Bakelite® EPR 04052 – EPH 04052

Bakelite EPR-EPH 04052 is a cold or warm curing, low viscosity epoxy laminating system. Suitable for the manufacture of fibre reinforced component's subject to high dynamic stresses. Excellent wetting and impregnation of glass, carbon and aramid fibre fabrics.

Characteristics

Properties	Unit	EPR 04052	EPH 04052
Kind of Delivery		liquid	liquid
Viscosity at 25 °C	mPa·s	525 ± 50	85 ± 5
Epoxy equivalent	g/equiv.	161 ± 3	
Amine equivalent (empirical)	g/equiv.		61 ± 2
Refractive index at 25 °C		1.53 ± 0.002	1.5 ± 0.002

Applications

Yacht and boats building, Car Bodies, Sports Equipment, Model Aircraft & Boats, Other dynamic stressed components, Repairs

Processing

Wet lay-up, Vacuum & Pressure bag moulding, Filament Winding, Resin Transfer Moulding (R.T.M.-Process), Pressure moulding

Characteristics

No stickiness of the laminate or coat - Excellent wetting and impregnation of the fibres used - Very suitable as a matrix for special fibres e.g. carbon and Kevlar fibres - High heat resistance when post cured - Very good mechanical properties, easy to use.

Impregnation

Mixing ratio:

Bakelite EPR 04052 100 parts by weight
Bakelite EPH 04052 38 parts by weight

Resin and hardener must be well mixed at room temperature.

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Pot life

100 g at 23 °C min 115

Gel Time

at	40 °C	min	150 - 170
at	60 °C	min	45 - 55
at	80 °C	min	16 - 18
at	100 °C	min	4 - 5
at	120 °C	min	2 - 3

Heat Resistance

	Curing conditions Temp. (°C)		Glass Transition Tg (Mettler, DTA)
1	day at room temp.	°C	46 - 48
2	days at room temp.	°C	50 - 52
4	days at room temp.	°C	56 - 58
7	days at room temp.	°C	60 - 62
10	hours at 40	°C	68 - 72
20	hours at 40	°C	72 - 76
10	hours at 50	°C	78 - 82
15	hours at 50	°C	81 - 85
10	hours at 60	°C	92 - 96
15	hours at 60	°C	95 - 99
2	hours at 80	°C	105 - 109
8	hours at 80	°C	115 - 120
1	hours at 100	°C	124 - 128
4	hours at 100	°C	130 - 135

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Properties of the cured, unreinforced resin system

Tension
(ISO/R527, unreinforced)

Properties	Unit	Value/Curing condition 7 days RT	Value/Curing condition 8 h - 80 °C
Tensile strength	MPa	65 - 85	75 - 83
Elongation at break	%	2.0 - 4.0	4.0 - 8.0
Modulus of elasticity	MPa	3200 - 3500	2800 - 2900

Cold water absorption
(ISO/R62; DIN 53495)

Properties	Unit	Value/Curing condition days RT	Value/Curing condition h – 80 °C
after 40 days H_2O 23 °C	%	0.45 - 0.50	0.40 - 0.45
after 10 days H_2O 23 °C	%	0.70 - 0.80	0.65 - 0.70

Boiling water absorption
(ISO/R117; DIN 53471)

Properties	Unit	Value/Curing condition 7 days RT	Value/Curing condition8 h – 80 °C
after 30 min H_2O 100 °C	%	0.55 - 0.60	0.45 - 0.50
after 60 min H_2O 100 °C	%	0.70 - 0.80	0.60 - 0.70

Shore D-Hardness
Approximately: 83 - 90

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Normally used cure times

7 days at room Temperature (RT)

or	15	hours	at	50 °C
or	8	hours	at	80 °C

Storage

Resin and hardener should be stored at 18 - 25 °C if it possible in their original containers and protected from moisture. The product will then remain in good condtion for at least one year. Opened containers must be closed immediately after use.
Crystallised hardener which looks cloudy can usually be reconditioned by heating it to 60 - 80 °C. It must then be left to cool down and is then fully useable again.

Precautions

When handling Bakelite epoxy resins and Bakelite hardeners, will you please observe the APME documentation “epoxy resins and curing agents”.

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