ThreeBond

2000/2100/2200 Series

Epoxy Resin Adhesives

2000/2100/2200 Series

Epoxy Resin Adhesives

These are adhesives that use epoxy resin as the main component.
They have strong adhesion strength and have excellent overall characteristics including chemical resistance, electrical properties, and mechanical strength.
There is a two-component type that cures at room temperature, and a single-component type that is a heat-curing type.
They can be used for various purposes including general-purpose adhesion and sealing, for construction materials, and for electronic device bonding, filling, repair, casting, and impregnation.

■ Applicable markets

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

2000 Series (Two-component epoxy resin main agent)

2001
This is a standard epoxy main agent.
It forms a cured material with slight flexibility, and it has great adhesion strength.

2002K
2002L
It has thixotropic properties and is cream-like.
There is virtually no dropping even when mixed with a curing agent, and it has excellent padding ability giving it good workability.

2022
This is a standard epoxy main agent.
It forms a cured material with good balance.

2022U
This is a high adhesive strength type that can be used as an adhesive for construction.
In combination with 2103, it provides strong adhesive strength even when hardened at room temperature.

2045B
2145B
This is a two-component room-temperature curing heat-dissipating epoxy resin.
Thermal conductivity 2.1W/m·K, Nonflammable type (UL94 V-0 equivalent product), has high adhesion strength.
It is good for heat dissipation in the area around drive batteries in automobiles.

2049
2149
This is a two-component room-temperature curing epoxy resin.
It is highly adhesive and flexible.
It is suitable for various structural adhesive applications that require joining of different materials, such as adhesion on vehicles and vehicle bodies.

2100 Series (Two-component epoxy resin curing agent)

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

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

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

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

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

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

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

2000/2100/2200 Series

2080 Series (Two-component epoxy resin adhesive set)

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

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

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

2084B
2084E
This adhesive is a set with a main agent and curing agent and is good for repairs.
2084B contains aluminum powder and is good for the repair of metallic parts.
2084E is low-viscosity and transparent and is suitable for adhesion and coating.

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

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

2200 Series (Single-component 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
This grade can be cured at low temperatures and is ISO10993 (biological evaluation of medical devices) compliant.

2222P
It has excellent thermal shock resistance.
It also has high adhesion strength.

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

2237J
This has a high glass transition temperature. It is suitable for applications that require heat resistance since it maintains a high elastic modulus even in a high temperature environment.

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

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

2249K
This is a highly-adhesive type.
It has excellent shape retention and a long pot life, and can be applied to vertical surfaces and ceilings.
It is suitable for structural adhesive.

2270J
This adhesive has excellent thermal conductivity and is good for protecting components from overheating.
It has a low linear expansion coefficient, low cure shrinkage and high reliability.

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

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

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

2284E
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.

2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent		2001						2002K		2002K			2002L						2002M	
Characteristics	Unit	Main agent	2103	2105C	2105F	2106G	2163	Main agent	2105	2105C	2105F	2107	Main agent	2105	2105C	2105F	2105R	2107	Main agent	2105C
Main component		Epoxy resin	Aliphatic polyamine	Modified polyamide-amine	Modified polyamide-amine	Modified aliphatic polyamine	Modified aromatic polyamine	Epoxy resin	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Epoxy resin	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-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	Balance between shear and Peeladhesive strength	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 transparent	Light yellow transparent	Rust	Rust	Light yellow transparent	Black	Gray	Light yellow	Rust	Rust	Light brown	White translucent	Light yellow	Rust	Rust	Rust	Light brown	Black	Rust
Viscosity	Pa•s	12.0	-	2.0	40.0	3.0	1.2	100	5.0	2.0	40.0	30.0	95.0	4.5	2.0	40.0	50.0	30.0	15.0	2.0
	mPa•s	-	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.16	0.97	0.94	0.96	1.05	1.10	1.21	0.93	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 / 50	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	30min	5 h	-	-	-	-	-	-	-	-	-	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	25°C·24h or 80°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	D85	D90	-	D84	D84	D82	D70	-	D84	D84	D78	D80	D70	-	D85
Physical characteristics after curing — Glass transition temperature	°C	-	90	81	64	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical characteristics after curing — Volume resistivity	Ω·m	-	1×10^{14}	1×10^{13}	1×10^{13}	-	2×10^{15}	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	24	20	20	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron — Tensile shear bond strength (When heat-cured)	MPa	-	18.0	22.0	20.0	20	24.5	-	17.5	19.1	16.9	17.6	-	18.8	18.7	20.2	23.3	18.2	-	19.8
Iron — Peel strength (When heat-cured)	N/m	-	196	353	471	600	275	-	-	-	-	-	-	-	-	-	-	-	-	-
Remark(s)																				

