-	-	-	-	-	-		5.5	8.1 (8.6)*	-	-	-	-	-	7.2	-	(Material failure)	5.4
	Glass/Aluminum	MPa	-	3.4	-	-	-	-	-	-		2.5	8.8 (8.8)*	-	-	-	-	-	7.6	-	-	6.8
	Glass/Stainless steel	MPa	-	9.0	6.9	-	-	-	-	-		5.6	4.0 (5.5)*	-	-	-	-	-	-	-	(Material failure)	-
	Polycarbonate/ Polycarbonate	MPa	4.2	3.7	5.9	-	-	-	-	-		7.2	2.8 (2.6)*	4.0	-	-	-	6.4	9.2	(Material failure)	-	1.3
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%		Boiling water absorption rate: 0.2%	(UV-LED) * Material failure						Supports LED light sources			

* - : Unmeasured

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

UV Curing Resin

Property Table

Characteristics	Unit	3036	3036G	3038	3042	3042B	3042C	3042D	3042G		3043B	3046	3046B	3050B	3050C	3051	3051E	3051G	3051H	3052	3052B
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
Additional curability		-	-	-	Heating	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Features		Low cure shrinkage Low linear expansion coefficient	Compatible with LED light sources Low cure shrinkage	Compatible with LED light sources Strong adhesiveness	Transparency Low viscosity High hardness	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	Flexibility Low halogen content	Flexibility Low halogen content	Glass adhesion	Glass adhesion
Main usages		Optical pick-up lens Optical part	Various light source parts	Optical pick-up Optical part	Coating agent preventing burrs of stepping motors when grinding Glass/metal bonding	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	Bonding Temporary fixing Potting	Bonding Temporary fixing Potting	Liquid crystal panel glass fixing end-sealing	Liquid crystal panel glass fixing end-sealing
Appearance		Grayish white	White	White	Colorless	Colorless	Colorless	Milky white	Green		Light yellow	Light yellow	Light yellow	Transparent green	Light yellow	Light brown	Light transparent yellow	Light yellow	Light yellow	Light brown	Light yellow
Viscosity	Pa-s	35.0	29.0	13.0	-	-	1.5	15.0	8.0		1.6	-	10.0	4.5	9.0	5.0	1.5	6.5	20	11.0	9.0
	mPa-s	-	-	-	20	500	-	-	-		-	5.0	-	-	-	-	-	-	-	-	-
Specific gravity		1.53	1.53	1.17	1.07	1.10	1.11	1.13	1.1		1.05	1.00	1.10	1.04	1.04	1.16	1.06	1.08	1.07	1.17	1.17
Curing conditions (Cumulative light intensity)	kJ/m^2	30	60 (LED)	70 (LED)	15	15	30	30	30		15	18	18	20	15	30	15	30	30	10	30
Physical characteristics after curing: Hardness		-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
		D77	D40	D70	D82	D83	D83	D84	D80		D60	D80	D80	D65	D58	D85	D70	D66	D75	D90	D90
Physical characteristics after curing: Volume resistivity	Ω·m	-	-	5.0×10^{10}	2.3×10^{13}	8.1×10^{13}	5.5×10^{13}	-	-		-	-	-	4.16×10^{11}	1.05×10^{10}	3.5×10^{12}	-	2.1×10^{13}	-	3.5×10^{12}	3.5×10^{12}
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-	-	30	-	-	-	-	-		-	-	-	18.0	15.7	-	-	30	-	-	-
Tensile shear bond strength: Glass/Glass	MPa	-	-	-	(Material failure)	(Material failure)	8.2	7.5	7.8		-	(Material failure)	5.0	-	-	(Material failure)	-	-	-	(Material failure)	-
Tensile shear bond strength: Glass/Acrylic	MPa	-	-	(Material failure)	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Tensile shear bond strength: Glass/Polycarbonate	MPa	-	-	2.6	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Tensile shear bond strength: Glass/Glass epoxy	MPa	-	-	(Material failure)	(Material failure)	(Material failure)	-	-	-		-	2.8	-	-	-	(Material failure)	-	-	-	(Material failure)	-
Tensile shear bond strength: Glass/ABS	MPa	-	-	-	2.1	(Material failure)	-	-	-		-	(Material failure)	-	-	-	(Material failure)	-	-	-	(Material failure)	-
Tensile shear bond strength: Glass/LCP	MPa	5.1	-	3.7	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Tensile shear bond strength: Glass/Iron	MPa	-	4.5	4.3	-	-	-	-	7.8		8.0	-	5.0	-	-	-	-	(Material failure)	-	-	(Material failure)
Tensile shear bond strength: Glass/Aluminum	MPa	10	3.8	6.1	-	-	-	-	-		6.0	-	-	-	-	-	-	-	-	-	-
Tensile shear bond strength: Glass/Stainless steel	MPa	9.4	(Material failure)	(Material failure)	-	-	-	-	7.8		8.0	-	-	(Material failure)	(Material failure)	-	7.8	-	-	-	-
Tensile shear bond strength: Polycarbonate/ Polycarbonate	MPa	10	-	-	3.7	4.1	-	-	2.1		4.0	4.8	-	-	-	1.8	-	-	-	2.2	-
Remark(s)			PPS/Glass Material failure ZnDc/Glass Material failure				High viscosity of 3042	3042 with thixotropy					High viscosity grade of 3046					Iron/Acrylic (Material failure)			

* - : 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.

UV Curing Resin

Property Table

Product name			3052C	3052D	3055	3055B	3055D	3056F	3056K	3057		3057B	3057J	3059D	3060	3062	3062D	3062F	3062H	3062K	3062P	3062Q
Characteristics		Unit																				
Main component			Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
Additional curability			-	-	Primer	Primer	-	Humidity	Humidity	Heating		Heating	Heating	-	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer	Anaerobic Primer
Features			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	Moisture-curing Flexibility Adhesion	Moisture-curing Flexibility	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	Flexibility Moisture resistance Impact strength	Hard / Tough
Main usages			Glass/Iron Polycarbon-ate Acrylic bonding	Glass/Iron Polycarbon-ate 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	Electrical parts sealing / bonding General-purpose adhesion	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	Stator coil Resin Magnets Adhesion of different materials	Liquid crystal panel pin lead fixing General-purpose adhesion
Appearance			Light yellow	Light yellow	Light yellow	Green	Pink	Green	Colorless	Turbid white		Turbid white	Light yellow	Milky white	Light yellow	Light yellow	Blue	Light yellow	Light yellow	Light yellow	Light yellow	Green
Viscosity		Pa-s	8.0	43.0	15.0	15.0	13.0	6.0	3.6	35.0		18.0	9.0	80.0	1.2	8.0	-	4.0	2.0	7.0	15.0	12.0
		mPa-s	-	-	-	-	-	-	-	-		-	-	-	-	-	150	-	-	-	-	-
Specific gravity			1.05	1.04	1.06	1.06	1.06	1.08	1.09	1.44		1.42	1.06	1.18	1.12	1.07	1.1	1.08	1.07	1.05	1.07	1.06
Curing conditions (Cumulative light intensity)		kJ/m^2	35	30	20	20	30	30	30	30		30	30	30	30	35	35	35	30	70	35	20
Physical characteristics after curing	Hardness		-	-	-	-	-	-	-	-		-	-	-	A90	-	-	-	-	-	-	-
			D65	D70	D70	D70	D70	D65	D71	D89		D80	D80	D86	D65	D70	D80	D45	D80	D65	D35	D65
	Volume resistivity	Ω·m	-	-	4.6×10^{10}	4.6×10^{10}	2.0×10^{14}	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}	-	-	-	-	-
	Dielectric breakdown strength	kV/mm	-	-	14.2	14.2	23	27.5	-	28.4		28.4	31	-	17.2	-	-	-	-	-	-	-
Tensile shear bond strength	Glass/Glass	MPa	(Material failure)	(Material failure)	-	-	7.0	6.4	6.8	(Material failure)		-	6.9	8.0	(Material failure)	-	-	-	-	-	-	-
	Glass/Acrylic	MPa	-	-	-	-	8.5	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	Glass/Polycarbonate	MPa	-	-	-	-	8.2	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	Glass/Glass epoxy	MPa	(Material failure)	(Material failure)	-	-	8.7	-	-	(Material failure)		-	-	-	(Material failure)	-	-	-	-	-	-	-
	Glass/ABS	MPa	(Material failure)	(Material failure)	-	-	7.7	-	-	0.2		-	-	-	3.5	-	-	-	-	-	-	-
	Glass/LCP	MPa	-	-	-	-	4.1	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	Glass/Iron	MPa	-	7.5	(Material failure)	(Material failure)	9.3	7.5	7.0	-		5.0	-	3.0	-	(Material failure)	18.0	-	(Material failure)	(Material failure)	4.4	4.4
	Glass/Aluminum	MPa	-	-	-	-	3.9	6.0	4.4	-		-	-	3.0	-	-	-	-	-	-	-	-
	Glass/Stainless steel	MPa	-	-	-	-	-	7.8	6.4	-		-	-	5.0	-	-	-	-	-	-	-	-
	Polycarbonate/ Polycarbonate	MPa	(Material failure)	(Material failure)	-	-	9.5	7.5	4.1	1.7		-	4.1	-	3.8	-	9.7	-	3.3	3.9	3.7	8.8
Remark(s)						Green version of 3055	Supports LED light sources											Shear bond strength Iron: 10MPa			3062C with more viscosity	

