ISO 9001-2008 Certified

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Selector Guide
MICROELECTRONICS

Epoxyset Encapsulants are used to provide environmental protection and add mechanical strength to wire bonded devices. Glob top technology requires an encapsulant with a fine-tuned rheology, as the flow capabilities must allow the wires to be covered without the encapsulant flowing beyond the chip. Dam and fill technology, where the dam is used to limit the flow of the low viscosity fill material, allowing its use with fine pitch wire leads.

These encapsulants are thermal cure materials and are designed for the highest reliability in that they offer low coefficient of thermal expansion, high glass transition temperature, and low ionic content. These encapsulants have been engineered to provide protection to wire bonds, leads, aluminum and silicon dies from harsh environments, mechanical damage and corrosion.

These products offer excellent elevated temperature stability and thermal shock resistance, outstanding electrical insulation at room and elevated temperatures, minimal shrinkage and low stress during cure, as well as excellent chemical resistance.

Chip-On-Board – Dam Materials

Product	Description	Pot Life @ 25°C	Viscosity @ 25°C (cPs)	Cure Schedule	Flow Speed	Hardness (Shore)	Tg (°C)	CTE (below Tg) 10^{-6}/°C	Volume Resistivity Ohm-cm	Shelf life
M-21T	Damming material for BGAs	>8 hrs	Paste	1 hr @ 80°C + 2 hrs @ 150°C	NA	D-90	124	27	$>10^{15}$	1 year @ -40°C
M-22T	Damming material for BGAs	>8 hrs	Paste	1 hr @ 80°C + 2 hrs @ 150°C	NA	D-90	146	25	$>10^{15}$	1 year @ -40°C
M-22T-1	Tall dam version of M-22T-1	>8 hrs	Paste	1 hr @ 80°C + 2 hrs @ 150°C	NA	D-90	146	25	$>10^{15}$	1 year @ -40°C

Chip-On-Board – Fill Materials

Product	Description	Pot Life @ 25°C	Viscosity @ 25°C (cPs)	Cure Schedule	Flow Speed	Hardness (Shore)	Tg (°C)	CTE (below Tg) 10^{-6}/°C	Volume Resistivity Ohm-cm	Shelf life
M-21	Encapsulant for dam & fill or cavity down BGAs	>8 hrs	3000-4000	1 hr @ 80°C + 2 hrs @ 150°C	High	D-90	124	27	$>10^{15}$	1 year @ -40°C
M-22	Standard dam & fill material	>8 hrs	30,000-40,000	1 hr @ 80°C + 2 hrs @ 150°C	Medium	D-92	146	25	$>10^{15}$	1 year @ -40°C
M-22LV	Lower viscosity version of M-22	>8 hrs	15,000-20,000	1 hr @ 80°C + 2 hrs @ 150°C	High	D-90	132	28	$>10^{15}$	1 year @ -40°C
M-3030	Very low CTE & low stress for large packages	>8 hrs	90,000-120,000	1 hr @ 80°C + 2 hrs @ 150°C	Low	D-93	158	14.8	$>10^{15}$	1 year @ -40°C
M-3030LV-M	Modified version of M-3030 for reflow oven temp (260°C)	>8 hrs	40,000-50,000	1 hr @ 80°C + 2 hrs @ 150°C	Medium	D-92	155	16	$>10^{15}$	1 year @ -40°C

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Chip-On-Board – Glob Top Materials

Product	Description	Pot Life @ 25°C	Viscosity @ 25°C (cPs)	Cure Schedule	Flow Speed	Hardness (Shore)	Tg (°C)	CTE (below Tg) 10^{-6}/°C	Volume Resistivity Ohm-cm	Shelf life
EB-350-1	Encapsulant for smart cards, COB and watch Ics, non-abrasive filler for grinding if necessary	3 months	>120,000	15-30 min @ 150°C	Medium	D-91	120	32	>10^{15}	3 months @ 25°C
EB-350-1LV	Medium glob version of EB-350-1	>1 month	30,000-40,000	15-30 min @ 150°C	High	D-91	120	32	>10^{15}	3 months @ 10°C
EB-350-1LV-M2	Lower glob version of EB-350-1	>1 month	15,000-20,000	15-30 min @ 150°C	Low	D-91	120	32	>10^{15}	3 months @ 10°C
EB-350-1-LE	Low CTE version of EB-350-1	3 months	30,000-40,000	15-30 min @ 150°C	Medium	D-92	124	27	>10^{15}	3 months @ 10°C

Flip Chip Underfills

Product	Description	Pot Life @ 25°C	Viscosity @ 25°C (cPs)	Cure Schedule	Flow Speed	Hardness (Shore)	Tg (°C)	CTE (below Tg) 10^{-6}/°C	Volume Resistivity Ohm-cm	Shelf life
M-3110	Fast flow encapsulant for flip chip underfill application with a gap of 1 mil (25 micron)	>24 hrs	5000-6000	15-30 min @ 150°C	Fast	D-92	130	32	>10^{15}	1 year @ -40°C
M-3112	Medium flow encapsulant for gap of 3 mils (75 micron)	>24 hrs	30,000-40,000	15-30 min @ 150°C	Medium	D-92	143	23	>10^{15}	1 year @ -40°C
M-3116	Medium flow encapsulant for gap of 3 mils (75 micron)	>24 hrs	14,000-18,000	15-30 min @ 150°C	Medium	D-92	150	22	>10^{15}	1 year @ -40°C
M-3131	Medium flow encapsulant for gap of 3 mils (75 micron)	>24 hrs	8000-10,000	15-30 min @ 150°C	Fast	D-92	158	26	>10^{15}	1 year @ -40°C

DISCLAIMER: All data given here is offered as a guide to the use of these materials and not as a guarantee of their performance. The user should evaluate their suitability for own purposes. Properties are typical and should not be used in preparing specifications. Statements are not to be construed as recommendations to infringe any patent.