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent	Characteristics	Unit	2003							2003C		2003H		2004				2004J	2016F			
			Main agent	2102B	2103	2105C	2105F	2106G	2106H	Main agent		Main agent	2105T	Main agent	2105	2105C	2105F	Main agent	Main agent	2103	2105C	2105F
Main component			Epoxy resin	Modified aliphatic polyamine	Aliphatic polyamine	Modified polyamide-amine	Modified polyamide-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin		Epoxy resin	Modified polyamide-amine	Epoxy resin	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Epoxy resin	Epoxy resin	Aliphatic polyamine	Modified polyamide-amine	Modified polyamide-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 High mechanical strength	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance
Appearance			Brown	Rust	Light yellow transparent	Rust	Rust	Light yellow transparent	Light yellow transparent	Black		Black	Milky white	White	Light yellow	Rust	Rust	Gray	Silver	Light yellow transparent	Rust	Rust
Viscosity		Pa•s	Putty	2.8	-	2.0	40.0	3.0	6.5	Putty		Paste		60.0	5	2.0	40.0	90.0	Putty	-	2.0	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	0.90	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 / 40	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	-	33min	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·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	-	84	-	-	-	-	D87	D84	D84
	Glass transition temperature	℃	-	-	-	-	-	80	81	-		-	40	-	45	-	64	-	-	-	-	-
	Volume resistivity	Ω·m	-	1×10^{14}	3×10^{14}	1×10^{13}	1×10^{13}	-	-	-		-	-	-	4.5×10^{13}	-	1×10^{13}	-	-	-	-	-
	Dielectric breakdown strength	kV/mm	-	20	25	25	20	-	-	-		-	-	-	34	-	-	-	-	-	-	-
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)	-	22.2	15.7	17.7	-	-	14.3	20.1	21.2
	Peel strength (When heat-cured)	N/m	-	118	196	275	589	1000	1100	-		-	1900 (When cured at room-temperature)	-	840	-	-	-	-	-	-	-
Remark(s)																						

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent		2022								2022					2022B	2022C		2022F	2022R
Characteristics	Unit	Main agent	2102	2102B	2103	2104	2105C	2105F	2105R	2106G	2106H	2107	2131D	2131P(J)	Main agent	Main agent	2131D	Main agent	Main agent
Main component		Epoxy resin	Modified aliphatic polyamine	Modified aliphatic polyamine	Aliphatic polyamine	polythiol	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Modified polyamide-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin	Epoxy resin	Modified aliphatic polyamine	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	Low viscosity Medium flexibility
Appearance		Light yellow transparent	Light yellow transparent	Light yellow	Light yellow transparent	Light yellow to Brown	Rust	Rust	Rust	Light yellow transparent	Light yellow transparent	Light brown	Light yellow transparent	Light yellow transparent	Light yellow	Light yellow	Light yellow transparent	Blue	White
Viscosity	Pa•s	13.0	6.5	2.8	-	-	2.0	40.0	50.0	3.0	6.5	30.0	-	-	4.0	5.0	-	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	1.15
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 100	100 / 25	100 / 9 to 10	100 / 80 to 100	100 / 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·48h 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·2h	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	D78	D81	D81	D87	D87	D70	D85	D84	-	-	D80	-	-
Physical characteristics after curing — Glass transition temperature	°C	-	-	70	90	37	85	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	30	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	22.6	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	200	589	-	500	500	1961	392	275	-	-	589	-	-
Remark(s)																			

