EPOXONIC
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Adhesives

Types of Adhesives		2-Part Adhesives			1-Part Adhesives			Dual Cure Adhesive	UV Adhesive
Product name		**EPOXONIC 369**	**EPOXONIC 370**	**EPOXONIC 382**	**EPOXONIC 292**	**EPOXONIC 340**	**EPOXONIC 366**	**EPOXONIC 195**	**EPOXONIC 372**
Colour cured product		colourless	slightly grey	slightly yellowish transparent	grey	cream	black	colourless	colourless
mixing ratio A : B [pbw] [1]		100 : 25	100 : 17	100 : 25	1K	1K	1K	1K	1K
Viscosity at 25°C [mPas]	EPOXONIC PV 1	3,500	5,500	450	220,000	20,000	80,000 6,000 (60 °C)	800	2,000
Pot life [h/°C] [2]		1 / 25	0.5 / 25	0.5 / 25	> 7 d / 25	> 7 d / 25	3 / 60	see datasheet "Storage"	see datasheet "Storage"
Cure schedule [h/°C]		2 / 80	1 / 100 1 / 70 + 4 / 110	10 / 25 + 12 / 50	1 / 120 24 / 95	1 / 130	6 / 80 + 12 / 160	30 s / 60 mW/cm^2 UVA and/or 0.5 / 150	4 x 60 s / 60 mW/cm^2 UVA
Glass transition temperature Tg [°C]	DIN 53765	90	105	70	125	30	170	145	n.d.
Density [g/cm^3]	DIN 66137-3	1.1	1.0	1.1	1.5	1.3	1.7	1.2	1.1
Shore hardness	DIN EN ISO 868	D 80	D 80	D 85	n.d	D 30	D 94	D 85	D 60
Coefficient of linear thermal expansion α_1 [ppm/K] [3]	ISO 11359-2	n.d.	n.d.	n.d.	50	n.d.	30	60	n.d.
Shear strength at 25°C [MPa] [4]	EPOXONIC PV 29	50	52	46	70	n.d.	n.d.	40	43 (glass)
Transmission oil resistance		n.d.	n.d.	n.d.	very good	n.d.	n.d.	n.d.	n.d.
Application/special features		Low viscosity; good adhesion to PA and other plastics; crack resistant, impact resistant	Good adhesion to PA and other plastics; crack resistant, impact resistant	Large area bonding of temperature-sensitive substrates	Stable adhesive for high loads	Potting, sealing and bonding of electronic components	High Tg adhesive; very good adhesion to ceramics/stainless steel; low thermal expansion	High strength bonding of high - quality glass	Fast, low-stress UV bonding with high impact strength

[1] pbw: parts by weight
[2] Time to double viscosity
[3] Coefficient of linear thermal expansion below Tg
[4] Substrate aluminium
n.d.: not determined

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Potting compounds

Type of curing		Hot curing				
Product name		**EPOXONIC 344**	**EPOXONIC 352**	**EPOXONIC 235**	**EPOXONIC 371**	**EPOXONIC 368**
Colour cured product		black	black	black	white	grey
Mixing ratio A : B [pbw] [1)]		100 : 13	100 : 11.1	100 : 4.2	100 : 8.5	100 : 80
Viscosity at 25°C [mPas]	EPOXONIC PV 1	10,000 (25 °C) 3,000 (40 °C)	6,000	5,000	14,000	38,000 1,700 (80 °C)
Pot life [h/°C] [2)]		0.5 / 40	0.5 / 25	0.5 / 40	0.5 / 40	0.5 / 80
Cure scedule [h/°C]		1 / 70 + 1 / 120	2 / 110 1 / 80 + 1 / 130	2 / 60 + 2 / 110	1 / 70 + 2 / 120 3 / 60 + 1 / 150	2 / 100 + 1 / 150
Glass transition temperature Tg [°C]	DIN 53765	125	105	135	140	130
Density [g/cm^3]	DIN 66137-3	1.7	1.6	1.7	1.7	2.6
Shore hardness	DIN EN ISO 868	D 92	D 90	D 90	D 90	D 94
Fire behaviour UL 94	UL94 V	n.d.	V0	HB	n.d.	n.d.
Thermal conductivity [W/mK]	DIN EN ISO 8894-1	0.7	0.9	n.d.	n.d.	1.7
Coefficient of linear thermal expansion α_1 [ppm/K] [3)]	ISO 11359-2	40	45	45	30	30
Tensile strength [Mpa]	DIN EN ISO 527	65	65	50 115 (flexural strength)	n.d.	n.d.
Elongation at break	DIN EN ISO 527	1.0	1.1	1.1 0.6 (fiber elongation)	n.d.	n.d.
E-modulus [MPa]	DIN EN ISO 527	8,500	8,000	5,200	n.d.	n.d.
Water absorption [%]	DIN EN ISO 62	0.13 (30 min / 100°C)	< 0.1 (24 h / 23 °C)	n.d.	n.d.	n.d.
Transmission oil resistance		very good	very good	n.d.	n.d.	n.d.
Dielectric strength [kV/mm]	DIN EN 60243-2	> 25	> 20	n.d.	n.d.	n.d.
Surface resistivity [Ωcm]	DIN IEC 60093	1.5 x 10^{15}	n.d.	n.d.	n.d.	n.d.
Specific volume resistivity [Ωcm]	DIN IEC 60093	2.0 x 10^{15}	n.d.	n.d.	n.d.	n.d.
Application/special features		High voltage application; small potting applications	Potting of electronics; crack-resistant, chemical-resistant; for small potting volumes	Potting of components processed by lead-free soldering method	Potting of electronics; crack-resistant; chemical-resistant; hot steam sterilization; high temperature requirement	Thermally conductive electronic potting; crack-resistant; high temperature requirement; thermal shock resistance; low thermal expansion