* - : Unmeasured

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

UV Curing Resin

Property Table

Product name		3062S	3062U	3064E	3065E	3066	3067	3067B	3067C		3068B	3069F	3074C	3075	3075E	3081J	3081L	3081P	3084	3084E	3087G
Characteristics	Unit																				
Main component		Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate		Acrylate	Acrylate	Acrylate	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		Anaerobic Primer	Anaerobic Primer	-	-	-	-	-	-	-	-	-
Features		Hard / Tough Metal/glass adhesion	Flexibility	Flexibility Surface adhesion	Flexibility Surface adhesion Low outgassing	Hard Chemical resistance	Hard Chemical resistance	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	High specific gravity Shape retention	2P molding Optical part molding
Main usages		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	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.	Balance correcting agent for motors, polygon mirrors, etc.	Optical part
Appearance		Light yellow	Light yellow to Brown	Light yellow to Brown	Light yellow	Light yellow	Light yellow	Dark blue	Turbid white		Red	Milky white	Colorless	Colorless	Colorless	Light yellow	Grayish white	Light yellow	Gray	Milky white	Light transparent yellow
Viscosity	Pa-s	8.0	1.0	-	7.0	-	-	-	4.0		-	55.0	7.0	-	20.0	95.0	70.0	400	100	30.0	-
	mPa-s	-	-	700	-	230	600	120	-		280	-	-	700	-	-	-	-	-	-	640
Specific gravity		1.05	1.07	1.07	1.05	1.13	1.18	1.13	1.17		1.07	1.20	1.09	1.07	1.11	1.11	1.14	1.09	2.19	1.46	1.05
Curing conditions (Cumulative light intensity)	kJ/m^2	30	30	30	30	30	30	30	30		30	30	30	27	30	45	30	45	30	30	30
Physical characteristics after curing: Hardness		-	-	-	-	-	-	-	-		-	-	-	A49	D56	A27	A21	-	-	-	-
		D70	D70	D66	D65	D90 to 95	D90	D90 to 95	D88		D75	D90	D70	-	-	-	-	E19	D90 to 95	D90	D69
Physical characteristics after curing: Volume resistivity	Ω·m	-	-	2.9×10^{11}	5.8×10^{10}	1.3×10^{13}	7.6×10^{12}	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}	1.3×10^{12}	-
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-	-	23	24.2	17.7	28.4	-	-		-	33.0	24.1	-	23.6	19.0	-	24.9	18.3	32.0	-
Tensile shear bond strength: Glass/Glass	MPa	-	9.8	8.3	-	-	(Material failure)	-	-		-	8.9	6.5	7.0	(Material failure)	-	-	-	(Material failure)	7.1	-
Tensile shear bond strength: Glass/Acrylic	MPa	-	-	7.5	-	-	-	-	-		-	-	5.4	-	(Material failure)	-	-	-	-	-	-
Tensile shear bond strength: Glass/Polycarbonate	MPa	-	-	8.0	-	-	-	-	-		-	-	3.5	-	(Material failure)	-	-	-	-	-	-
Tensile shear bond strength: Glass/Glass epoxy	MPa	-	8.8	7.6	-	-	(Material failure)	-	-		-	-	6.4	-	(Material failure)	-	-	-	-	-	-
Tensile shear bond strength: Glass/ABS	MPa	-	-	-	-	-	(Material failure)	-	-		-	-	4.6	-	5.6	-	-	-	-	-	-
Tensile shear bond strength: Glass/LCP	MPa	-	-	4.3	-	-	-	-	-		-	-	5.4	-	4.3	-	-	-	-	-	-
Tensile shear bond strength: Glass/Iron	MPa	10.0	12.7	10.4	12.0	-	4.9	4.9	7.0		-	8.9	8.1	-	(Material failure)	-	-	-	(Material failure)	-	-
Tensile shear bond strength: Glass/Aluminum	MPa	-	-	5.8	-	-	-	-	-		-	3.0	2.2	-	4.1	-	-	-	-	2.8	-
Tensile shear bond strength: Glass/Stainless steel	MPa	-	-	9.1	-	-	-	-	-		-	8.0	6.3	-	(Material failure)	-	-	-	-	8.0	-
Tensile shear bond strength: Polycarbonate/ Polycarbonate	MPa	10.0	-	-	-	-	1.6	-	-		-	-	1.6	4.0	3.8	-	10.9	-	5.1	-	(Material failure)
Remark(s)									3067 with added thixotropy			High-thixotropic									Refractive index 1.49 Abbe's number 49 (cured material)

* - : Unmeasured

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UV Curing Resin

Property Table

Product name		3088		3088B		3094	3094B	3094C	3111B		3114	3114B	3114J	3118	3121D	3121E	3161	3163	3164D	3166	3168
Characteristics	Unit																				
Main component		Acrylate		Acrylate		Acrylate	Acrylate	Acrylate	Epoxy resin		Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Epoxy resin	Silicone	Silicone	Silicone	Silicone	Silicone
Additional curability		Two-component mixture		Two-component mixture		-	-	-	-		-	-	-	-	-	-	Humidity	Humidity	Humidity	-	-
Features		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	Good adhesion to plastic materials such as PC	Low moisture permeability		Surface curability Low cure shrinkage Low linear expansion	Low cure shrinkage	Surface curability Low cure shrinkage High temperature resistance Low linear expansion	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	Super-soft High and low temperature resistance	Soft Gel Damping materials
Main usages		Sensor potting UV light impermeable material adhesion		Sensor potting UV light impermeable material adhesion		Adhesion of medical devices, etc.	Adhesion of medical devices, etc.	Adhesion of medical devices, etc.	Main sealing for touch panel 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	Optical pick-up parts Electrical parts bonding Accurate adhesion of optical parts such as for digital cameras	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	CIPG sealing for electronic / electrical parts	Damping agent for pick-ups
Appearance		Main agent: Blue	Curing agent: Pale green	Main agent: Blue	Curing agent: Pale green	Light yellow	Blue	Blue	White		Grayish white	Grayish white	White	White	Light yellow	Light yellow	Light yellow	Blue	Pale white	Blue	White
Viscosity	Pa-s	5.0	5.0	5.0	5.0	4.6	-	4.6	9.0		26.0	50.0	25	86.0	-	-	3.0	12.0	10.0	330	15.0
	mPa-s	-	-	-	-	-	150	-	-		-	-	-	-	850	750	-	-	-	-	-
Specific gravity		1.02	1.02	1.04	1.04	1.07	1.02	1.07	1.18		1.54	1.62	1.56	1.33	1.15	1.14	0.98	1.02	1.00	1.01	1.01
Curing conditions (Cumulative light intensity)	kJ/m^2	30		30		30	30	30	30		30	30	30	30+80°C ×1h	30	30	30 (+Moisture-curing)	30 (+Moisture-curing)	30 (+Moisture-curing)	45	30
Physical characteristics after curing: Hardness		A50		-		-	-	-	-		-	-	-	-	-	A73	A30	A33	A32	E15	Gel (Penetration: 100)
		-		D55		D60	D75	D60	D47		D80	D82	D87	D83	D65	-	-	-	-	-	-
Physical characteristics after curing: Volume resistivity	Ω·m	1.5×10^{11}		5.7×10^{11}		-	-	-	-		-	-	2.4×10^{12}	5.2×10^{13}	-	2.1×10^{11}	4.0×10^{12}	-	8.8×10^{12}	5.5×10^{11}	2.7×10^{12}
Physical characteristics after curing: Dielectric breakdown strength	kV/mm	-		-		-	-	-	-		-	-	26.2	-	-	19.8	12.3	-	30	15.1	-
Tensile shear bond strength: Glass/Glass	MPa	-		-		7.9	7.0	6.5	7.2		(Material failure)	3.8	7.4	(Material failure)	7.3	9.2	6.0	3.9	4.0	-	-
Glass/Acrylic	MPa	-		-		6.8	6.4	6.7	-		-	-	3.7	1.2	-	6.4	-	-	-	-	-
Glass/Polycarbonate	MPa	-		-		7.3	7.1	7.3	-		-	-	3.8	1.3	-	5.9	-	-	-	-	-
Glass/Glass epoxy	MPa	-		-		7.6	7.9	7.6	-		-	-	3.7	3.3	-	6.5	-	-	4.8	-	-
Glass/ABS	MPa	3.4		6.4		6.9	7.0	7.4	-		-	-	4.1	3.8	-	7.1	-	-	3.4	-	-
Glass/LCP	MPa	-		-		3.2	3.9	4.2	4.5		3.5	3.4	4.4	2.9	-	5.0	-	-	1.9	-	-
Glass/Iron	MPa	-		-		9.0	8.4	9.1	-		-	-	-	4.5	-	9.1	2.0	-	-	-	-
Glass/Aluminum	MPa	-		-		5.8	2.5	3.0	-		-	-	4.5	3.1	-	5.6	0.66	-	0.5	-	-
Glass/Stainless steel	MPa	-		-		6.0	5.3	8.5	6.0		-	-	2.5	4.3	-	6.6	0.9	-	-	-	-
Polycarbonate/ Polycarbonate	MPa	5.2		6.4		8.6	5.2	7.6	-		-	-	-	0.58	-	-	0.96	-	2.6	-	-
Remark(s)		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	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: 1.8% Tg:142°C (DMA) Supports LED light sources		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		Reduced content of Low molecular circular siloxane

* - : Unmeasured
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UV Curing Resin

Property Table

Product name			3168E	3170B	3170D	3170E	3170F	3170J	3177
Characteristics		Unit							
Main component			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	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	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			Red	Light yellow	Light yellow	Light yellow	Light yellow	Light yellow	Yellow to Light yellow
Viscosity		Pa-s	90	1.8	37.0	11.2	18.0	4.5	-
		mPa-s	-	-	-	-	-	-	1200
Specific gravity			1.02	1.04	1.06	1.10	1.06	1.04	1.06
Curing conditions (Cumulative light intensity)		kJ/m^2	60	30	30	30	30	30	10
Physical characteristics after curing	Hardness		Gel (Penetration: 100)	-	-	-	-	-	-
			-	D70	D54	D44	D50	D10	D84
	Volume resistivity	Ω·m	-	-	-	-	-	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)			Color fades to light yellow after curing						Hybrid instant adhesive

* - : Unmeasured
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Electrically Conductive Resins · Anisotropically Conductive Pastes

Electrical and Electronics

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.

