Testing	:	**Flatwise Tensile Strength of Sandwich Constructions**
Test Method	:	ASTM C297-16 **Modified time to failure**
Project Number	:	P20200821
Customer	:	Albond Aluminyum Sanayi ve Ticaret A.S.
Attention	:	Egemen Yörür
Analyst	:	A. Galusha / D. Foley Attachments: 2 Graphs
Date	:	May 21, 2020

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TESTING LABORATORY

Material / Sample Name	:	**Albond 9000 A2**
Sample Preparation	:	Bonded to loading blocks by Intertek PTL using 3M DP8410NS
Sample Dimensions	:	1.0" x 1.0" x 0.160 (nominal)
Loading Block Material	:	Aluminum
Loading Block Dimensions	:	1.0" x 1.0" x Thickness (nominal)
Instron Model Number	:	5569 Calibration Date : January 2020
Measurement Equipment	:	500 Calibration Date : January 2020
Alignment Results	:	Self-aligning grips used.
Cross-Head Speed	:	0.02"/min
Sampling Rate (data points/s)	:	50
Conditioning	:	Unconditioned
Test Conditions	:	23°C ± 2°C / 50% ± 10% RH

Test Number	Sample Length (mm)	Sample Width (mm)	Sample Height (mm)	Maximum Load (N)	Flatwise Tensile Strength (MPa)	Failure Type / Failure Area (%)
1*	25.5	25.6	4.04	491	0.75	Adhesive Failure / 100%
2*	25.4	25.6	4.06	1080	1.66	Adhesive Failure / 100%
3	25.3	25.6	4.11	1140	1.76	Core / 100%
4*	25.3	25.4	4.06	659	1.03	Adhesive Failure/ 100%
5	25.3	25.4	4.04	1160	1.81	Core, Adhesive / 90%, 10%
6	25.3	25.4	4.09	1230	1.91	Core / 100%
			Average	**960**	**1.49**	
			Std Dev	307	0.48	
			C.O.V. (%)	32	32	

***Note:** Specimen-to-Loading Block failures are unacceptable failure modes per ASTM C297.

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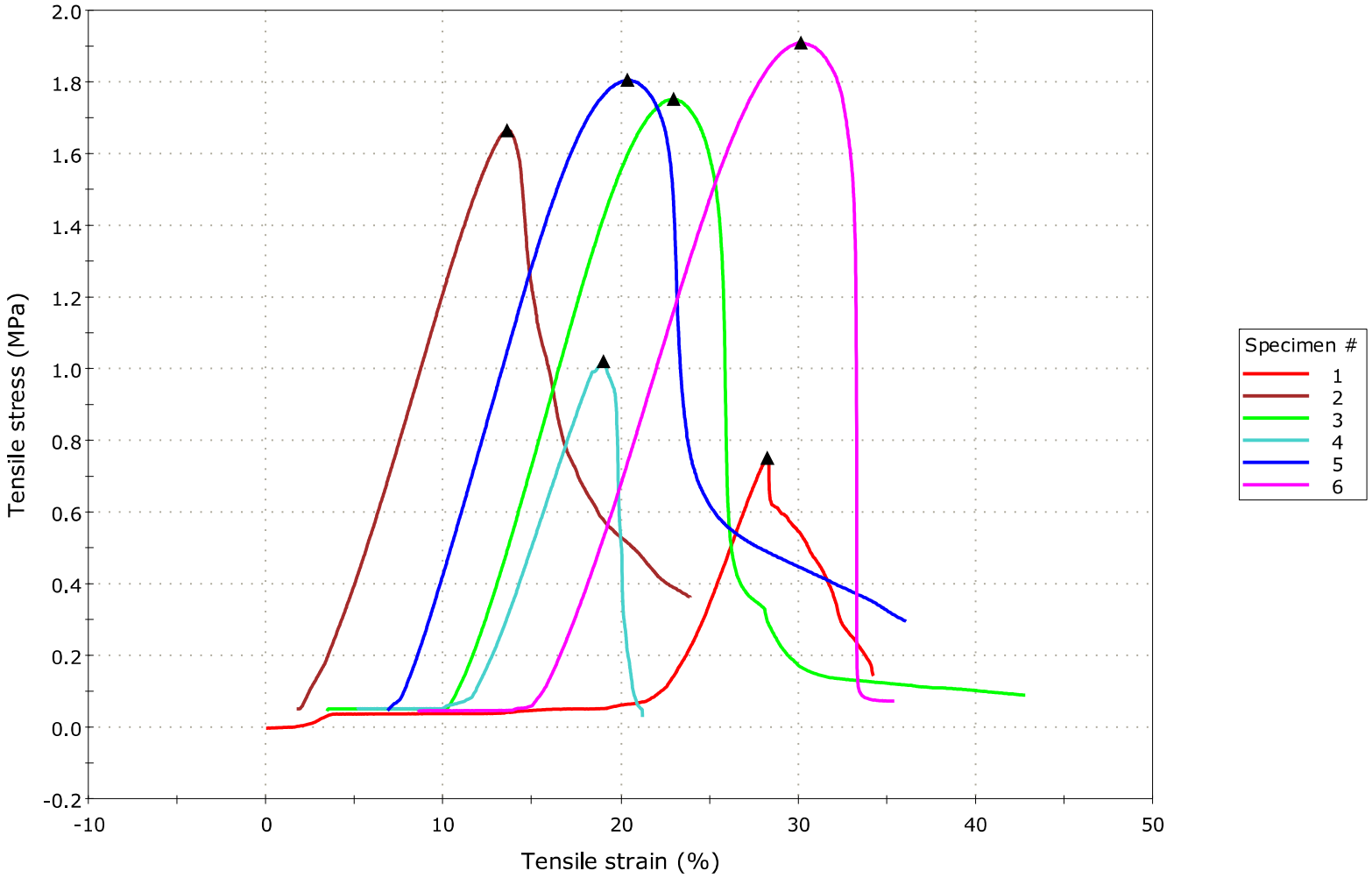
P20200821 - Flatwise tensile - Albond 9000 A2 at 23°C