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent	Unit	2022U		2023						2023			2023B			2023D		2023J	
Characteristics		Main agent	2103	Main agent	2102B	2103	2105C	2105F	2105R	2106G	2106H	2131D	Main agent	2106G	2106H	Main agent	2105C	Main agent	2104
Main component		Epoxy resin	Aliphatic polyamine	Epoxy resin	Modified aliphatic polyamine	Aliphatic polyamine	Modified polyamide-amine	Modified polyamide-amine	Modified polyamide-amine	Modified aliphatic polyamine	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin	Modified aliphatic polyamine	Modified aliphatic polyamine	Epoxy resin	Modified polyamide-amine	Epoxy resin	Polythiol
Features		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	Low viscosity	Balance between shear and peel-adhesive strength	Balance between shear and peel-adhesive strength	Low viscosity Flexibility	Adhesion strength Flexibility Chemical resistance	Low viscosity Black type of 2023	Rubbery hardened material, low-temperature hardening, impact resistance, cold resistance
Appearance		Black	Light yellow transparent	Light yellow	Light yellow	Light yellow transparent	Rust	Rust	Rust	Light yellow transparent	Light yellow transparent	Light yellow transparent	Light yellow	Light yellow transparent	Light yellow transparent	Light yellow transparent	Rust	Black	Light yellow to Brown
Viscosity	Pa•s	11.2	-	-	2.8	-	2.0	40.0	50.0	3.0	6.5	-	-	3.0	6.5	-	2.0	-	-
	mPa•s	-	20.0	900	-	20.0	-	-	-	-	-	10.0	200	-	-	800	-	900	950
Specific gravity		1.15	0.97	1.13	1.06	0.97	0.95	0.96	0.96	1.06	1.06	0.95	1.13	1.06	1.06	1.07	0.95	1.13	1.22
Compounding ratio (Mass ratio) Main agent / Curing agent		-	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 / 50	100 / 60	-	100 / 40 to 50	-	100 / 80 to 100
Pot life (25°C / 100g when mixed)		-	13 min	-	22 min	27 min	80 min	2h	1.5 to 2h	90 min	108 min	4 to 5h	-	50 min	70 min	-	40 to 60 min	-	30 min
Standard curing conditions		-	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	-	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	-	25°C·24h or 100°C·1h
Physical characteristics after curing — Hardness		-	D76	-	D80	D85	D82	D80	D78	D84	D85	D81	-	D81	D81	-	D70 to 75	-	D67
Physical characteristics after curing — Glass transition temperature	°C	-	103	-	68	80	76	60	-	63	55	79	-	46	42	-	-	-	3
Physical characteristics after curing — Volume resistivity	Ω·m	-	-	-	1×10^{13}	1×10^{14}	1×10^{13}	1×10^{13}	-	-	-	1×10^{13}	-	-	-	-	5 to 8×10^{12}	-	-
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	-	-	20	22	20	20	-	-	-	20	-	-	-	-	14 to 18	-	-
Iron — Tensile shear bond strength (When heat-cured)	MPa	-	25.0	-	16.0	16.0	20.0	18.0	19.8	18.0	19.0	17.0	-	17.0	16.0	-	11.8 to 14.7	-	8.2
Iron — Peel strength (When heat-cured)	N/m	-	613 (When cured at room-temperature)	-	196	275	392	981	-	500	500	235	-	600	400	-	-	-	564
Remark(s)																			

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent		2023J		2023K	2023M	2024B			
Characteristics	Unit	2105C	2105F	Main agent	Main agent	Main agent	2103	2105C	2105F
Main component		Modified polyamide-amine	Modified polyamide-amine	Epoxy resin	Epoxy resin	Epoxy resin	Aliphatic polyamine	Modified polyamide-amine	Modified polyamide-amine
Features		Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance	White type of 2023	Low viscosity White type of 2023	Low shrinkage Heat dissipation property Insulation property	Medium heat resistance Fast-curing	Adhesion strength Flexibility Chemical resistance	Adhesion strength Flexibility Chemical resistance
Appearance		Rust	Rust	Light yellow transparent	White	Light yellow transparent	Light yellow transparent	Rust	Rust
Viscosity	Pa•s	2.0	40	2.5	-	11.0	-	2.0	40
	mPa•s	-	-	-	900	-	20.0	-	-
Specific gravity		0.95	0.96	1.15	1.14	1.45	0.97	0.95	0.96
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 40 to 50	100 / 80 to 100	-	-	-	100 / 6	100 / 24 to 30	100 / 48 to 60
Pot life (25°C / 100g when mixed)		80min	70 to 80min	-	-	-	60 min	75 min	-
Standard curing conditions		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 100°C·1h	25°C·48h or 100°C·1.5h
Physical characteristics after curing — Hardness		D71	D77	-	-	-	D87	D82	D85
Physical characteristics after curing — Glass transition temperature	°C	61	51	-	-	-	66	75	63
Physical characteristics after curing — Volume resistivity	Ω·m	-	-	-	-	-	2×10^{14}	1×10^{13}	-
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	-	-	-	-	25	20	-
Iron — Tensile shear bond strength (When heat-cured)	MPa	13.1 (When cured at room-temperature)	13.4 (When cured at room-temperature)	-	-	-	16.0	20.0	19.6
Iron — Peel strength (When heat-cured)	N/m	318 (When cured at room-temperature)	406 (When cured at room-temperature)	-	-	-	235	392	3924
Remark(s)									