3301 E

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.

3301 W

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.

3303 B

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.

3303 G (NEO)

This is a heat-resistant flexible type conductive adhesivefor 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.

3315 E

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.

3331 D

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.

3333 C

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.

3350 B

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.

3351 C

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.

3373 F

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.

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.

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.

Conductive Resin Materials

Property Table

Product name / Characteristics	Unit	3301E	3301F	3301M-1	3301W	3302B	3303B	3303G (NEO)	3303M		3303N	3303R	3303Y	3303Z	3304	3304D	3315E	3331D	3333C	3350B	3350C
Binder		Epoxy-based	Epoxy-based	Epoxy-based	Epoxy-based	Urethane	Silicone-based	Silicone-based	Silicone-based		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
Electro conductive filler		Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based		Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Silver-based	Carbon-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 (slow-drying type)		Excellent adhesion with gold/ silver electrodes (slow-drying type)	Excellent adhesion with gold/ silver electrodes	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
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		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 Electromag-netic wave shielding	Spot fixing Screw conductive locking Circuit repair Electromag-netic wave shielding
Appearance		Silver	Silver	Silver	Silver	Silver	Silver	Silver	Silver		Silver	Silver	Silver	Silver	Silver	Silver	Black	Silver	Silver	Silver	Silver
Viscosity	Pa-s	31.0	23.0	67.0	37.0	15.0	22.0	40.0	40.0		41.0	50.0	40.0	70.0	65.0	50.0	0.6	25.0	30.0	2.5	1.0
Specific gravity		3.08	3.40	-	3.20	2.73	2.30	-	3.07		3.02	-	-	-	-	-	0.87	-	3.2	1.90	2.20
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		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
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}	2.5×10^{-6}	1.9×10^{-6}		2.3×10^{-6}	2.8×10^{-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}
Physical characteristics after curing — Pencil scratch hardness		4H	4H	-	4H	5B	Softer than 6B	Softer than 6B	Softer than 6B		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
Physical characteristics after curing — Chip bonding strength (Ceramic chip/Glass)	MPa	-	-	17	-	-	2.9	3.0	3.6		3.1	3.5	2.5	1.4	2.4	2.4	-	19.9	1.4	-	-
Remark(s)				3301M alternative product					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.

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	Ω·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	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.

Conductive Resin Materials

Property Table

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: Silver	Curing agent: Grayish yellow	Agent A: Black	Agent B: 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.

High Temperature Resistant Inorganic Adhesives

Electrical and Electronics | Industrial Materials and Public Works

These are single-component heat resistant adhesives that use ceramics and inorganic polymers as the main components.
They have a heat resistance of 1000°C and higher, and have excellent adhesion with inorganic substances such as ceramics, glass, and metals.
In addition to heat-resistant adhesion usages, they can also be used for filling adhesion and coating of sensors and elements, for oxidation-preventing coatings of metals, and as binders for heat-resistant molding.

3713 B

This is a single-component heat-curing type high temperature resistant inorganic adhesive with a heat resistance of up to 1300°C.
It has excellent adhesion for inorganic substances such as ceramics, glass, and metals, and can be used for heat-resistant fixing of bolts and for oxidation-preventing coating of metals.
It has low viscosity and adequate thixotropic properties, so it is ideal as a binder for heat-resistant moldings.

3732

This is a single-component heat-curing type high temperature resistant inorganic adhesive that can cure at room temperature and has a heat resistance of up to 1400°C.
It has good drying performance due to the alcohol based solvent, it forms a clean cured material with few bubbles, and it has no acidic or alkaline properties, so there is no corrosiveness, which allows it to be used safely.
The cured material has excellent water resistance and electric insulation, so there is virtually no degradation of insulation property even when there is humidity.
In addition to heat-resistant adhesion usages, it can also be used for filling adhesion and coating of sensors and elements, for oxidation-preventing coatings of metals, and as a stain preventing coating against carbon and sludge.

Property Table

Product name			3713B	3732
Characteristics		Unit		
Main component			Alumina	Alumina
Feat ures			Low viscosity Thixotropic properties Strong adhesiveness	Water resistance Good electric insulation Excellent airtightness
Appearance			White	White
Viscosity		Pa-s	8.0	11.0
Specific gravity			2.00	3.00
pH			12	-
Solid content		%	66.0	91.0
Standard curing conditions			150°C/30 min	100°C/30 min
Physical characteristics after curing	Mohs' hardness		5 to 6	1
	Heat-resistant temperature	°C	1300	1400
	Linear expansion coefficient	1°C	8×10^{-6}	8×10^{-6}
	Volume resistivity	Ω/m	5×10^{7}	1×10^{12}
	Thermal conductivity	W/m-K	1.28	2.55
Tensile shear bond strength (Iron)		MPa	4.9	2.8
Chemical resistance	Water	(25°C)	-	◎
	5% sodium hydroxide	(25°C)	-	△
	5% hydrochloric acid	(25°C)	-	◎
	Toluene	(25°C)	-	◎
Remark(s)				It can cure at room temperature

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

Structural Adhesives
High Peel Strength 2 Part Rapid Curing Elastic Adhesives
Highly Resistant 2 Part Rapid Curing Elastic Adhesives

Transportation Equipment | Industrial Materials and Public Works

The 3920 Series adhesives have a good balance of shear bond strength and peel bond strength, containing acrylate as the main component.
They have excellent adhesion for a wide range of materials including various metals and plastics, and can be used as structural adhesives.
3955 Series forms a rubber-like elastic cured material, and it is an adhesive with excellent durability and conformability to impact.

3921 / 3926

This is a two-component structural adhesive that uses acrylate as the main component.
It is a contact-curing type, so it does not need to be completely mixed.
It has a short set time, so handling is possible after 5 minutes, and it reaches practical strength after about 15 minutes.
It has both a high shear bond strength and high peel strength making it ideal for adhesion of structures.
It can be used for various fields such as electrical parts transportation equipment, and construction materials.

3923 / 3928

This is a two-component structural adhesive that uses acrylate as the main component.
It is a contact-curing type, so it does not need to be completely mixed.
It has a short set time, so handling is possible after 10 minutes, and it reaches practical strength after about 30 minutes.
It has both a high shear bond strength and high peel strength, making it ideal for adhesion of structures.
It can be used for various fields such as electrical parts transportation equipment, and construction materials.
It has excellent heat resistance, so the bonding strength does not degrade even when left at 120°C for 30 days.

3955 , 3955 B

This is a two-component elastomeric adhesive that uses acrylate as the main component.
It cures by mixing Agent A and Agent B at a 1:1 ratio.
It has a short set time, so handling is possible after 10 minutes, and it reaches practical strength after about 3 hours.
After curing, it forms an elastomeric rubber-like cured material with excellent heat resistance and moisture resistance, making it ideal for bonding parts that require durability, stress relaxation property, vibration absorption, and conformability.
It can be used for bonding and fixing various electrical parts, sensors, and motors for automobiles and other machines.
3955 is a general type, and 3955B is fast hardening, ultraviolet hardening enabled type.

Property Table

Product name			3921	3926	3923	3928
Characteristics		Unit				
Features			Contact-curing type High shear bond strength / High peel strength adhesive Excellent adhesiveness for a wide range of materials		Contact-curing type High shear bond strength / High peel strength adhesive Excellent adhesiveness for a wide range of materials Excellent heat resistance	
Main component			Acrylate	Acrylate	Acrylate	Acrylate
Appearance			Red	Blue	Pale white	Green
Viscosity		Pa-s	5.1	5.1	3.0	3.0
Specific gravity			1.06	1.10	1.0	1.0
Compounding ratio (Mass ratio)			100:100 (Usage method is contact curing)		100:100 (Usage method is contact curing)	
Set time		min	Within 5		10 to 12	
Standard curing conditions			25°C×24 hours (Practical strength after about 1 hour)		25°C×24 hours (Practical strength after about 30 min)	
Tensile shear bond strength	Iron	MPa	22.1		26.5	
	Aluminum	MPa	16.9		16.7	
	Stainless steel	MPa	21.6		23.5	
	Polycarbonate	MPa	-		14.7 (Material failure)	
	ABS	MPa	4.0		2.9	
	Acrylic	MPa	3.0		2.9	
	Nylon	MPa	1.9		1.0	
Peel strength	Iron	kN/m	3.5		2.7	
	Aluminum	kN/m	-		3.1	
Remark(s)						

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
* Practical strength = 50% of the strength when curing at 25°C×24h is considered 100%
* Before using, confirm the adequacy and safety for the relevant application.

