

Application: Flexural Plate Bonding
 Classification Reference: PB/1/CI/S [OBU A 001]

Supplier:	xxxxx			
Product:	xxxx (Adhesive)	xxxx (Primer)	xxxx (Reinforcement)	xxxx (Solvent)
Batch Numbers:	10777xxxxx (Resin & Hardener)	0010xxxx (Resin) 001065xxxx (Hardener)	020921-xx-x	107xxxxx

Material Classification: Structural Epoxy Adhesive System

Performance Group	Performance Characteristic	Test Method	Description	Short term** values	SD	Characteristic value	Acceptance value	
Working Characteristics	Application to vertical surfaces	EN 1799	Maximum sag flow (at 23°C)	1 mm (at 12)	n/a	n/a	n/a	
	Application to horizontal surfaces	EN 1799	Maximum sag flow	Not tested	n/a	n/a	n/a	
	Storage life	-	Maximum storage time	1 year	n/a	n/a	n/a	
	Workable (pot) life	ISO 9514	Maximum time from mixing	40 mins	n/a	n/a	n/a	
	Open time	EN 12189	Maximum time for use	30 mins	n/a	n/a	n/a	
	Cure	BS EN 59	Time to cure (Shore D Hardness)	82 (24hrs) 84 (7 days)	1.1 0.4	n/a	≥ 77 ≥ 82	
Cured Bulk Properties	Moisture resistance	ISO 62	Water uptake	Not tested	n/a	n/a	n/a	
	Shrinkage	EN 12617	Shrinkage	0.13 %	n/a	n/a	n/a	
	Temperature dependence	ISO 6721	Glass transition temperature	60 °C	0.6	59	≥ 57 ± 5	
		ISO 11359-2	Coefficient of thermal expansion	26 x10 ⁻⁶ °C ⁻¹	1.5	23	n/a	
	Bulk performance	ISO 527	Tensile Modulus	9 GPa	1.3	6	≤ 14 ≥ 3	
Tensile Strength			34 MPa	3.8	26	≥ 18		
Adhesion & Durability	Adhesion to: FRP (Carbodur)	ASTM D 5868	Tensile Lap shear (failure mode)	Env1	10 MPa (100% A)	0.4	9	≥ 8 (>75% A)
				Env2	No change	n/a	n/a	n/a
		EN 1542	Pull-off (failure mode)	Env1	15 MPa (5% S , 95% A)	0.8	13	≥ 11 (>71% A)
				Env2	16 MPa (10% S , 90% A)	n/a	n/a	n/a
	Surface Preparation*:	Solvent wiped with XXXXX until no discolouration was visible on a white cloth						
	Adhesion to: Cast Iron (with Primer)	ASTM D 3762	Wedge cleavage (failure mode)	Env1	353 J/m ² (100% P)	***	***	n/a
				Env2	218 J/m ² (No change)	n/a	n/a	n/a
		EN 1542	Pull-off (failure mode)	Env1	16 MPa (100% P)	1.5	13	≥ 10 (>75% P)
				Env2	No change	n/a	n/a	n/a
	Substrate Properties:	Historic Grey Cast Iron (Flexural modulus ~60GPa, Flexural strength ~236MPa)						
Surface Preparation*:	Gritblasted to SA 2.5. Loose debris was removed with a filtered air blast. XXXXX primer applied with roller							
Key to failure modes:	Adhesive: Cohesive failure within adhesive Primer: Cohesive failure within primer Interfacial: Apparent adhesion failure Substrate: Cohesive failure within substrate							

Note:
 *Handling, mixing and application of products was carried out to manufacturer's recommendations
 **All short term testing (ENV1) was performed at ambient temperatures (23°C and 50%RH). All specimens subject to Env2 were submerged in de-ionised water for 28days at 23°C
 *** More replicates required to obtained SD and Characteristic values