Product name / Main agent / Curing agent		2025		2045		2045B		2049		2061F	
Characteristics	Unit	Main agent	2104	Main agent	2145	Main agent	2145B	Main agent	2149	Main agent	2105C
Main component		Epoxy resin	Polythiol	Epoxy resin	Alicyclic polyamine	Epoxy resin	Polyamine	Epoxy resin	Polythiol	Epoxy resin	Modified polyamide-amine
Features		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☆☆☆☆」		Two-component fire-resistant Epoxy resin Certified with UL94 V-0 Excellent heat dissipation property		Two-component room-temperature curing flexibility Adhesion strength High-thixotropic		Casting Potting	Adhesion strength Flexibility Chemical resistance
Appearance		Light gray	Light yellow to Brown	Black	Orange	Pink	Light blue	Black	White	Light brown transparent	Rust
Viscosity	Pa•s	25.0	-	180	1.6	82	124	312	118	2.0	1.8
	mPa•s	-	950	-	-	-	-	-	-	-	-
Specific gravity		1.52	1.22	1.82	0.99	2.50	2.52	1.42	1.43	1.10	0.95
Compounding ratio (Mass ratio) Main agent / Curing agent		-	100 / 40 to 50	100 / 10		100 / 40		100 / 100		-	100 / 30
Pot life (25°C / 100g when mixed)		-	23 min	100 min		-		-		-	60 to 80 min
Standard curing conditions		-	25°C·24h or 100°C·1h	25°C·72h		25°C·24h		25°C·24h		-	80°C·2h
Physical characteristics after curing — Hardness		-	D69	D87		D79		D52		-	A55
Physical characteristics after curing — Glass transition temperature	°C	-	-4.3	53		45		21		-	-
Physical characteristics after curing — Volume resistivity	Ω·m	-	-	5.9×10^{12}		1.9×10^{12}		-		-	4.7×10^{10}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	-	-		18.9		-		-	-
Iron — Tensile shear bond strength (When heat-cured)	MPa	-	11.9	10		17.5 (When cured at room-temperature)		13.3 (When cured at room-temperature)		-	-
Iron — Peel strength (When heat-cured)	N/m	-	766	300		880 (When cured at room-temperature)		2300 (When cured at room-temperature)		-	-
Remark(s)				Certified with UL94 V-0,「F☆☆☆☆」		Thermal conductivity 2.1W/m·K					

* - : Unmeasured
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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Main agent / Curing agent	Characteristics	Unit	2074B Main agent	2074B Curing agent	2077D Main agent	2077D Curing agent	2081D Main agent	2081D Curing agent	2082C Main agent	2082C Curing agent
Main component			Epoxy resin	Polyamide-amine	Epoxy resin	Modified polyamide-amine	Epoxy resin	Modified polyamide-amine Tertiary amine	Epoxy resin	Modified polyamide-amine
Features			Low viscosity High-thixotropic		Low viscosity Flexible hardened material		Soft PVC adhesion		High shear bond strength	
Appearance			White	Black	Milky white	Light brown	Light yellowish white to pale rose	Yellowish Brown transparent	White	Yellowish Brown transparent
Viscosity		Pa•s	25.0	9.0	2.9	28.6	11.0	10.0	15.0	16.0
		mPa•s	-	-	-	-	-	-	-	-
Specific gravity			1.27	1.16	1.24	0.96	1.16	0.98	1.19	0.98
Compounding ratio (Mass ratio) Main agent / Curing agent			100 / 50		100 / 80		Capacity ratio 100 / 100		Capacity ratio 100 / 100	
Pot life (25°C / 100g when mixed)			50 min		-		60 min		70 min	
Standard curing conditions			25°C·48h or 120°C·1h		-		25°C·24h or 60°C·1h		25°C·24h or 60°C·1h	
Physical characteristics after curing	Hardness		D84		D54		D60 to 65		D76	
	Glass transition temperature	°C	-		45		-		-	
	Volume resistivity	Ω·m	-		-		-		-	
	Dielectric breakdown strength	kV/mm	-		-		-		-	
Iron	Tensile shear bond strength (When heat-cured)	MPa	20.4		15.0		13.7		25.5	
	Peel strength (When heat-cured)	N/m	-		2300		3730		1720	
Remark(s)										