Structural Adhesives, High Peel Strength 2 Part Rapid Curing Elastic Adhesives and Highly Resistant 2 Part Rapid Curing Elastic Adhesives

Property Table

Product name		3950D		3951D		3952D		3955			3955B	
Characteristics	Unit											
Features		Rubber-like elastic cured material High peel strength		Rubber-like elastic cured material High peel strength		Rubber-like elastic cured material High peel strength		Rubber-like elastic cured material Excellent heat resistance Excellent moisture resistance			Rubber-like elastic cured material Excellent heat resistance UV curing	
Main component		Epoxy resin	Silyl-containing special polymer	Epoxy resin	Silyl-containing special polymer	Epoxy resin	Silyl-containing special polymer	Acrylate	Acrylate		Acrylate	Acrylate
Appearance		Colorless	White	Colorless	White	Black	White	Light blue	Light yellow		Blue	Light yellow
Viscosity	Pa-s	2.7	2.2	8.5	12.5	32	16	2.4	2.4		5.5	5.0
Specific gravity		1.18	1.00	1.16	1.00	1.16	1.00	1.04	1.04		1.05	1.05
Compounding ratio (Mass ratio)		1:1		1:1		1:1		100:100			100:100	
Set time	min	15		10		12		5 to 15			3 to 10	
Standard curing conditions		23°C/7days (50%RH)		23°C/7days (50%RH)		23°C/7days (50%RH)		25°C×24h (Practical strength after 3 hours)			25°C×24h (Practical strength after 1 hours)	
Physical characteristics after curing	Hardness	A59		A62		A60		A65			A90	
	Elongation rate	%	142		230		205		130			115
	Tensile strength	MPa	3.7		5.7		6.6		5.2			7.1
Tensile shear bond strength	Iron	MPa	5.2		7.8		6.9		6.6			6.6
	Aluminum	MPa	2.3		7.1		5.5		5.6			4.9
	PBT	MPa	4.5		3.2		5.5		2.4			2.7
	PPS	MPa	-		-		-		2.2			3.5
	ABS	MPa	-		-		-		-			-
	Acrylic	MPa	2.9		5.5		5.2		-			1.3
	Nylon	MPa	2.7		5.1		3.2		2.9			5.2
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.

Antirust Lubricants/Molybdenum Anti-Seizing Lubricants

Transportation Equipment | Industrial Materials and Public Works | Automotive Aftermarket

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.

1801 B, 1802 B

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.

1807 B

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.

1809 B

This is a 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.

1810 C

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.

1815 D

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.

1816 B

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 B

It is a highly safe lubricating spray that uses only raw materials prescribed in the list of the US Food and Drug Administration and has obtained NSF H1 standard · 3H standard · registered.
It can be used for lubrication of parts contacting food such as food machinery and agricultural machines, sliding parts.
Simply by spraying, it permeates into the required part and demonstrates lubricity. It also has an effect on the loosening of the fastened screws.

1851 , 1851 B

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.

1860 , 1860 B

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.

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.

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.

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.

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.

Antirust Lubricants/Molybdenum Anti-Seizing Lubricants

Property Table

Product name / Characteristics	Unit	1801B	1802B	1804	1805	1807	1807B	1809B	1810C
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 organomo-lybdenum Excellent load resistance No damage to plastics	High lubricity High penetrability High rust prevention No damage to plastics	Contains organomo-lybdenum 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		○	○	○	○	○	○	○	-
Plastic compatibility: ABS		○	○	○	○	○	○	○	-
Plastic compatibility: Polystyrene		△	△	○	○	○	○	×	-
Plastic compatibility: Hard PVC		△	△	○	○	○	○	×	-
Plastic compatibility: 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.

Antirust Lubricants/Molybdenum Anti-Seizing Lubricants

Property Table

Product name		1815D	1816	1816B	1821B	1851	1851B	1855	1856		1860	1860B	1862	1901	1910	1920	1925	1927E	1927F
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	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.		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	Engine oil additives	Engine oil additives for hybrid vehicles and fuel-efficient vehicles
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 NSF standard 3H, H1 registrated	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		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	4-cycle engine Car dedicated oil additives	Oil additives for hybrid vehicles and fuel-efficient vehicles
Appearance		Light brown	Blue	Yellow	Light yellow	Colorless	Blue	Beige	Beige		White	White	Light yellow	Black	Black	Black	Dark gray	Light brown	Brown
Viscosity	mPa-s	Paste	80	80	80	1000	950	Paste	Paste		Paste	Paste	185	Paste	25	-	1.1	-	-
Specific gravity		-	0.81	0.81	0.92	0.97	0.97	0.97	0.97		-	-	0.82	1.40	1.60	0.90	0.91	0.93	0.952
Solid content	%	-	70	70	95	100	98	-	100		99.7	99.7	-	96.5	-	99.0	31.0	-	-
Rust prevention capability		○	○	○	×	△	△	△	△		○	○	○	○	○	-	-	-	-
Lubricity		○	○	○	○	△	△	△	△		○	○	○	○	○	○	○	-	-
High speed resistance and load resistance		○	○	○	○	×	×	×	×		-	-	-	◎	◎	○	○	-	-
Penetrability		×	○	○	○	×	×	×	×		-	-	-	×	×	×	×	-	-
Heat resistance		○	-	-	-	○	○	○	○		○	-	-	◎	◎	-	◎	-	-
Plastic compatibility: Polycarbonate		○	-	-	×	○	○	○	○		-	-	-	-	-	-	-	-	-
Plastic compatibility: ABS		○	-	-	○	○	○	○	○		-	-	-	-	-	-	-	-	-
Plastic compatibility: Polystyrene		○	-	-	△	○	○	△	△		-	-	-	-	-	-	-	-	-
Plastic compatibility: Hard PVC		-	-	-	○	○	○	-	-		-	-	-	-	-	-	-	-	-
Plastic compatibility: Overall evaluation		○	×	×	○	○	○	○	○		○	○	×	×	×	-	○	-	-
Remark(s)		Aerosol	Aerosol	Aerosol	Aerosol	Aerosol	4L can	Tube	Aerosol		Tube	Aerosol		Can Paste	Aerosol	Can Paste	Aerosol		

* - : Unmeasured
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Electrical Contact Point Protectors

Electrical and Electronics

These are electrical contact point protectors that are oil or grease agents for rust prevention, lubrication, and protection at electric contacts.
By applying these, it is possible to reduce contact resistance due to their lubricity, which can prevent noise and abrasion from sliding, and prevent sulfuration and oxidation corrosion by their barrier properties. They also have a cleaning effect that can soften and remove adsorbates and wear debris attached to contact surfaces, and prevent surface leakage current.
They can be used at contact points such as connectors, sockets, slide switches, toggle switches, and DIP switches.

2501 L, 2501 S

This is a general use grade with excellent lubricity.
An oil type and an aerosol type are also available.

2585 G

It has a great anti-plastic property.
It is for lubrication of plastic parts such as ABS and polycarbonates.
This is a grease-type product.

Property Table

Characteristics			Unit	2501L	2501S	2583G	2585G
Appearance				Colorless	Colorless	White	White
Viscosity			Pa-s	0.45	0.55	-	-
Consistency				-	-	311	325
Specific gravity				1.00	1.00	0.83	0.86
Solid content			%	99 or higher	99 or higher	-	99 or higher
Features				Lubricity Oil type	Aerosol version of 2501L	Rust-preventing lubricant for electric contact	Lubrication of plastic parts Grease type
Applications	Slide switch	Light load (0 to 30g)		×	×	-	×
		Medium load (30 to 50g)		△	△	-	×
		Heavy load (50g or higher)		×	×	-	×
	IC socket			○	○	-	×
	Connector			○	○	-	×
	DIP switch			○	○	-	×
	Toggle switch			○	○	-	×
	Rotary switch			×	×	-	×
	Power switch			△	△	-	×
	Tuner			×	×	-	×
	Volume			×	×	-	×
	Terminal			○	○	-	×
	Mechanical lubrication			○	○	-	○
Characteristics	Oil film strength		Pa	687	687	-	932
	Coefficient of friction			0.15	0.15	0.10	0.15
	Dropping points		℃	-	-	198	200 or higher
	Copperplate corrosive			○	○	○	○
	Feel			○	○	-	○
	Freeze resistance			○	○	-	△
	Fluidity resistance			△	△	-	○
Plastic compatibility	Polystyrene			×	×	○	○
	Polycarbonate			×	×	○	○
	Acrylic			×	×	○	○
	ABS			-	-	○	-
	Overall evaluation			×	×	○	○
Operating temperature range (Est.)			℃	0 to 80	0 to 80	-	-30 to 100
Remark(s)							

* - : Unmeasured
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Industrial Parts Cleaners

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

This is a series of cleaning agents for industrial use.
There is an aerosol type that is easy to use degreaser for mechanical parts, and a water-based diluted type that is environmentally-friendly.
There is also a cleaning agent for industrial use that can remove oil stains, etc., from factory floors.

2701

This is a water soluble type parts cleaner.
It is used as a 20-fold diluted solution.

2706

This is an aerosol type parts cleaner.
Degreasing is easy by simply spraying.
There is virtually no influence on rubber and plastic.

2706 D

This is an aerosol type cleaning lubricant for air tools such as impact wrenches, air hammers, air nippers, etc.
Since cleaner and lubricant are combined, you can clean and inject lubricant at the same time using a single can.

2706 J

This is a degreasing cleaning agent for machine parts.
Because it is a slow-drying type, it can reduce problems such as drying before removing dirt and oils.

2720 C

This is a temporary lubricant to mount rubber or plastics.
When it is diluted with 20 parts water and applied with a brush or sprayed on rubber or plastic parts, the parts can be mounted easily with lubrication.
It is used for window frame weather strips for vehicles, rubber grommets, tire fitting, etc.

2771 D

This is a water soluble type neutral floor cleaning agent for industrial use.
It can easily remove oil stains from factory floors, etc.
It can be used as an undiluted solution or diluted up to 5 times depending on the dirtiness.

2777 E

This is a water soluble type alkaline floor cleaning agent for industrial use.
It can easily remove oil stains from factory floors, etc.
It can be used as an undiluted solution or diluted up to 5 times depending on the dirtiness.

