

High Temperature Epoxies

Properties and Part Selection

Overview



Selection Table - Epoxy-Based Adhesive Properties

Features	Conductive		Room Temperature Cure			
Product Ref	120	132	4461IP	4525IP	4538	7050
Properties	High electrical conductivity	High thermal conductivity	Low viscosity adhesive & coating	High performance adhesive & potting	Super flexible stress free adhesive & potting	Super bonder adheres to most materials
Maximum Temp. °C	260	260	260	260	230	205
Components Colour	2-Silver	2-Silver	2-Amber	2-Black	2-Tan	2-Black
Viscosity cps	25,000	22,000	600	25,000	10,000	20,000
Density gm/cc	3.8	1.8	1.1	1.7	1	1.3
Hardness Shore 'D'	70	75	90	90	60 - 80A	70
Tensile Strength psi	6,500	7,200	9,500	10,000	6,000	5,000
Thermal Conductivity (W/m°C)	7.2	5.7	0.57	1.9	1.0	4.5
Thermal Expansion (x 10 ⁻⁵ / °C)	5.4	8.0	5.4	3.3	6.0	4.8
Dielectric Strength volt/mil	N/A	500	450	450	450	400
Volume Resistivity ohm-cm	0.00008	10 ⁶	10 ¹³	10 ¹⁵	10 ¹⁴	10 ¹⁴
Heat Distortion °C	210	210	210	210	75	75
Elongation %	0.2	0.2	5.0	2.0	12 - 100	3.0
Thermal Stability % (1000hr @ 200°C)	0.2	0.2	0.2	0.05	0.5	0.5
Shrinkage % max	0.2	0.8	0.8	0.2	0.8	0.8
Moisture Absorption % 30 Days	0.2	0.2	0.15	0.1	0.5	0.2
Mix Ratio (by weight)	100/3.5	100/27	100/17	100/8	100/120	100/10
Working Time 25 gms (mins. @ 24°C)	30	30	30	30	90	30
Cure (hrs. @ 24°C)	16	16	16	16	4 - 24	4 - 16
Cure (mins. @ 120°C)	7	5	5	5	60	1 - 2 hrs

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Selection Table - Epoxy-Based Adhesive Properties (Continued)

Features	315°C Thermal / Heat Cure			Machinable		One Part
Product Ref	4460	4700	4703	4540	454B	4420
Properties	High temperature low viscosity encapsulant	High temperature general purpose adhesive & casting	Ultra high temperature adhesive & tooling compound	Machinable aluminium casting and repair	Machinable non-sag putty	One component structural adhesive
Maximum Temp. °C	315	315	340	260	230	230
Components Colour	2-Amber	2-Black	2-Black	2-Silver	2-Silver	1-Grey
Viscosity cps	600	40,000	50,000	30,000	100,000	Paste
Density gm/cc	1.1	1.8	1.8	1.9	1.9	1.2
Hardness Shore 'D'	80	94	95	80	80	75
Tensile Strength psi	10,300	11,100	11,800	10,000	10,000	7,000
Thermal Conductivity (W/m°C)	0.57	1.9	2.6	5.0	5.0	1.2
Thermal Expansion (x 10 ⁻⁵ / °C)	6.4	6.4	6.8	8	8	4.5
Dielectric Strength volt/mil	500	550	450	100	450	400
Volume Resistivity ohm-cm	10 ¹⁴	10 ¹⁴	10 ¹⁰	10 ⁸	10 ¹⁰	10 ¹⁰
Heat Distortion °C	260	300	320	225	200	175
Elongation %	5	2	2	1.2	1.2	1.5
Thermal Stability % (1000hr @ 200°C)	0.1	0.1	0.02	0.5	0.5	0.6
Shrinkage % max	0.5	0.2	0.1	0.1	0.2	0.3
Moisture Absorption % 30 Days	0.1	0.02	0.15	0.2	0.2	0.5
Mix Ratio (by weight)	100/80	100/28	100/22	100/9	100/11	N/A
Working Time 25 gms (mins. @ 24°C)	N/A	N/A	N/A	30	30	N/A
Cure (hrs. @ 24°C)	N/A	N/A	N/A	16	16 - 24	N/A
Cure (mins. @ 120°C)	4 hours	4 hours	4 - 6 hours	8	10	60