Product name / Main agent / Curing agent	Characteristics	Unit	2082E Main agent	2082E Curing agent	2082F Main agent	2082F Curing agent	2083L Main agent	2083L Curing agent	2084B Main agent	2084B Curing agent	2084E Main agent	2084E Curing agent
Main component			Epoxy resin	Modified polyamide-amine	Epoxy resin	Modified polyamide-amine	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Modified polyamide-amine
Features			General-purpose adhesive filling repair		Adhesive for repair of metallic parts		Structural adhesive for wet surfaces		For repair of metallic parts (aluminum-based)		For repair	
Appearance			White translucent	Gray	Black	Light yellow transparent	Light gray	Blue-green	Silver	Brown	Light yellow	Brown
Viscosity		Pa•s	90.0	150	5500	-	Putty	Putty	Paste	-	13.0	1.9
		mPa•s	-	-	-	850	-	-	-	250	-	-
Specific gravity			1.20	1.07	2.60	0.95	1.60	1.50	1.20	0.95	1.16	0.96
Compounding ratio (Mass ratio) Main agent / Curing agent			Capacity ratio 100 / 100		100 / 10		100 / 100		100 / 10		100 / 50	
Pot life (25°C / 100g when mixed)			60 min		60 min		15 min		30 to 50 min		40 to 50 min	
Standard curing conditions			25°C·24h or 80°C·1h		25°C·24h or 80°C·1h		25°C·24h		25°C·24h or 100°C·30 min		25°C·24h or 100°C·30 min	
Physical characteristics after curing	Hardness		D78		D85		D77		D85		(Rockwell R55)	
	Glass transition temperature	°C	93.1		66.5		-		58.0		-	
	Volume resistivity	Ω·m	-		-		2.2×10^{10}		1×10^{10}		-	
	Dielectric breakdown strength	kV/mm	-		-		22.0		-		-	
Iron	Tensile shear bond strength (When heat-cured)	MPa	16.5		20.8		14.6		9.81		23.7	
	Peel strength (When heat-cured)	N/m	-		-		-		-		-	
Remark(s)												

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Characteristics	Unit	2086M Main agent	2086M Curing agent	2086N Main agent	2086N Curing agent	2086T Main agent	2086T Curing agent	2087 Main agent	2087 Curing agent
Main component		Epoxy resin	Polythiol	Epoxy resin	Polythiol	Epoxy resin	Polythiol	Epoxy resin	Polyamide-amine
Features		Fast curing at low temperature		Fast curing at low temperature		Fast curing at low temperature Twin cartridge type		Adhesion of structures	
Appearance		Light yellow	Light yellow	Light yellow	Gray	White	Yellowish Brown transparent	Light yellow transparent	Light brown
Viscosity	Pa•s	13.0	10.0	110	50.0	29.0	9.2	13.0	30.0
	mPa•s	-	-	-	-	-	-	-	-
Specific gravity		1.17	1.15	1.29	1.20	1.18	1.13	1.16	0.96
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 100		100 / 100		100 / 100		100 / 100	
Pot life (25°C / 100g when mixed)		5 min		5 min		3 min		60 min	
Standard curing conditions		25°C·24h		25°C·24h		25°C·24 h		25°C·24h or 60°C·2h	
Physical characteristics after curing / Hardness		D85		D70		D78		D70	
Physical characteristics after curing / Glass transition temperature	°C	44.7		29.7		52.0		72.0	
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	20.3 (When cured at room-temperature)		14.0 (When cured at room-temperature)		15.5		21.4	
Iron / Peel strength (When heat-cured)	N/m	-		-		-		1220	
Remark(s)		Twin cartridge type available ISO10993 (biological safety evaluation) compliant product							