Property Table

Product name / Characteristics	Unit	2701	2702	2706	2706C	2706D	2706E	2706J	2720C
Applications		Mechanical part cleaning	Mechanical part cleaning	Mechanical part cleaning	Mechanical part cleaning	Cleaning and lubrication of pneumatic tools such as impact wrenches	Mechanical part cleaning	Mechanical part cleaning	Lubrication when attaching rubber and plastic parts
Features		Water-based parts cleaner Use 20-fold diluted solution	Non-hazardous material under the Fire Service Act	Quick-drying Ordinance on Prevention of Organic Solvent Poisoning not applicable	Quick-drying Ordinance on Prevention of Organic Solvent Poisoning not applicable	Maintenance possible by just connecting to the plug of an air tool and spraying the agent	Quick-drying Ordinance on Prevention of Organic Solvent Poisoning not applicable	Quick-drying Ordinance on Prevention of Organic Solvent Poisoning not applicable	Attach rubber parts smoothly, aqueous/ organic rules not applicable, used in 20 times dilution
Main component		Non-ionic surfactant	Alcohol-based solvent	Hydrocarbon-based solvent	Hydrocarbon-based solvent	Hydrocarbon-based mixed solvent Rust-preventing lubricant	Hydrocarbon-based solvent	Hydrocarbon-based solvent	Water-soluble acrylic
Appearance		Yellow	Colorless	Colorless	Colorless	Brown	Colorless	Colorless	Colorless
Specific gravity		1.03	0.87	0.67	0.67	0.81	0.67	0.68	1.03
Solid content	%	-	-	0.0	0.0	0.0	0.0	0.0	6.0
Material compatibility: Polypropylene		-	-	○	○	-	○	-	○
Material compatibility: Nylon		-	-	○	○	-	○	-	○
Material compatibility: Polyethylene		-	-	○	○	-	○	-	○
Material compatibility: Phenol		-	-	○	○	-	○	-	-
Material compatibility: ABS		-	-	○	○	-	○	-	○
Material compatibility: PPO®		-	-	○	○	-	○	-	○
Material compatibility: Iron		-	-	○	○	-	○	○	○
Material compatibility: Aluminum		-	-	○	○	-	○	○	○
Material compatibility: Brass		-	-	○	○	-	○	○	-
Material compatibility: Copper		-	-	○	○	-	○	○	○
Material compatibility: Zinc		-	-	○	○	-	○	○	-
Remark(s)		18L can	18L can	Aerosol	Aerosol	Aerosol	Aerosol	18L can	15L can

* - : Unmeasured
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Cleaning agent

Property Table

Product name / Characteristics	Unit	2750	2771C	2771D	2777E
Applications		Mechanical part cleaning	Concrete floor cleaning	Cleaning of concrete and resin flooring	Concrete floor cleaning
Features		Water-based parts cleaner Low-foamability type so it is good for spray cleaning	Environmen-tally-friendly product Undiluted solution or diluted up to 5 times	Environmen-tally-friendly product Neutral type Undiluted solution or diluted up to 5 times	Environmen-tally-friendly product Neutral type Undiluted solution or diluted up to 5 times
Main component		Non-ionic surfactant	Non-ionic surfactant	Surfactant	Surfactant
Appearance		Yellow	Yellow	Colorless	Blue
Specific gravity		1.10	1.02	1.00	1.04
Solid content	%	7.0	12.7	7.6	12.9
Material compatibility: Polypropylene		-	○	-	-
Material compatibility: Nylon		-	-	-	-
Material compatibility: Polyethylene		-	○	-	-
Material compatibility: Phenol		-	-	-	-
Material compatibility: ABS		-	○	-	-
Material compatibility: PPO®		-	-	-	-
Material compatibility: Iron		-	○	-	-
Material compatibility: Aluminum		-	○	-	-
Material compatibility: Brass		-	○	-	-
Material compatibility: Copper		-	-	-	-
Material compatibility: Zinc		-	-	-	-
Remark(s)		18L can	18L can	17L can	18L can

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

Dilution-Use Solvents

Transportation Equipment | Industrial Materials and Public Works

This is a series of mixed solvents for dilution of solvent dispersion-type liquid gaskets, screw-locking agents, and adhesives, etc.
They can be used for viscosity adjustment, etc., mainly for target products.

2801

This is a mixed solvent that uses toluene and methyl ethyl ketone as the main components.
It is mainly used for dilution of solvent dispersion-type liquid gaskets and adhesives.

2802

This is a mixed solvent that uses toluene, methyl ethyl ketone, and ethyl acetate as the main components.
It is mainly used for dilution of solvent dispersion-type liquid gaskets.

2803

This is a mixed solvent that uses methanol and isopropyl alcohol as the main components.
It is mainly used for dilution of screw-locking agents.

2810

This is a mixed solvent that uses toluene and a glycol ether-based solvent as the main components.
It is mainly used for dilution of epoxy-resin paints.

Property Table

Product name / Characteristics	Unit	2801	2802	2803	2810	2811	2812
Main component		Toluene Methyl ethyl ketone	Toluene Methyl ethyl ketone Ethyl acetate	Methanol Isopropyl alcohol	Toluene Glycol ether-based solvent Methyl isobutyl ketone	Xylene Ethyl benzene Trichloro-ethylene	Ethylene glycol-n-butyl ether Isopropyl alcohol
Appearance		Colorless and transparent	Colorless and transparent	Colorless and transparent	Colorless and transparent	Colorless and transparent	-
Specific gravity		0.86	0.86	0.79	0.87	0.96	-
Flash point	℃	2	2	22	11	28.5	22
Applicable products		1102 1501 1521 4101 etc.	1111B 1103B 1105 1105B etc.	1401 4002 etc.	Epoxy-resin paint etc.	1184 etc.	3801
Classification according to Fire Service Act		Category 4, class 1 petroleums (water-insoluble)	Category 4, class 1 petroleums (water-insoluble)	Category 4 Alcohols	Category 4, class 1 petroleums (water-insoluble)	Category 4, class 2 petroleums (water-insoluble)	Category 4, class 2 petroleums (water-insoluble)
Remark(s)							

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

Electrical Part Protective Agents

Electrical and Electronics

This is a series of coating agents that are used for surface protection and static charge prevention of various materials.

2901

This is a silicone resin-based aerosol type electrical part-protection coating agent.
By simply spraying it to electronic circuit parts and electric insulating materials, it forms an insulating film with excellent heat resistance that protects parts from humidity, rust, sulfuric gas, etc.

2907

It is a single-component water repellent coating agent containing silane compound as a main component.
Because it cures with moisture, it exerts the same durability as glass and forms an excellent water-repellent coating.
It is easy to remove dirt adhered with simple washing.

2910 B

This is an aerosol type antistatic agent with a surfactant as the main component.
By simply spraying, it prevents static on textiles, plastic products, and electronic products, and can prevent dust from attaching.
It is colorless and transparent, has no stickiness, and does not damage rubber or plastic.

2921 D

This is a dust blower for industrial use that contains no CFCs or CFC alternative.
By simply spraying, it is possible to easily remove dust and dirt attached to computers, office equipment, photo-typesetters, cameras, lenses, etc., with its air pressure.
A special absorbent that is inside of the can prevents spraying liquid when used upside down.

2941

This is a room-temperature drying one-component epoxy coating agent that has a modified epoxy resin as its main component.
It has a good adhesiveness to various materials and may be applied to surfaces which are wet with any kind of paint.
It is used for metal rust prevention primers, construction/exterior primers, adhesive for porcelain tiles, etc.

Property Table

Characteristics		Unit	2901
Main component			Silicone resin
Features			Electrical part protective coating Hard coating film
Appearance			Colorless
Viscosity		mPa-s	35
Specific gravity			0.97
Solid content (Nonvolatile content)		%	35
Tack free time		min	15 (Thickness 20μ)
Complete drying time		h	24 (Thickness 40μ)
Physical characteristics after curing	Storage modulus (25°C)	MPa	-
	Volume resistivity	Ω/m	above 1×10^{13}
	Dielectric breakdown strength	kV/mm	above 60
	Water absorption rate (100°C×2h)	%	-
	Peel strength (Film formation/Glass)	N/m	-
Plastic compatibility	Polystyrene		×
	Polycarbonate		×
	Acrylic		×
	ABS		×
	Overall evaluation		×
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.

Characteristics	Unit	2907
Main component		Silane compound
Features		One-component water-repellent coating agent Water repellent glass hard coating
Appearance (Hue)		Colorless to Light yellow
Appearance (Transparency)		Clear
Specific gravity		0.80
Solid content (Nonvolatile content)	%	25.0
Tack free time	min	less than 90
Complete drying time	h	-
Water contact angle	angle	100
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.

