

TECHNICAL REPORT



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Construction Chemicals (UK) Ltd

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For the attention of Mr Jim Beadman

Our Ref: TCMCF59762
Your Ref:
Report Date: 28th January 2015
Delivery Date: 19th December 2014
Test Date: 5th – 23rd January 2015

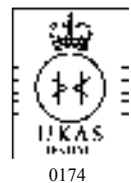
SAMPLE FOR TEST

Type Polyurethane wood adhesive
Adhesive reference Wood Weld PU – (310 ml cartridge adhesive 5-10 minute cure time)
Batch number Not Provided

TEST REQUIREMENTS AND SUMMARY OF RESULTS

BSEN 205: 2003 Adhesives - Wood adhesives for non-structural applications - Determination of tensile shear strength of lap joints										
BSEN 204: 2001 Classification of thermoplastic wood adhesives for non-structural applications.										
CLASS D4	Sequence 1		Sequence 2		Sequence 3		Sequence 4		Sequence 5	
(N/mm ²)	11.91	PASS	Not Applicable		4.44	PASS	Not Applicable		4.89	PASS

N R: Test Sequence not requested



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RESULTS: BS EN 204/205 TENSILE SHEAR STRENGTH OF LAP JOINTS

SEE APPENDIX A FOR TEST INFORMATION

TMCMF59762	SEQUENCE 1	SEQUENCE 3	SEQUENCE 5
Construction Chemicals (UK) Ltd	Dry Strength	Wet Strength	Boil Strength
Wood Weld PU	(N/mm²)	(N/mm²)	(N/mm²)
1	12.58	4.52	4.47
2	12.22	5.35	4.65
3	11.60	4.02	4.52
4	11.76	4.54	5.15
5	11.75	4.81	4.24
6	11.72	4.15	5.29
7	11.90	3.71	4.78
8	12.04	4.44	4.93
9	11.42	3.92	5.25
10	12.11	4.97	5.57
Mean Shear Strength (N/mm²)	11.91	4.44	4.89
Standard Deviation (N/mm²)	0.34	0.51	0.42
Coefficient of Variation (%)	3	11	9
Requirement D4 (N/mm²)	≥ 10	≥ 4	≥ 4
Estimated wood failure (%)	Overall 10% Mainly adhesive failure few fibres - 4 test pieces10- 33% partial wood failure.	0% Adhesive failure	0% Adhesive failure
STATUS	PASS	PASS	PASS

REPORT BY: V TAYLOR

APPROVED BY: V TAYLOR

POSITION: SECTION HEAD (MATERIALS TECHNOLOGY)

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APPENDIX A. ADHESIVE TESTS: REPORT DETAILS AND TEST INFORMATION.

BS EN 205: 2003 Adhesives - Wood adhesives for non-structural applications - Determination of tensile shear strength of lap joints. BS EN 204: 2001 Classification of thermoplastic wood adhesives for non-structural applications.	
BS EN 14257:2006 Adhesives - Wood adhesives – Determination of tensile strength of lap joints at elevated temperature (WATT' 91). (Non UKAS accredited test)	
BS EN 14256: 2007 Adhesives for non-structural wood applications – Test method and requirements for resistance to static load. (Non UKAS accredited test)	
Wood species: Fagus sylvatica L (European beech)	
Moisture content: Nominal 12% (achieved by conditioning at 65% rh at 20°C).	
Bonding procedure*: Panels sanded with P100 grit abrasive paper. Adhesive applied to both surfaces of panels with a glue spread of approximately 250-300 g/m ² or adjusted to ensure satisfactory coverage. Panel bonding pressure applied within 3 minutes to approximately 0.7 MN/sq m (100 psi) with the panels remaining under pressure (not constant) at ambient room temperature for a period of approximately 7 hours. Following pressing the panels are reconditioned at 65% rh at 20°C. Shear test piece length is 100 mm (not 150 mm as stated in EN204) - this does not affect the area of test bond or failing force. (*Unless otherwise advised).	
Time between bonding / cutting and strength testing:	≥7 days
Glue line	Thin adhesive glue line - nominal 0.1 mm
Test pieces: Each prepared test piece is measured (rounded to nearest 0.1mm) for joint overlap and width. A minimum of 10 test pieces per conditioning sequence are required but additional test pieces maybe included. The 10 highest results are selected from sample lot.	
Test piece loading shear test: Test pieces are inserted into wedge-type jaws of a constant rate of traverse tensile test machine operating with a crosshead speed 50 mm/min. The distance between the jaws is approximately 50 mm.	
Conditioning: pre-conditioning and any re-conditioning in standard atmosphere at 65% rh at 20°C i.e. drying following water immersion tests is ≥7 days.	
Deviations: BS EN 205 states that test pieces shall be machined to an accuracy of ±0.2mm. In practice this machining accuracy may not always be achieved and FIRA therefore measures each test piece for length and width of overlap rounded to the nearest 0.1mm (effectively to an accuracy of ±0.05mm). This procedure gives a precise measurement of the bond area of each test piece.	

REPORT DETAILS: Resistance to static load BS EN 14256
Test carried out in conditions: 50%rh, 23°C. Failure times: according BS EN 14256 – ‘Inspect the test pieces daily and note the time to failure of each test piece attributing a survival time, for example, of 3.5 d for test pieces failing between 3d and 4d etc. (FIRA Note: In the case of samples failing over a weekend, for example between 3d Fri and 6d Mon an average survival time of 4.5d is attributed i.e. +1.5days added). Terminate the test after 21 days or after a mean endurance of 14 d has been achieved whichever is the soonest’.

TEST CONDITIONS & REQUIREMENTS

BS EN 204/205 SHEAR TESTS: CONDITIONING SEQUENCE & MINIMUM VALUES (Ref: Table 2 BS EN 204:2001)					
CONDITIONING SEQUENCE & STRENGTH N/mm ²					DURATION AND CONDITIONING TREATMENT
Serial number	D1	D2	D3	D4	
1	≥10	≥10	≥10	≥10	7days standard atmosphere, 65%rh,20°C
2		≥8			7days standard atmosphere, 65%rh,20°C, 3h water immersion at 20°C, 7days in standard atmosphere 65%rh,20°C
3			≥2	≥4	7days standard atmosphere, 65%rh,20°C, 4days water immersion at 20°C
4			≥8		7days standard atmosphere, 65%rh,20°C, 4days in water at 20°C, 7days in standard atmosphere 65%rh,20°C
5				≥4	7days standard atmosphere,65%rh,20°C, 6 hours in boiling water, 2 hours in water at 20°C

BS EN 14257:2006 Adhesives - Wood adhesives – Determination of tensile strength of lap joints at elevated temperature (WATT' 91).		
CONDITIONING SEQUENCE & STRENGTH N/mm ²		DURATION AND CONDITIONING TREATMENT
WATT 91	≥7 Guideline value	7 days standard atmosphere, 65%rh,20°C & 1 hour 80°C

BS EN 14256:200Adhesives - Wood adhesives – Determination of tensile strength of lap joints at elevated	
CONDITIONING TREATMENT	50%rh,23°C
For an adhesive to comply with BS EN 14256 the mean survival time shall not be less than 14 days	

***** END OF REPORT *****