1) pbw: parts by weight
2) Time to double viscosity
3) Coefficient of linear thermal expansion below Tg
n.d.: not determined

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Potting compounds

Type of curing		Moderate curing temperature								
Product name		**EPOXONIC 33**	**EPOXONIC 281**	**EPOXONIC 283**	**EPOXONIC 374**	**EPOXONIC 363**	**EPOXONIC 341**	**EPOXONIC 342**	**EPOXONIC 389**	**EPOXONIC 390**
Colour cured product		grey	green	black	white/grey	opaque	beige	grey	reddish transparent	greenish transparent
mixing ratio A : B [pbw] [1]		100 : 22	100 : 7.5	100 : 9.5	100 : 8.5	100 : 37	100 : 9	100 : 14.4	100 : 40	100 : 34
Viscosity at 25°C [mPas]	EPOXONIC PV 1	4,000	4,000	2,500	3,500	300	2,000	2,000	200	350
Pot life [h/°C] [2]		1 / 25	0.5 / 25	0.5 / 25	0.5 / 25	0.5 / 25	5 / 25	5 / 25	2 / 25	2 / 25
Cure schedule [h/°C]		7 / 60	4 / 80	Feb 70	2 / 70	2 / 60 + 2 / 100	24 / 23 + 16 / 80	6 / 60 + 4 / 80	24 / 23 + 4 / 100	24 / 23 + 4 / 100
Glass transition temperature Tg [°C] (Curing conditions [h/°C])	DIN EN ISO 11357-2	85 (7 / 60)	65 (4 / 80)	80 (2 / 70)	65 (2 / 70)	75 (2 / 60 + 2 / 100)	70 (24 / 23 + 16 / 80)	70 (6 / 60 + 4 / 80)	68 (24 / 23 + 4 / 100)	65 (24 / 23 + 4 / 100)
Density [g/cm^3]	DIN 66137-3	1.5	1.7	1.7	1.7	1.1	2.2	1.5	1.17	1.17
Shore hardness	DIN EN ISO 868	D 82	D 87	D 92	D 90	D 85	D 91	D 90	D 83	D 83
Fire behaviour UL 94	UL94 V	n.d.	V0	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Thermal conductivity [W/mK]	DIN EN ISO 8894-1	0.5	1.1	0.5	n.d.	n.d.	1.3	0.5	0.2	0.2
Coefficient of linear thermal expansion α_1 [ppm/K] [3]	ISO 11359-2	110	40	45	25	70	45	45	60	70
Tensile strength [MPa]	DIN EN ISO 527	20	35	70	70	n.d.	65	90	75	60
Elongation at break	DIN EN ISO 527	11	0.5	1.2	1.0	n.d.	0.6	1.7	3.5	3.5
E-modulus [MPa]	DIN EN ISO 527	1,200	8,600	8,400	10,000	n.d.	12,000	10,000	3,100	3,400
Water absorption [%]	DIN EN ISO 62	0.3 (30 min /100 °C)	n.d.	n.d.	0.1 (30 min /100 °C)	n.d.	n.d.	n.d.	n.d.	n.d.
Transmission oil resistance		n.d.	n.d.	n.d.	n.d.	n.d.	very good	very good	n.d.	n.d.
Dielectric strength [kV/mm]	DIN EN 60243-2	35	> 25	40	> 40	n.d.	n.d.	n.d.	n.d.	n.d.
Surface resistivity [Ωcm]	DIN EN 62631-3-2	9.6 x 10^{14}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Specific volume resistivity [Ωcm]	DIN EN 62631-3-2	2.3 x 10^{14}	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Application/special features		Low stress potting of electronic devices	Potting of electronic devices; hardly inflammable; thermally conductive	Potting of electronic devices; very good mechanical properties	Potting of electronic devices; very good mechanical properties; low CTE	Transparent electronic potting; low viscosity	Very good chemical and crack resistance; potting of large-volume components with good heat dissipation	Very good chemical and crack resistance; potting of large-volume components with higher mechanical requirements	Long pot life; impregnating of fabric tapes and cords; curing at room temperature is possible	**"Bio-based version" of EPOXONIC 389**; bio-content; Long pot life; impregnating of fabric tapes and cords; curing at room temperature is possible