Property Table

Product name			2910B
Characteristics		Unit	
Main component			Surfactant
Features			Fast-acting type No damage to rubber or plastic
Appearance			Colorless
Specific gravity			0.79
Characteristics	Friction-charged electrostatic potential test	V	11
Characteristics	Half life measurement experiment	sec	Less than 1
Characteristics	Surface resistivity test – Polyester	Ω	1.49×10^{11}
Characteristics	Surface resistivity test – Nylon	Ω	1.22×10^{12}
Remark(s)			

* 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			2921D
Characteristics		Unit	
Main component			DME/ Carbon dioxide
Features			No CFCs Prevention of liquid spray when used upside down
Specific gravity			0.66
Plastic compatibility	Polystyrene		○
Plastic compatibility	Polycarbonate		○
Plastic compatibility	Acrylic		○
Plastic compatibility	ABS		○
Plastic compatibility	NR		○
Plastic compatibility	SBR		○
Plastic compatibility	CR		○
Plastic compatibility	NBR		○
Remark(s)			

* 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				2941		
Characteristics			Unit			
Main component				Modified epoxy resin		
Features				One-pack type ambient temperature dry type epoxy coating		
Characteristics	Appearance			Transparent yellow		
Characteristics	Viscosity		mPa-s	90		
Characteristics	Specific gravity			0.90		
Characteristics	Solid content		%	25		
Characteristics	Acid value (KOH)		mg/g	Less than 1		
Characteristics	Tack free time	20°C	min	50		
Characteristics	Tack free time	50°C	min	Less than 5		
Standard drying conditions						
Curing characteristics	Pencil hardness change : 20°C	Film thickness		10μ	20μ	30μ
Curing characteristics	Pencil hardness change : 20°C	1 days after		F	B	3B
Curing characteristics	Pencil hardness change : 20°C	2 days after		H	HB	2B
Curing characteristics	Pencil hardness change : 20°C	3 days after		H	H	2B
Curing characteristics	Pencil hardness change : 20°C	4 days after		H	H	B
Curing characteristics	Pencil hardness change : 20°C	5 days after		H	H	B
Curing characteristics	Pencil hardness change : 20°C	6 days after		H	H	H
Curing characteristics	Pencil hardness change : 20°C	7 days after		H	H	H
Adhesion to various materials	Adhesion Test (Cross-cut Testing Method) : 1mm square × 100 20μm thick × 20°C ○=100 / 100	Curing time		0	0	0
Adhesion to various materials		Polished soft steel material		○	○	○
Adhesion to various materials		Rusted steel material after Keren		○	○	○
Adhesion to various materials		Copperplate		○	○	○
Adhesion to various materials		Aluminum		○	○	○
Adhesion to various materials		Chrome-plated board		×	○	○
Adhesion to various materials		Tin plate		×	×	○
Adhesion to various materials		Stainless steel		×	×	○
Adhesion to various materials		Porcelain tiles		×	×	○
Adhesion to various materials		ALC		○	○	○
Adhesion to various materials		GRC		○	○	○
Adhesion to various materials		PET		○	○	○
Adhesion to various materials		PVC		○	○	○
Top coatability	Wet on wet property to various coating systems	Acrylic resin		Adhesion, lifting, etc. No problem		
Top coatability	Wet on wet property to various coating systems	Urethane resin		Adhesion, lifting, etc. No problem		
Top coatability	Wet on wet property to various coating systems	NC lacquer		Adhesion, lifting, etc. No problem		
Top coatability	Wet on wet property to various coating systems	Alkyd resin		Adhesion, lifting, etc. No problem		
Top coatability	Wet on wet property to various coating systems	Polyester resin		Adhesion, lifting, etc. No problem		
Corrosion-resistant and durable, discoloration	Drying conditions			20°C×7 days	110°C×30 min	
Corrosion-resistant and durable, discoloration	Salt spray (120°C)			○	○	
Corrosion-resistant and durable, discoloration	Hot water immersion (40°C × 120h)			○	○	
Corrosion-resistant and durable, discoloration	Moisture resistance (120°C)			○	○	
Corrosion-resistant and durable, discoloration	Alkali resistance			○	○	
Corrosion-resistant and durable, discoloration	Acid resistance			○	○	
Corrosion-resistant and durable, discoloration	Sterilization lamp irradiation	24h	ΔE	8.7		
Corrosion-resistant and durable, discoloration	Sterilization lamp irradiation	72h	ΔE	11.7		

* - : Unmeasured
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Hand Cleaners

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

This is a series of hand cleaners that have effective cleaning power for solidified paint and oil stains.

5903 B

For removal of paint

This is a hand cleaner for removal of paint that does not apply to the PRTR Law and that contains benzyl alcohol as an alcohol-based solvent and silica scrubbing particles.

5905 C

Product containing polyethylene scrubbing particles

This is a hand cleaner with excellent cleaning ability from physical force because it contains polyethylene particles with different grain diameters.
It meets the Uniform National Effluent Standards (0.1w/v% aqueous solution) determined in the Water Pollution Control Act (BOD/COD).
It also contains hyaluronic acid Na that has high moisture-retaining property.

Property Table

Product name / Characteristics	Unit	5903B	5905C
Main component		Alcohol-based solvent Surfactant	Surfactant
Features		For removal of paint	Contains polyethylene scrubbing particles Contains moisturizing ingredient
Appearance		Red	White
Viscosity	Pa-s	3.5	3.0
Specific gravity		1.03	0.92
pH		6.5	8.7
Cleaning ability*1		Completely emulsified	Completely emulsified
Water quality index BOD*2	mg/L	-	160
Water quality index COD*2	mg/L	-	44

*1: Cleaning ability 10wt% aqueous solution
*2: BOD/COD water quality indexes 0.1w/v% aqueous solution

* -: 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.

Wet-Wiper Deodorizers

Transportation Equipment | Industrial Materials and Public Works | Automotive Aftermarket

This is a series of wet wipers and deodorizers with a high antifungal effect.

6701 B Antifungous wet wiper (7 sheets)

This is an antibacterial wet wiper of olefinic non-woven fabric impregnated with cleaner solution that has a cleaning (antistatic) effect as well as an antibacterial effect (using hinokitiol).
Even when it is applied to a glass surface, it will not leave an oil film.
It can be used to clean vehicle dashboards, OA devices, etc.
* Comes in a clear film pouch containing seven sheets.

6701 C Antimicrobial mold-proof wet wiper

This is a high-function wet wiper with a cleaning liquid impregnated into an acrylic microfiber nonwoven fabric.
It has an antifungal and mildew-proof effect because it contains hinokitiol.

6701 D Antimicrobial wet wipers

This is an industrial wet wiper of 100% rayon non-woven fabric impregnated with anhydrous metamorphic ethanol.
It is used for cleaning adhesive parts of polyethylene gas piping, for connecting electric cables, for the final polishing step of the product inspection/shipment process, and for removing hand dirt and oil in the manufacturing process of metal parts, glass/mirror surface parts, etc.
* Comes in a plastic container holding 80 sheets.

6726 D Anti-allergen deodorizing spray

This is an air freshener that includes components (anti-allergen agents) that adsorb or reduce house dust that can be allergenic such as pollen or dust mites (feces, bodies).
It reduces allergens efficiently as well as eliminates odor just by spraying in the room or inside the vehicle.
It is a product of high safety that does not include highly toxic materials such as pesticide components.

6731 Photocatalytic deodorizer Aerosol

This is an aerosol type deodorizer that has a photocatalytic effect from the silver-deposited titanium oxide for breaking down harmful substances that exist in room air, and also has an antifungal effect from the silver.

6732 Photocatalytic deodorizer with Hinokitiol

This is a deodorizer (undiluted solution type) that contains hinokitiol, which has an initial antifungal effect and deodorizing effect. It has a photocatalytic effect from the silver-deposited titanium oxide for breaking down harmful substances that exist in room air, and also has an antifungal effect from the silver.

6735 Visible light responsive photocatalyst spray

Tungsten oxide visible light type photo catalyst agent is sprayed with aerosol throughout the interior of automobile.
After construction, deodorizing effect by tungsten oxide photocatalytic effect can be obtained.
The injection lever can be fixed with one push and the entire amount is injected in the form of mist. It can be applied to the whole interior of the car with simple work.

6737 Titanium oxide with supported silver catalyst deodorizing spray for air-conditioning ducts

This deodorizing and antibacterial aerosol contains titanium oxide with a supported silver photocatalyst that can sprayed as an aerosol into the air conditioning ducts of automobiles.
It takes just 1 minute to spray a full can.

Industrial Paper Wipers
Protective Masks
Double Faced Adhesive Tape

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

This is a series of double faced adhesive tapes, paper wipers, and fine masks for use in factories.

6910 Caulking tape

This is a tape to seal PC joints (resin coating cast steel joints) that uses butyl rubber as its main component. It prevents water intrusion and electrical conduction, thereby protecting against rust and electric erosion.
* 3mm×23mm×5m dimensions

6930 B Highly sticky double-sided tape for molding

This is a highly sticky double-sided tape with a pressure-sensitive adhesive applied on both sides that uses polyethylene foam as the base material and has good adhesion to painted boards.
Thick type, 6930C, is also provided.

6950 Paper wiper roll for industrial use

This is a roll type paper wiper that has the merits of both paper and cloth products.
It has excellent absorbability and resistance to water and various solvents.

6950 B Paper wiper sheet for industrial use

This is a sheet-type paper wiper that has the merits of both paper and cloth products.
It has excellent absorbability and resistance to water and various solvents.

Wiping Cloth
Desiccants

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

This is a series of cloths and desiccants for use in factories.

9970 Natural desiccant

This is a new type of desiccant made from seawater minerals.
A small amount can effectively absorb moisture chemically for a wide temperature range.

Automotive Chassis Coating Agents

Automotive Aftermarket

This is a series of coating agents with excellent rust prevention for the lower part of car bodies and spot welded portions of the chassis, etc.

6101 B

Oil-based aerosol

This is an aerosol type quick-drying vehicle chassis coating agent.
It is good for completing maintenance quickly.

6102

Water-based aerosol

This is an aerosol type aqueous vehicle chassis coating agent.
It forms a film with a deep black glossy finish, providing excellent rust prevention.
Clear (no-color) type is available too.

6107 G

Thick film

This is a vehicle chassis coating agent for forming thick films with excellent chipping resistance.
It protects the body from flying pebbles while driving and against corrosion from salt. It provides strong protection against corrosion.

6110 C

Oil-based aerosol

This is a fast drying black type vehicle chassis coating material. It is suitable when maintenance needs to be completed quickly.

6110 G

Chassis coating agent with excellent quick drying property.
It is good for completing maintenance quickly.

6111 D

This is an oil-based black type vehicle chassis coating material.
Because it uses an alkyd resin as a base, even after hardening once, cross-linking continues as a reaction to oxygen in the air, causing the formation of a strong coating membrane.

6111 E

This is a phthalic acid resin jet black type vehicle chassis coating material. It forms a strong and high-gloss coating membrane.
As it is oil based, it is quick-drying.