Product name / Characteristics	Unit	2087N Main agent	2087N Curing agent	2088E Main agent	2088E Curing agent	2088J Main agent	2088J Curing agent	2089B Main agent	2089B Curing agent
Main component		Epoxy resin	Modified aliphatic polyamine	Epoxy resin	Polyamide-amine	Epoxy resin	Polyamide-amine	Epoxy resin	Polythiol
Features		For HDD parts, Low outgassing		High thermal adhesiveness		High heat resistance High moisture resistance		Metal stick putty type	
Appearance		Milky white	Blue	Yellow transparent	Yellow-brown	White	Brown transparent	Outside: Appearance / Gray	Inside: Inside / Black
Viscosity	Pa•s	12.0	5.0	40.0	4.0	13.0	4.5	-	-
	mPa•s	-	-	-	-	-	-	-	-
Specific gravity		1.17	1.05	1.19	1.03	1.17	0.95	2.15	
Compounding ratio (Mass ratio) Main agent / Curing agent		100 / 50		100 / 25		100 / 30		-	
Pot life (25°C / 100g when mixed)		25 to 30 min		70 min		4h		4 min	
Standard curing conditions		60°C·3h or 80°C·1h		25°C·24h or 100°C·1h		80°C·2h		25°C·1h or 60°C·10 min	
Physical characteristics after curing / Hardness		D80		D82		-		D87	
Physical characteristics after curing / Glass transition temperature	°C	80.0		170 (150°C/1h)		100		-	
Physical characteristics after curing / Volume resistivity	Ω·m	-		-		-		-	
Physical characteristics after curing / Dielectric breakdown strength	kV/mm	-		-		-		-	
Iron / Tensile shear bond strength (When heat-cured)	MPa	30.3		22.9		20.0		8.8 (When cured at room-temperature)	
Iron / Peel strength (When heat-cured)	N/m	-		-		-		-	
Remark(s)									

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Characteristics	Unit	2202	2202C	2202P	2204	2206	2206S	2206U	2206V
Main component		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 halogen content
Appearance		Black	White	Purple	Black	Black	Black	Black	Black
Viscosity	Pa•s	13.0	27.0	13.0	28.0	120	15.0	40.0	42.0
	mPa•s	-	-	-	-	-	-	-	-
Specific gravity		1.14	1.39	1.16	1.23	1.20	1.36	1.25	1.36
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·30min	80°C·30min *90°C or higher temperature are recommended
Physical characteristics after curing — Hardness		D88	D90	D88	D89	D85	D87	D86	D87
Physical characteristics after curing — Glass transition temperature	°C	105	101	115	109	104	106	103	114
Physical characteristics after curing — Volume resistivity	Ω·m	1.3×10^{15}	-	-	1.7×10^{14}	1.4×10^{13}	4.8×10^{13}	5.8×10^{13}	3.7×10^{13}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	16	-	-	16	16	31	36	24
Iron — Tensile shear bond strength	MPa	9.2	12.2	23.0	9.3	13.6	12.0	18.0	10.2
Iron — Peel strength	N/m	331	235	-	419	-	-	-	-
Remark(s)			ISO10993 (biological safety evaluation) compliant product						

Characteristics	Unit	2210	2210C	2210K	2210S	2212	2212B	2212C	2212E	2212Q	2215	2215D
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		Low viscosity Penetrability Small heat generation while curing	Low viscosity Reduced separation and uncuring issue	Low viscosity Curing at low temperatures	Low viscosity Curing at low temperatures Low halogen content	Low viscosity Glossy cured material Excellent penetrability and flowability	Excellent moisture resistance Curing in 1 min at 150°C	Excellent moisture resistance Curing in 1 min at 150°C	Medium flowability Glossy cured material	Low halogen content	Some padding ability Glossy cured material	Reduced separation and uncuring issue
Appearance		Black	Black	Black	Black	Black	Black	Rust	Black	Black	Black	Black
Viscosity	Pa•s	10.0	8.0	3.5	8.0	13.0	25.0	25.0	35.0	15.0	80.0	140.0
	mPa•s	-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.18	1.17	1.15	1.20	1.39	1.39	1.39	1.40	1.69	1.40	1.30
Recommended curing conditions		90°C·30 min 100°C·20 min 120°C·15 min	90°C·30 min 100°C·20 min 120°C·15 min	80°C·40 min	100°C·30min	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
Physical characteristics after curing — Hardness		D86	D87	D87	D89	D92	-	D93	D92	D92	D94	D85
Physical characteristics after curing — Glass transition temperature	°C	120	120	92	95	100	109	109	94	105	125	110
Physical characteristics after curing — Volume resistivity	Ω·m	1.5×10^{14}	-	-	4.5×10^{14}	5.7×10^{14}	1.6×10^{14}	1.6×10^{14}	5.7×10^{14}	-	5.7×10^{14}	-
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	23	-	-	27	23	23	23	23	32	23	-
Iron — Tensile shear bond strength	MPa	16.3	14.7	16.5	15.0	10.8	10.2	8.89	11.7	10.0	14.7	17.7
Iron — Peel strength	N/m	204	-	400	-	329	338	349	297	-	-	-
Remark(s)												

