

# PRO-SET®

## Technical Data

# ADV RANGE

## ADHESIVE EPOXIES

The New Standard

EPOXIES for  
Laminating  
Infusion  
Tooling  
Assembly

Wessex Resins  
& Adhesives

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ISO9001:2015 Certified

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& Adhesives

### COMBINED FEATURES

**Shear thinning** resins and hardeners are thixotropic gels. The mixture fills gaps and will not sag on vertical surfaces. The material wets out the substrate, making priming or pre-wetting unnecessary on most surfaces, while ensuring a good bond.

**Room temperature cure** properties suitable for many composite components and structures.

**High performance** pre-thickened, two-part epoxy adhesives for secondary bonding of laminated composites, steel, aluminium, cast iron, concrete, stone, and most wood species. PRO-SET Adhesives will bond these materials to one another in any combination.

**Toughened adhesives** offer two-part epoxy adhesives that deliver toughness and superior peel strength for heavily loaded applications and difficult to bond substrates including pre-preg, SMC, metals and most plastics.

**Coverage** one cartridge set dispenses approximately 14m of 6mm bead, or 5m of 12.7mm bead and will cover approximately 0.65m<sup>2</sup> when spread with a 3mm x 3mm notched spreader, or 1m<sup>2</sup> with a 1.5mm x 1.5mm notched spreader.

### HANDLING PROPERTIES

Property	Standard	Units	ADV-170 or ADV-171 with ADV-270 22°C	ADV-175/ ADV-273 22°C	ADV-175/ ADV-275 22°C	ADV-175/ ADV-277 22°C	ADV-175/ ADV-276 22°C	ADV-177/ ADV-272 22°C	ADV-176/ ADV-276 22°C
			Slow Cure	Fast Cure	Medium Cure	Slow Cure	Medium Cure Toughened	Fast Cure Super Toughened	Medium Cure Super Toughened
100g Pot Life	ASTM D2471	minutes	90	10	34	55	35	23	45
Working Time (12.7mm bead)	ASTM D2471	minutes	120	20	75	150	50	80	90
Minimum Cure Temperature	ASTM D2196	°C	5	7.5	15	18	15	15	15
Clamps off cure time (1.5mm bond line)		hours	8	3	8	16	-	5	10
Minimum Storage Temperature		°C	10	15	15	15	15	15	15

### MIX RATIO

Method	ADV-170 or ADV-171 with ADV-270	ADV-175/ ADV-273	ADV-175/ ADV-275	ADV-175/ ADV-277	ADV-175/ ADV-276	ADV-177/ ADV-272	ADV-176/ ADV-276
Weight	R:H 1:1 100:100	R:H 2.20:1 100:45.5	R:H 2.20:1 100:45.5	R:H 2.29:1 100:43.7	R:H 2.24:1 100:44.6	R:H 2.22:1 100:45.5	R:H 2.22:1 100:45.5
Volume	R:H 1:1 100:100	R:H 2.00:1 100:50.0	R:H 2.00:1 100:50.0	R:H 2.00:1 100:50.0	R:H 2.00:1 100:50.0	R:H 2.00:1 100:50.0	R:H 2.00:1 100:50.0

### DENSITY

State	Units	ADV-170 or ADV-171 with ADV-270	ADV-175/ ADV-273 22°C	ADV-175/ ADV-275 22°C	ADV-175/ ADV-277 22°C	ADV-175/ ADV-276 22°C	ADV-177/ ADV-272 22°C	ADV-176/ ADV-276 22°C
Resin	gcm <sup>-3</sup>	1.16	1.17	1.17	1.17	1.17	1.18	1.17
Hardener	gcm <sup>-3</sup>	0.95	1.05	1.05	1.02	1.05	1.03	1.05
Mixed	gcm <sup>-3</sup>	1.13	1.13	1.05	1.14	1.16	1.10	1.10

# ADV RANGE

## ADHESIVE EPOXIES

### MECHANICAL PROPERTIES

Property	Standard	Units	ADV-170 or ADV-171 with ADV-270 22°C x 2 Weeks	ADV-175/ ADV-273 22°C x 2 Weeks	ADV-175/ ADV-275 22°C x 2 Weeks	ADV-175/ ADV-277 22°C x 2 Weeks	ADV-175/ ADV-276 22°C x 2 Weeks	ADV-177/ ADV-272 22°C x 2 Weeks	ADV-176/ ADV-276 22°C x 2 Weeks
			Slow Cure	Fast Cure	Medium Cure	Slow Cure	Medium Cure Toughened	Fast Cure Super Toughened	Medium Cure Super Toughened
Hardness	ASTM D2240	Shore D	75 (after 1 day)	78 (after 1 day)	80 (after 1 day)	71 (after 1 day)	-	69	73 (after 1 day)
Hardness	ASTM D2240	Shore D	81	82	85	84	85	77	79
Compression Yield	ASTM D695	MPa	66.8	73.91	86.70	81.42	84	56.40	58.56
Tensile Strength	ASTM D638	MPa	32.7	43.09	54.60	48.75	44	34.20	35.05
Tensile Modulus	ASTM D638	GPa	2.58	2.62	3.58	2.90	3.16	2.0	2.0
Tensile Elongation	ASTM D638	%	3.3	4.2	3.5	4.4	6.2	3.1	4.3
Flexural Strength	ASTM D790	MPa	69.5	77.66	98.10	83.50	94	87.40	89.52
Flexural Modulus	ASTM D790	GPa	2.5	2.55	3.86	2.76	3.15	3.1	1.86
Lap Shear on 1018 Steel	ASTM D1002	MPa	13.9	15.72	13.70	13.67	13	24.10*1	19.85
Lap Shear on 2024T Aluminium	ASTM D1002	MPa	11.5	12.60	9.10	13.62	17	14.7	19.74
Tensile Adhesion to 1018 Steel	ASTM D4541	MPa	-	17.55	19.40	17.82	19	38.60*1	29.62
Tensile Adhesion to 2024T Aluminium	ASTM D4541	MPa	-	9.80	9.90	11.83	15	36.90	23.54
Izod Impact, notched	ASTM-256	J/m	-	50.84	60.38	63.52	-	-	77.96

\*1 On A-366 Steel.

### THERMAL PROPERTIES

Property	Standard	Units	ADV-170 or ADV-171 with ADV-270 22°C x 2 Weeks	ADV-175/ ADV-273 22°C x 2 Weeks	ADV-175/ ADV-275 22°C x 2 Weeks	ADV-175/ ADV-277 22°C x 2 Weeks	ADV-175/ ADV-276 22°C x 2 Weeks	ADV-177/ ADV-272 22°C x 2 Weeks	ADV-176/ ADV-276 22°C x 2 Weeks
Tg DMA Peak Tan Delta	ASTM E1640*1	°C	63	66	65.5	66.6	-	78.6	78.6
Tg DSC Onset - 1st Heat	ASTM E1356	°C	42	50	51.3	52.3	56	58.2	58.2
Tg DSC Ultimate	ASTM E1356	°C	54*2	69.1*2	82.2*2	67.6*2	77*2	69.7*2	69.7*2
Heat Deflection Temperature	ASTM D648	°C	-	45	49	51	53	48	48

\*1 1Hz, 3°C per minute.

\*2 Additional post cure may be required; contact Technical Department for details.

Test specimens were neat epoxy (without fibre reinforcement).

These are typical properties and cannot be construed as a specification. The end users should test the products to ensure the products are suitable for the intended application. Any information, data, advice or recommendation published by Wessex Resins or obtained from Wessex Resins by other means and whether relating to Wessex Resins' materials or other materials, is given in good faith and believed to be reliable.