6112 B

This is an oil-based black type vehicle chassis coating material. It forms a quick-drying and high-gloss coating membrane. Because it uses an alkyd resin as a base, even after hardening once, cross-linking continues as a reaction to oxygen in the air, causing the formation of a strong coating membrane.

6113

This is a oil-based orange type vehicle chassis coating material. It forms a quick-drying and high-gloss coating membrane. Because it uses an alkyd resin as a base, even after hardening once, cross-linking continues as a reaction to oxygen in the air, causing the formation of a strong coating membrane.

6115

This is an anti-rust lubricant to protect vehicle tire houses and the lower part of the vehicle body from flying stones during driving, and from salt damage.
It forms a rubber base flexible coating membrane.

6151 G

This is a black anti-rust agent for vehicle bodies, which contains petroleum sulfone acid metal salt, etc. as its main components. It forms a flexible coating membrane with self restoring ability, and uses antifreezing and salt damage prevention agents to provide long term protection against rust.
Low viscosity type, low viscosity clear (no color) type, and aerosol black type are also available.

6154

This is a clear type wax anti-rust agent to provide long term protection for vehicle bodies. It forms a flexible coating membrane with self restoring ability, to provide long term protection against salt damage and rust caused by acid rain.
It is possible to apply it just after the car has been washed, so it is also extremely efficient. Thicker coating type and aerosol type are also available.

6154 H (Black), 6154 J (Silver)

This is a long term silicone black aerosol anti-rust agent for mufflers, which forms a heat-resistant coating membrane.
It provides long term protection against salt damage caused by snow melting agents or sea water, and against rust caused by acid rain.

6155 B

This is a water-based black type long term anti-rust agent to prevent salt damage.
It is also possible to apply it to the lower part of a vehicle or the sealer part that is applied on the tire house. There is also a low-viscosity type available.

6161

Water-based

This is an aqueous type chassis coating agent.
It is very effective for rust prevention and maintaining the good appearance of the chassis.
Clear (no-color) type is available too.

6163

This is a water-soluble black type chassis coating material.
It is excellent at preventing rust on the chassis and maintaining the vehicle's beauty.

6164

This is a water-soluble black type fast-drying chassis coating material.
It is excellent at preventing rust on the chassis and maintaining the vehicle's beauty.
It dries quickly and forms a beautiful gloss coating membrane.
A disposable container type and clear (no color) type are also available.

6165 G

This is a water-soluble black type fast drying chassis coating material.
It forms a quick-drying and high-gloss coating membrane.
It forms a strong membrane over time by self reactions since it uses alkyd resin as a base.

6168

This is a water-soluble black type strong anti-rust chassis coating material.
It is excellent at preventing rust on the chassis and maintaining the vehicle's beauty.

6170 C

This is a water-soluble orange type vehicle chassis coating material.
It is excellent at preventing rust on the chassis of trucks, etc. and maintaining the vehicle's beauty.

6171 C

This is a water-soluble red type vehicle chassis coating material.
It is excellent at preventing rust on the chassis of trucks, etc. and maintaining the vehicle's beauty.

Property Table

Product name / Characteristics	Unit	6101B	6102	6102C	6107G	6110C	6111D	6111E	6112B
Main component		Natural bitumen	Water soluble acrylic resin	Water soluble acrylic resin	Synthetic resin	Natural bitumen	Alkyd resin	Phthalic resin	Alkyd resin
Features		Oil-based type Aerosol	Aqueous type Aerosol	Aqueous type Aerosol	Oil-based type Aerosol	Oil-based type	Oil-based type	Oil-based type	Oil-based type
Appearance		Black	Black	Colorless	Black	Black	Black	Black	Black
Viscosity	mPa-s	15	74	32	1900	22.5	53	80	17
Specific gravity		0.91	0.96	0.88	1.13	0.92	0.91	0.95	0.97
Solid content	%	30	20	19	50	39	33	39	36
Tack free	min	5 to 10	20 to 25	30 or less	30 or less	10 or less	20	20	5 or less

Product name / Characteristics	Unit	6113	6115	6151G	6151H	6151J	6151K	6151M	6151N
Main component		Alkyd resin	Synthetic resin	Petroleum sulfonic metallic salt	Petroleum sulfonic metallic salt	Petroleum sulfonic metallic salt	Petroleum sulfonic metallic salt	Petroleum sulfonic metallic salt	Petroleum sulfonic metallic salt
Features		Oil-based type	Oil-based type	Oil-based type	Oil-based type	Oil-based type	Oil-based type Aerosol	Rust preventive for inside door, rocker panel etc. Oil type semi-dry type	Rust preventive for inside door, rocker panel etc. Oil type semi-dry type
Appearance		Orange	Black	Black	Black	Milky white	Black	Milky white	Milky white
Viscosity	mPa-s	-	1810	800	350	350	250	190	170
Specific gravity		1.08	1.10	0.95	0.95	0.92	0.9	0.9	0.9
Solid content	%	48	48	60	52	53	30	27	42
Tack free	min	10 or less	Less than 30	-	-	-	-	-	-

Product name / Characteristics	Unit	6154	6154B	6154C	6154D	6154E	6154H	6154J	6155B
Main component		Wax	Wax	Wax	Wax	Wax	Silicone	Silicone	Synthetic resin
Features		Oil-based type, aerosol available	Oil-based type, aerosol available	Oil-based thick type, aerosol available	Oil-based thick type, aerosol available	Oil-based heat resistant type, aerosol	Heat resistant type for mufflers, aerosol	Heat resistant type for mufflers, aerosol	Aqueous type
Appearance		Dark brown	Black	Dark brown	Black	Silver	Black	Silver	Black
Viscosity	mPa-s	65	115	1240	2300	800	-	-	4800
Specific gravity		0.78	0.80	0.81	0.85	0.82	1.27	1.1	1.20
Solid content	%	15	24	30	45	30	44	34	58
Tack free	min	-	-	-	-	-	60	60	-

* - : 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 / Characteristics	Unit	6155D	6156E	6161	6161C	6163	6164	6164C	6165C
Main component		Synthetic resin	Acrylic resin-based emulsion	Acrylic resin-based emulsion	Acrylic resin-based emulsion	Acrylic resin-based emulsion	Water soluble acrylic resin	Water soluble acrylic resin	Water-soluble alkyd
Features		Aqueous type	For vehicle bogie Aqueous type	Aqueous type	Aqueous type	Aqueous type	Aqueous type Disposable container type available	Aqueous type	For vehicle bogie Aqueous type
Appearance		Black	Grayish white	Black	Colorless	Black	Black	Colorless	Gray
Viscosity	mPa-s	3000	930	200	230	210	41	62	500
Specific gravity		1.15	1.08	1.01	1.00	1.00	0.94	0.94	1.04
Solid content	%	62.5	49	24	24	25	21	21	24
Tack free	min	-	-	25	30	30 or less	3	10	Less than 45

Product name / Characteristics	Unit	6165F	6165G	6168	6170C	6171C
Main component		Synthetic resin	Water-soluble alkyd resin	Synthetic resin	Acrylic resin-based emulsion	Acrylic resin-based emulsion
Features		For vehicle bogie Aqueous type	High-gloss coating Quick-drying Aqueous type	Water-based high rust-prevented type	Aqueous type	Aqueous type
Appearance		Gray	Black	Black	Orange	Red
Viscosity	mPa-s	250	100	200	600	600
Specific gravity		1.06	0.97	1.01	1.01	1.01
Solid content	%	28	24	24	28	28
Tack free	min	-	Less than 20	30	25	25

* - : Unmeasured
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Property Table

Product name / Characteristics	Unit	6122	6123E	6123F	6123G	6123H	6123J	6123K
Main component		Synthetic resin	Silicone resin	Silicone resin	Silicone resin	Silicone resin	Silicone resin	Silicone resin
Features		Silver coating agent For repair	Antirust color ring coat for disc brake caliper part Blue type	Antirust color ring coat for disc brake caliper part Red type	Antirust color ring coat for disc brake caliper part Gold type	Antirust color ring coat for disc brake caliper part Orange type	Antirust color ring coat for disc brake caliper part Yellow type	Antirust color ring coat for disc brake caliper part Pink type
Appearance		Silver	Blue	Red	Gold	Orange	Yellow	Pink
Viscosity	mPa-s	-	170	300	240	215	185	210
Specific gravity		0.96	1.2	1.1	1.2	1.2	1.3	1.2
Solid content	%	24	49	45	51	48	48	48
Tack free	min	20	25	25	25	25	25	25

Product name / Characteristics	Unit	6141C
Main component		Zinc dust
Features		Plating damaged parts, rust preventive for welded parts, zinc-rich paint for repair
Appearance		Gray
Viscosity	mPa-s	-
Specific gravity		2.02
Solid content	%	71
Tack free	min	30 or less

Product name / Characteristics	Unit	6191B	6192
Main component		Solvent mixed with silicone wax	Solvent mixed
Features		Pastar remover	Three raster exclusive remover
Appearance		Yellowish green	Colorless
Specific gravity	mPa-s	0.81	0.80

* -: 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.

Brakes & Parts Cleaners

Automotive Aftermarket

This is a series of degreasing and cleaning agents for cleaning automobile brake shoes, brake drums, mechanical parts, and other parts with oil and grease stains.

6602 L

Undiluted solution / Slow-drying type

This is a slow-drying, undiluted solution type cleaning agent with good workability designed for automobile brake shoes, brake drums, and mechanical parts. It is possible to easily clean oil and grease stains on mechanical parts.

6602 M

Aerosol / Compatible with rubber and plastic / Slow-drying type

This is a slow-drying, aerosol type cleaning agent with good workability designed for automobile brake shoes, brake drums, and mechanical parts. It is possible to easily clean oil and grease stains on mechanical parts, rubber, and plastics.

