DPC-Epoxy resins for tooling and patternmaking

Handling data and final properties

DPC-Surface resins

System											
DPC-Resin			OW	OW	OAG	OAG	OS	OS	OTG	OTG	1063 A
DPC-Hardener			S	TS	S	TS	S	TS	S	TS	1063 B
Properties			White, titandioxyde filled resin, well polishable, good strength of edges, workable		Grey, silicon-carbide filled (finely grained), particular high resistance to abrasion, not workable		Black, steel powder filled resin, not sagging, with excellent anti-friction properties, workable		Grey, aluminium filled resin, high heat resistance (with hardener 'S' 90°C, with hardener 'TS' up to 120°C), well workable		Gelcoat with outstanding thermic and mechanical properties, ideal complement for the highly heat resistant laminating resin VPM 1062. Resulting surfaces will be excellent and non-sticky
Applications			Foundry-patterns, negative patterns, milling patterns, templates, fiberglass reinforced moulds		For heavy-duty foundry patterns, milling patterns, jigs etc., ideal for patterns for hand duplicating milling machines		Foundry patterns, moulding plates, core boxes, milling patterns etc., also suitable for filling shrink holes etc.		Heated moulds, foam moulds, vacuum deep drawing moulds, moulds for fiberglass reinforced plastics etc.		Deep drawing tools, moulds for foaming and RIM with highest mechanical and thermic claims
Preparation/Processing											
Mixing ration	100 : X	parts b.w.	15	10	10	8	7	4	12	8	12
Mix viscosity	(25°C)	mPa.s	pasty	pasty	pasty	pasty	pasty	pasty	pasty	pasty	pasty
Pot life	(100g/25°C)	min.	20	20	20	20	20	20	20 – 30	20 – 30	45 – 60
Curing		h / °C	24 / RT	24 / RT	24 / RT	24 / RT	24 / RT	24 / RT	24 / RT	24 / RT	24 / RT
Postcuring		h / °C	7d / RT	7d / RT	7d / RT	7d / RT	7d / RT	7d / RT	2 / 120	2 / 120	1/80 + 2/165
Properties of cured material (24 h / RT + 2 h / 120°C)											
Glass transition temperature	TG	°C	67	79	85	97	67	89	89	110	160
Modulus of elasticity (Flex.)	DIN EN ISO 178	MPa	5.330	5.660	8.920	8.870	8.410	9.080	6.740	6.400	5.420
Flexural strength	DIN EN ISO 178	MPa	98	93	107	108	61	82	81	74	73
Deflection (at break)	DIN EN ISO178	mm	3,9	3,4	2,5	2,6	1,5	2,0	3,1	3,0	3,7
Tensile strength	DIN EN ISO 527-1,-2	MPa	46	37	–	–	32	37	36	37	40
Elongation	DIN EN ISO 527-1,-2	%	1,5	0,9	–	–	0,7	0,6	1,0	1,0	1,5
Impact strength	DIN ISO EN 179	kJ/mm²	6 – 8	6 – 8	7 – 10	7 – 10	4 – 6	5 – 8	9 – 11	7 – 9	7 – 10
Hardness	DIN 53505	Shore D	88 – 90	88 – 90	88 – 90	88 – 90	88 – 90	88 – 90	88 – 90	88 – 90	83 – 84

DPC-Multipurpose resins

System							
DPC-Resin			MZ 3	MZ 3	MZ 3	MZ 2	MZ 2
DPC-Hardener			LN	GR	TS	LN	TS
Properties			Low viscosity epoxy resin, with hardener LN, a low cost binder for backings and laminations			Medium viscosity, for universal purpose. May be used with nearly all types of hardener and for heavy duty laminates and glueings	
Applications			Laminations, backings and glueings with normal claims			Laminations, moulds, glueings with higher mechanical and thermic claims	
Preparation/Processing							
Mixing ratio	100 : X	parts b.w.	20	35	20	20	20
Mix viscosity	(25° C)	mPa.s	800 –1500	500 –1000	1000 –1800	2000 –4000	3000 –5000
Pot life	(100g / 25°C)	min.	30 – 40	120 – 150	15 – 20	25 – 35	12 – 15
Curing		h / °C	24 – 48 / RT	24 – 48 / RT	24 – 48 / RT	24 – 48 / RT	24 – 48 / RT
Postcuring		h / °C	7 d / RT	7 d / RT	7 d / RT	7 d / RT	7 d / RT
Properties of cured material (24 h / RT + 2 h / 120°C)							
Glass transition temperature	TG	°C	87	77	98	105	127
Modulus of elasticity (Flex.)	DIN EN ISO 178	MPa	3250	2360	3360	3710	3150
Flexural strength	DIN EN ISO 178	MPa	121	92	125	148	114
Flexural strain	DIN EN ISO 178	MPa	104	73	103	114	87
Deflection (at break)	DIN EN ISO 178	mm	9.1	18.3	9.5	10.1	12,3
Tensile strength	DIN EN ISO 527-1,-2	MPa	70	53	66	75	49
Elongation	DIN EN ISO 527-1,-2	%	5,2	6,6	3,2	3,4	2,2
Impact strength	DIN ISO EN 179	kJ/mm²	24 – 31	23 – 27	17 – 22	18 – 24	19 – 23
Hardness	DIN 53505	Shore D	83 – 84	79 – 81	83 – 84	83 – 87	84 – 86