Testing	:	**Flatwise Tensile Strength of Sandwich Constructions**
Test Method	:	ASTM C297-16 **Modified time to failure**
Project Number	:	P20200821
Customer	:	Albond Aluminyum Sanayi ve Ticaret A.S.
Attention	:	Egemen Yörür
Analyst	:	A. Galusha / D. Foley
Date	:	May 21, 2020

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TESTING LABORATORY

Material / Sample Name	:	**Albond 9000 FR (B1)**	
Sample Preparation	:	Bonded to loading blocks by Intertek PTL using 3M DP8410NS	
Sample Dimensions	:	1.0" x 1.0" x 0.160 (nominal)	
Loading Block Material	:	Aluminum	
Loading Block Dimensions	:	1.0" x 1.0" x Thickness (nominal)	
Instron Model Number	:	5569	Calibration Date : January 2020
Measurement Equipment	:	500	Calibration Date : January 2020
Alignment Results	:	Self-aligning grips used.	
Cross-Head Speed	:	0.02"/min	
Sampling Rate (data points/s)	:	50	
Conditioning	:	Unconditioned	
Test Conditions	:	23°C ± 2°C / 50% ± 10% RH	

Test Number	Sample Length (mm)	Sample Width (mm)	Sample Height (mm)	Maximum Load (N)	Flatwise Tensile Strength (MPa)	Failure Type / Failure Area (%)
1*	25.4	25.4	4.04	1610	2.50	Adhesive / 100%
2*	25.4	25.4	4.01	2810	4.36	Adhesive / 100%
3*	25.4	25.4	4.04	2020	3.13	Adhesive / 100%
4*	25.4	25.1	4.09	1310	2.05	Cohesive / 100%
5*	25.4	25.1	4.11	2850	4.47	Adhesive / 100%
6*	25.4	25.4	4.09	3700	5.74	Adhesive, Cohesive / 50%, 50%
			Average	**2380**	**3.71**	
			Std Dev	896	1.39	
			C.O.V. (%)	38	37	