6602 P, 6602 R

Aerosol / Quick-drying type

This is a quick-drying, aerosol type cleaning agent with good workability designed for automobile brake shoes, brake drums, and mechanical parts. It is possible to easily clean oil and grease stains on mechanical parts.
6602R is a high volume type which can be used upside down.

6602 S

Undiluted solution / Quick-drying type

This is a quick-drying, undiluted solution type cleaning agent with good workability designed for automobile brake shoes, brake drums, and mechanical parts. It is possible to easily clean oil and grease stains on mechanical parts.

6651 D

Undiluted solution / Semi-aqueous

This is a semi-aqueous cleaning agent with good workability designed for automobile brake shoes, brake drums, and mechanical parts, and it is not a hazardous substance under the Fire Service Act. It is safer than conventional hydrocarbon cleaning agents, and has better drying performance than water-based cleaning agents.

6651 F

Aerosol / Non-combustible / Quick-drying type

It is nonflammable detergent with no flash point.
It has the same detergency as the solvent type detergent of the second petroleum, and has good workability due to quick drying.

Property Table

Product name / Characteristics	Unit	6602L	6602M	6602P	6602R	6602S	6602U	6651D	6651F	6658
Main component		Hydrocarbon-based compound	Hydrocarbon-based compound	Hydrocarbon-based compound	Hydrocarbon-based compound	Hydrocarbon-based compound	Hydrocarbon-based compound	Alcohol-based	Fluorine solvent	Water
Features		Undiluted solution Slow-drying type	Aerosol / Compatible with rubber and plastic	Aerosol Quick-drying	Aerosol Large type	Undiluted solution Quick-drying	Undiluted solution	Undiluted solution Semi-aqueous	Aerosol, non-combustible, quick-drying	Alkaline electrolytic water Undiluted solution
Appearance		Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless
Solid content	%	0.00	0.00	0.00	0.00	0.00	0	0.00	0	0.00
Drying performance	sec	210	210	30	30	30	90	550	20	600
Cleaning ability Brake fluid		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable (Emulsified)
Classification according to Fire Service Act		Category 4, class 2 petroleums (water-insoluble)	Category 4, class 2 petroleums (water-insoluble)	Category 4, class 1 petroleums (water-insoluble)	Category 4, class 1 petroleums (water-insoluble)	Category 4, class 1 petroleums (water-insoluble)	Category 4, class 1 petroleums (water-insoluble)	Non-hazardous material	Non-hazardous material	Non-hazardous material

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

Compatible with the 1100 Series

These are dispensing devices for liquid gaskets.

Simple dispensing machine

Tube
Dispenser Tank
(minicoater C5)

Applicable package type: Tube
The discharge amount is adjusted by means of the dispensing time and tank pressure.
Automatic application by machine is possible.

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

Applicable package type: 1-kg can
This dispenser is for a low-viscosity material.
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Automatic dispenser

Tank for 1-kg can (PT-01)
Needle type dispense valve (HPNV-50)
Pressure controller (coater S4)
Desktop 3-axis robot (RT7-20)

Applicable package type: 1-kg can
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.

Compatible with the 1200 Series

These are dispensing devices for silicone-based liquid gasket agents.

Simple dispensing machine

Air gun for tube (PG100C)

Applicable package type: Cartridge
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Tube
Dispenser Tank
(minicoater C5)

Applicable package type: Tube
The discharge amount is adjusted by means of the dispensing time and tank pressure.
Automatic application by machine is possible.

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

Applicable package type: Cartridge
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.

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

Applicable package type: Pail
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.

Compatible with the 1200 Series

Automatic dispenser

Pump for pails (PBIII-45)
Constant-rate injection head (fixed-quantity booster)
Desktop 3-axis robot (RT7-30)

Applicable package type: Pail
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.

Single-acting pump for pails
(PBIII-45)

Applicable package type: Pail
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.

Cartridge-type pump (PCB-20)

Applicable package type: Cartridge
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.

Compatible with the 1300 Series

These are dispensing and application devices for anaerobic adhesives and sealants.

Simple dispensing machine

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.

Syringe dispenser
(minicoater C5)

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

Automatic dispenser

Rotary applicator (RTM2)

Applicable materials: TB 1386 Series
This is a unit for applying and pressure feeding anaerobic sealant to the inside of a cylinder.
Automatic application by machine is possible.

Compatible with the 1500 Series

These are dispensing devices for adhesives for industrial use and for single-component, moisture-curing elastic adhesives.

Simple dispensing machine

Tube
Dispenser Tank (minicoater C5)

Applicable package type: Tube
The discharge amount is adjusted by means of the dispensing time and tank pressure.
Automatic application by machine is possible.

Cartridge-type air gun (PG100C)

Applicable package type: Cartridge
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Automatic dispenser

Cartridge-type high-pressure pumping unit (PCT)

Applicable package type: Cartridge
A cartridge plunger is pushed by a high driving force to pump at high pressure. It is good for high-speed discharge or when the piping from the pressure source to the dispensing port is long.

Cartridge-type tank (LVCT-AC)
Diaphragm type automatic valve
Controller for pressure (coater S4)
Desktop 3-axis robot (RT7-20)

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.

Compatible with the 1700 / 7700 Series

These are dispensing devices for instant adhesives.

Simple dispensing machine

Tubing pump
(TF300mp-S)

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

Automatic dispenser

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.

Compatible with the 2000 Series

These are dispensing devices for two-component epoxies.

Simple dispensing machine

Syringe dispenser
(minicoater C5)

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

Hand gun for two-component liquid cartridge

Applicable package type: Twin cartridge
This is a hand gun dispenser that mixes two components with a static nozzle.
Automatic application by machine is impossible.

Automatic dispenser

Gear pump type two-component mixer and dispenser

The gear pump sends each agent to the dynamic mixer which mixes and then dispenses the mixture. It is manufactured according to specifications such as the mixing ratio and dispensing rate.

Tank for 1-kg can (PT-01)
Needle type dispense valve (HPNV-50)
Pressure controller (coater S4)
Desktop 3-axis robot (RT7 Series)

Applicable package type: 1-kg can
This device pressure-feeds a material from a tank and injects 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.
It is also possible to apply it by using a pail can pump together with a liquid discharge valve.

Compatible with the 2000 / 2100 Series

This is an agitating and defoaming device for epoxy resins.

Agitator

Agitating and defoaming device

This is a device for quickly performing agitation and defoaming by rotating or revolving the high-viscosity material in the container.

Compatible with the 2200 Series

These are dispensing devices for single-component epoxy resins.

Simple dispensing machine

Syringe dispenser
(minicoater C5)

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

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

Applicable package type: 1-kg can
This dispenser is for a low-viscosity material.
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Compatible with the 2200 Series

Automatic dispenser

Gear pump type dispenser for single-component agent

This is a dispenser for accurate application that performs pumping with a gear pump.

Tank for 1-kg can (PT-01)
Needle type dispense valve (HPNV-50)
Pressure controller (coater S4)
Desktop 3-axis robot (RT7 Series)

Applicable package type: 1-kg can
This device pressure-feeds a material from a tank and injects 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.

Compatible with the 3000 Series

These are dispensing devices for UV-curable resins.

Simple dispensing machine

Syringe dispenser (minicoater C5)

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

Automatic applicator

Tank for a 333ml cartridge (LVCT-AC)
Adhesive discharging valve (HPNV-50)
Pressure controller (coater S4)
Desktop 3-axis robot (RT7 Series)

It pressure-feeds a liquid agent fromthe cartridge and applies the agent by controlling the open/closevalve. When it is combined with the robot, it applies the agent to a programmed position.

Compatible with the 3100 Series

These are dispensing devices for UV-curable resins.

Simple dispensing machine

Cartridge-type air gun (PG100C)

Applicable package type: Cartridge
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Syringe dispenser (minicoater C5)

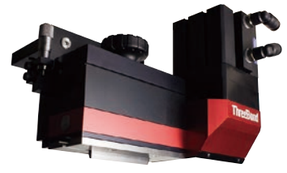
The discharge amount is adjusted by means of the dispensing time and air pressure.
Automatic application by machine is possible.

Automatic applicator

Tank for a 333ml cartridge (LVCT-AC)
Adhesive discharging valve (HPNV-50)
Pressure controller (coater S4)
Desktop 3-axis robot (RT-7 Series)

It pressure-feeds a liquid agent fromthe cartridge and applies the agent by controlling the open/closevalve. When it is combined with the robot, it applies the agent to a programmed position.

Other



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.

Other

3911 D Gasket remover

This is a non-chloride type gasket remover.
It has excellent releasing performance. By spraying it onto solid gaskets and cured liquid gaskets, it makes sealant removal much easier. It is also possible to remove dirt.
It is an environmentally-friendly product because no chlorinated solvent is used.

3914 Floor wax remover

Releasing agent of resin wax for floors made of chemical products, such as polyvinyl chloride type. Safe, with no unpleasant smell, and little effect on floor materials. Use by diluting 5-11 times with water depending on the situation.

3991 Liquid paraffin (for delaying curing of silicone-based sealant)

This is a cure-delaying liquid paraffin for silicone sealants.
It prevents contact between uncured silicone sealant with moisture in the air so that curing is delayed.
By immersing the injection nozzle of the automatic dispensing machine on standby, it is possible to delay the sealant curing at the nozzle tip. By filling it into the oil cup portion of a ThreeBond power booster, the paraffin can also be used for lubrication at the drive portion and curing prevention by insulating oxygen from inside the equipment.

6660 Gas leak tester · Gas leak detection agent

It is a gas leak detection agent that can easily detect gas / air leaks by lightly spraying on piping junction (air, city gas, propane gas, etc.)
It conforms to JIS Z 2329 (foam leakage test method)