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Characteristics	Unit	2217	2217H	2219C	2222P	2222R	2223S	2225G (NEO)	2230		2230B	2232	2233B	2234C	2234E	2235L	2236	2237K	2237J	2239H	2239M
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		Screen printing possible Curing in 1 min at 150°C	Excellent syringe coatability High-thixotropic	High viscosity Low flowing while curing	Thermal shock resistance Shear · Peel strength	Thermal shock resistance Low linear expansion coefficient Shear · Peel strength	Stable for flowability Good adhesion Humidity resistance	For relay sealing	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 printing possible	High glass transition temperature Heat resistance Low linear expansion coefficient Peel-adhesive strength	Low linear expansion coefficient	Strong adhesiveness
Appearance		Rust	Pink	Black	Black	Black	Black	Black	Milky white		Black	White	Black	Grayish white	Black	Black	Grayish white	White	White	Milky white	Gray
Viscosity	Pa•s	265.0	185.0	250.0	45.0	65.0	42.9	50.0	8.0		8.0	27.0	55.0	110.0	70.0	80.0	120.0	63.0	115.0	-	510
	mPa•s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.44	1.19	1.37	1.60	1.70	1.60	1.35	1.28		1.28	1.23	1.16	1.35	1.42	1.69	1.35	1.49	1.64	1.55	1.47
Recommended curing conditions		80°C·30 min 100°C·20 min 120°C·10 min 150°C· 1 min	90°C·20min 100°C·15min 120°C·10min 130°C·10min 150°C·10min	80°C· 30 to 40 min 100°C· 20 to 30 min 120°C· 10 to 20 min 150°C· 1 to 7 min	100°C·60 min	90°C·90 min 100°C·60 min 120°C·20 min	100°C·60 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	150°C·30 min
Physical characteristics after curing — Hardness		D90	D86	D90	D89	D91	D91	D87	D84		D84	D90	D75	D92	D92	D92	D92	D91	D89	D92	D90
Physical characteristics after curing — Glass transition temperature	°C	120	92	95	115	115	118	132	70		70	130	75	142	142	155	142	107	150	115	118
Physical characteristics after curing — Volume resistivity	Ω·m	-	6.2×10^{13}	5.8×10^{13}	-	-	6.0×10^{13}	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}	-	5.9×10^{15}	1.7×10^{14}	8.5×10^{13}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	24	25.8	34	-	-	21	23.1	-		-	10	20	20	20	23	20	-	24	29	-
Iron — Tensile shear bond strength	MPa	9.8	24.2	19.0	25.5	21.4	24.0	20.0	23.2		23.7	15.6	19.6	24.5	24.5	23.0	23.0	17.6	26.0	21.5	23.0
Iron — Peel strength	N/m	-	-	-	1740	776	2900	3500	1320		2400	-	1962	1200	1200	2000	1180	-	3600	1600	2000
Remark(s)																					