***Note:** Specimen-to-Loading Block failures are unacceptable failure modes per ASTM C297.

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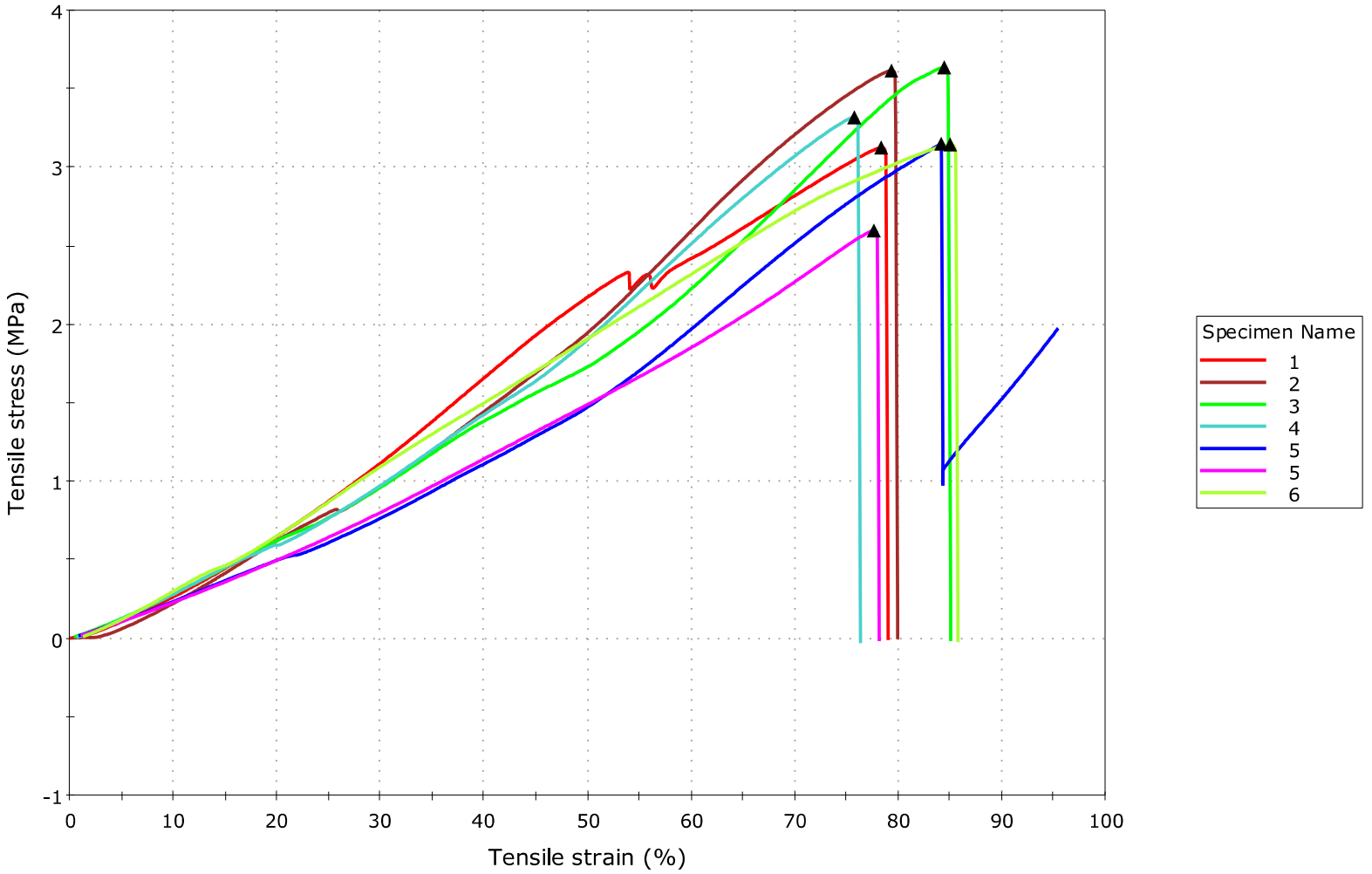
P20200821 - Flatwise tensile - Albond 9000 A2 at 23°C



Testing	: **Climbing Drum Peel for Adhesives**
Test Method	: ASTM D1781 - 98 (Reapproved 2012)
Project Number	: P20200821
Customer	: Albond Aluminyum Sanayi ve Ticaret A.S.
Attention	: Egemen Yörür
Analyst	: A. Galusha / K. Schuman
Date	: May 12, 2020

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TESTING LABORATORY

Sample Description	: Sandwich, composite core
Adherend Thickness (mm)	: 0.5
Sample Dimensions (mm)	: 356 x 76 x 4.3 (Nominal)
Bonding Conditions	: Not Supplied
Sample Preparation	: Tested as received
Conditioning	: 7 days at 23°C ± 2°C / 50% ± 10% RH
Test Machine Type	: Instron 5569
Speed Of Testing	: 25.4 mm/min
Flange Radius (mm)	: 63.68
Drum Radius (mm)	: 50.94
Calibration Method	: Adherend
Torque Compensation (kg_f)	: 15.5
Preload (kg_f)	: 19.5
Test Conditions	: 23°C ± 2°C / 50% ± 10% RH

Sample ID	Test Number	Average Peel Load (kgf)	Maximum Peel Load (kgf)	Minimum Peel Load (kgf)	Specimen Width (mm)	**Average Peel Torque (mm-kg/mm of specimen width)**	Failure Type
Albond 9000 A2	1	85.7	93.7	72.0	75.6	11.6	3,4
	2	86.5	96.0	73.4	76.3	11.6	3,4
	3	75.9	83.3	65.0	75.9	9.94	3,4
	4	76.4	83.6	69.6	75.6	10.1	3,4
	5	81.2	88.5	75.3	75.6	10.9	3,4
	6	80.5	88.8	67.7	76.0	10.7	3,4
				Average		**10.8**	
				Std. Dev.		0.7	

Failure Types:
1= Cohesive failure within the adhesive
2= Adhesion to the facing
3= Adhesion to the core
4= Failure within the core

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