[1] pbw: parts by weight
[2] Time to double viscosity
[3] Coefficient of linear thermal expansion below Tg
n.d.: not determined

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Flexible potting compounds

Type of curing		Hot curing				
Product name		**EPOXONIC 361**	**EPOXONIC 364**	**EPOXONIC 373**	**EPOXONIC 375**	**EPOXONIC 376**
Colour cured product		black	grey	black	black	black
Mixing ratio A : B [pbw] [1]		100 : 210 or 1-K	100 : 150	100 : 257	100 : 120	100 : 190
Viscosity at 25°C [mPas]	EPOXONIC PV 1	7,500	80,000	50,000	65,000	6,500
Pot life [h/°C] [2]	EPOXONIC PV 1	> 20 / 25	> 20 / 23	> 20 / 25	> 20	> 20 / 25 3 / 60
Cure schedule [h/°C]		2 / 150 4 / 120	2 / 90 + 4 / 120	1 / 150 4 / 120	2 / 120	1 / 150 4 / 120
Glass transition temperature Tg [°C]	DIN 53765	-45	-40	-40	-35	-40
Density [g/cm^3]	DIN 66137-3	1.1	2.4	1.6	1.7	1.1
Shore hardness	DIN EN ISO 868	A 50	A 70	A 90	A 87	A 50
Fire behaviour UL 94	UL 94 V	n.d.	n.d.	V0	n.d.	n.d.
Thermal conductivity [W/mK]	DIN EN ISO 8894-1	n.d.	1.4	1.0	n.d.	n.d.
Coefficient of linear thermal expansion α_1 / α_2 [ppm/K] [3] [4]	ISO 11359-2	220 (α_2)	n.d.	125 (α_2)	135 (α_2)	n.d.
Tensile strength [MPa]	DIN EN ISO 527	1.0	3.6	8	13	2.3
Elongation at break	DIN EN ISO 527	70	65	35	55	80
E-modulus [MPa]	DIN EN ISO 527	2.8	9	30	40	3.5
Water absorption [%]	DIN EN ISO 62	1.7 (7 d / 23 °C)	0.37 (0.5 h / 100°C)	0.2 (0.5 h / 100 °C) 1.7 (saturation) (85 °C / 100 % rF)	n.d.	n.d.
Transmission oil resistance		good (swelling)	good (swelling)	n.d.	n.d.	n.d.
Dielectric strength [kV/mm]	DIN EN 60243-2	n.d.	n.d.	> 16	n.d.	n.d.
Application/special features		Flexible base resin for stress-sensitive components; fast curing possible; very good oil resistance; also available as 1-K	Flexible, thermally conductive potting resin for stress-sensitive components; very good oil resistance	Low-stress potting of stress-sensitive components with high flame retardancy requirements	Low-stress potting of pressure- and vibration-sensitive components	Low-stress potting of stress-sensitive components; very good crack resistance

[1] pbw: parts by weight
[2] Time to double viscosity
[3] Coefficient of linear thermal expansion below Tg
[4] Coefficient of linear thermal expansion above Tg
n.d.: not determined

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