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2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name / Characteristics	Unit	2239N	2239P	2247D	2249G	2249K	2253G	2263B	2270C		2270J	2272F	2272H	2273B	2274S	2280C	2280E	2280H	2284E	2284J	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	Later penetration type Strong adhesiveness	Strong adhesiveness High peel-adhesive strength	Strong adhesiveness High peel-adhesive strength	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	Nonflammable	Nonflammable Low halogen content Curing at low temperatures	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 Nonmagnetic type	Resin for balancing a motor Strength when highly heated Low temperature curing	For motor coil impregnation and fixing Excellent penetrability under heat High heat resistance Strength when highly heated
Appearance		Greenish gray	Greenish gray	Milky white	Black	Black	Light yellow	Black	Gray		White	Black	Black	Milky white	Blue	Light brown	Black	Black	Rust Putty	Brown	Milky white
Viscosity	Pa•s	510	230	45.0	75.0	882	37.0	111	65.0		150	75.0	175	32.0	3.8	1.0	1.0	11.0	-	-	140
	mPa•s	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
Specific gravity		1.47	1.51	1.17	1.59	1.23	1.48	0.69	1.95		2.86	1.64	1.60	1.30	1.17	1.16	1.16	1.10	3.42	3.18	1.56
Recommended curing conditions		150°C·30 min	150°C·30 min	150°C·30 min	160°C·30 min	130°C·30min	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	80°C·60min	150°C·30 min	120°C·10 min	120°C·120 min	120°C·120 min	Drying at 90°C·30min + curing at 150°C·30min	100°C·40 min 120°C·20 min 150°C·10 min	150°C·30 min	120°C·60 min 150°C·30 min
Physical characteristics after curing — Hardness		D92	D90	D84	D90	D81	D65	D71	D93		D96	D92	D90	D90	-	D87	D87	-	D93	D95	D90
Physical characteristics after curing — Glass transition temperature	°C	119	118	120	104	118	19	89	140		117	117	105	127	124	125	125	-	122	128	140
Physical characteristics after curing — Volume resistivity	Ω·m	5.4×10^{13}	8.5×10^{13}	-	1.0×10^{13}	3.1×10^{12}	-	2.5×10^{13}	-		1.5×10^{13}	2.0×10^{13}	2.3×10^{13}	-	1.6×10^{14}	-	-	-	6.8×10^{13}	2.2×10^{13}	2.3×10^{14}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	-	-	-	33	26	-	17.3	-		19	24	22	-	-	20	20	-	7.1	3.4	20
Iron — Tensile shear bond strength	MPa	26.0	23.0	35.8	34.8	34.6	12.5	16.8	21.6		9.0	21.3	11.8	33.2	23.0	10.8	12.4	10.6	13.7	9.0	24.0
Iron — Peel strength	N/m	2900	2000	2300	4210	5200	-	-	314		-	460	400	5900	-	-	217	-	-	-	543
Remark(s)						Structural adhesive applications			Thermal conductivity 0.9W/m·K		Thermal conductivity 4.2W/m·K	Non-flammable grade UL94 V-0 Certified Product	Non-flammable grade UL94 V-0 Certified Product							Curable at 100°C	

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

2000/2100/2200 Series

Epoxy Resin Adhesives

Property Table

Product name		2286D	2286L	2286T	2286U	2287	2287D	2287F	2296B
Characteristics	Unit								
Main component		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 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	For motor coil impregnation and fixing High heat resistance	Cut core-impregnating adhesion	Fast curing at low temperature Good shape retention Low halogen
Appearance		Milky white	Milky white	Milky white	Milky white	Rust transparent	Brown transparent	Rust	Black
Viscosity	Pa•s	330	590	1800	1150	-	25.0	-	18.5
	mPa•s	-	-	-	-	120	-	125	-
Specific gravity		1.60	1.68	1.58	1.40	1.10	1.16	1.08	1.25
Recommended curing conditions		160℃·30 min	160℃·30 min	160℃·30 min	160℃·30 min	150℃· 5 to 15h	160℃·30 min	150℃·4h	80℃·30 min
Physical characteristics after curing — Hardness		D95	D94	D91	D91	D86	D88	D75	D82
Physical characteristics after curing — Glass transition temperature	℃	123	142	120	110	65	135	-	47
Physical characteristics after curing — Volume resistivity	Ω·m	4.9×10^{13}	-	4.4×10^{13}	4.0×10^{12}	4.5×10^{12}	-	-	6.3×10^{13}
Physical characteristics after curing — Dielectric breakdown strength	kV/mm	20	-	33	-	-	-	-	21
Iron — Tensile shear bond strength	MPa	21.3	27.0	21.2	27.1	11.8	13.7	15.0	22.2
Iron — Peel strength	N/m	560	-	2400	2300	120	-	-	-
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.

For Industrial Use Only Do not use this product for household purposes

This product was developed for general industrial use. Before using this product, the user must accept the following terms:

- The technical data given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods. We do not guarantee that the uses described herein do not conflict with any intellectual property right.
- Users are asked to examine whether the product is appropriate to the purpose of use and can be used safely before they use it and bear all responsibilities and hazards involved in its use. Never use the product for medical implants that may be embedded, injected or left in the body.
- We are not liable for personal injury or property damage caused by improper handling of this product. If the properties and usage of this product are unknown, never use it.
- For detailed safety information of the product, see the Safety Data Sheet (SDS). To obtain the SDS, contact our sales office or customer service center.
- Information in this technical document is subject to change at our discretion without notice.

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● With about 100 sales offices and manufacturing plants in Japan as well as 60 sales offices and manufacturing plants that are located outside of Japan, we have established a system to quickly meet the needs of our customers.

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