ULTEM™ Resin 2300 - Americas

Polyether Imide

SABIC

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Technical Data

Product Description

30% Glass fiber filled, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing. NSF 51 listing, WRAS certification, KTW certification in recognized colors.

General

Material Status	• Commercial: Active		
Literature [1]	• Technical Datasheet		
UL Yellow Card [2]	• E121562-470961 • E121562-221099		
Search for UL Yellow Card	• SABIC • ULTEM™ Resin		
Availability	• Latin America	• North America	
Filler / Reinforcement	• Glass Fiber, 30% Filler by Weight		
Features	• ECO Compliant		
Uses	• Aerospace Applications • Appliances • Automotive Applications • Automotive Exterior Parts • Automotive Under the Hood	• Construction Applications • Electrical/Electronic Applications • Electronic Displays • Fluid Handling • Lighting Applications	• Medical/Healthcare Applications • Oil/Gas Applications • Pharmaceuticals • Rail Applications
Agency Ratings	• EU Eco	• NSF STD-51	• WRAS Unspecified Rating
Automotive Specifications	• CHRYSLER MS-DB-477 CPN3488 Color: Black		
Processing Method	• Injection Molding		
Multi-Point Data	• Coefficient of Thermal Expansion vs. Temperature (ASTM E831) • Elastic Modulus vs Temperature (ASTM D4065) • Flexural DMA (ASTM D4065) • Instrumented Impact (Energy) (ASTM D3763) • Instrumented Impact (Load) (ASTM D3763) • Pressure-Volume-Temperature (PVT - Zoller Method) • Shear DMA (ASTM D4065) • Specific Heat vs. Temperature (ASTM D3417) • Tensile Fatigue • Tensile Stress vs. Strain (ASTM D638) • Thermal Conductivity vs. Temperature (ASTM E1530) • Viscosity vs. Shear Rate (ASTM D3835)		
Also Available In	• Asia Pacific	• Europe	

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity	1.51	1.51 g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	5.0 g/10 min	5.0 g/10 min	ASTM D1238
Molding Shrinkage			Internal Method
Flow : 0.126 in (3.20 mm)	2.0E-3 to 4.0E-3 in/in	0.20 to 0.40 %	
Across Flow : 0.126 in (3.20 mm)	2.0E-3 to 4.0E-3 in/in	0.20 to 0.40 %	
Water Absorption			ASTM D570
24 hr	0.16 %	0.16 %	
Equilibrium, 73°F (23°C)	0.90 %	0.90 %	

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Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus [4]	1.35E+6 psi	9300 MPa	ASTM D638
Tensile Strength [5]			ASTM D638
Yield	24400 psi	168 MPa	
Break	22900 psi	158 MPa	
Tensile Elongation [5] (Break)	3.0 %	3.0 %	ASTM D638
Flexural Modulus [6] (3.94 in (100 mm) Span)	1.30E+6 psi	8960 MPa	ASTM D790
Flexural Strength [6]			ASTM D790
Break, 3.94 in (100 mm) Span	32900 psi	227 MPa	
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Notched Izod Impact (73°F (23°C))	1.6 ft·lb/in	85 J/m	ASTM D256
Unnotched Izod Impact (73°F (23°C))	8.0 ft·lb/in	430 J/m	ASTM D4812
Reverse Notch Izod Impact			ASTM D256
0.126 in (3.20 mm)	9.2 ft·lb/in	490 J/m	
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness (M-Scale)	114	114	ASTM D785
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 0.252 in (6.40 mm)	414 °F	212 °C	
264 psi (1.8 MPa), Unannealed, 0.252 in (6.40 mm)	410 °F	210 °C	
Vicat Softening Temperature	441 °F	227 °C	ASTM D1525 [7]
CLTE - Flow (-4 to 302°F (-20 to 150°C))	1.1E-5 in/in/°F	2.0E-5 cm/cm/°C	ASTM E831
RTI Elec	356 °F	180 °C	UL 746
RTI Imp	338 °F	170 °C	UL 746
RTI Str	356 °F	180 °C	UL 746
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Volume Resistivity	3.0E+16 ohms·cm	3.0E+16 ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
0.0630 in (1.60 mm), in Air	630 V/mil	25 kV/mm	
0.0630 in (1.60 mm), in Oil	770 V/mil	30 kV/mm	
Dielectric Constant (1 kHz)	3.70	3.70	ASTM D150
Dissipation Factor			ASTM D150
1 kHz	1.5E-3	1.5E-3	
2.45 GHz	5.3E-3	5.3E-3	
Arc Resistance [8]	PLC 6	PLC 6	ASTM D495
Comparative Tracking Index (CTI)	PLC 4	PLC 4	UL 746
High Amp Arc Ignition (HAI) [9]	PLC 4	PLC 4	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 3	PLC 3	UL 746
Hot-wire Ignition (HWI)	PLC 1	PLC 1	UL 746
Flammability	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Flame Rating			UL 94
0.0098 in (0.25 mm)	V-0	V-0	
0.05 in (1.2 mm)	5VA	5VA	
Oxygen Index	50 %	50 %	ASTM D2863
NBS Smoke Density - Flaming, Ds [10]	1.60	1.60	ASTM E662

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	302 °F	150 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Suggested Max Moisture	0.020 %	0.020 %
Suggested Shot Size	40 to 60 %	40 to 60 %

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Injection	Nominal Value (English)	Nominal Value (SI)
Rear Temperature	626 to 752 °F	330 to 400 °C
Middle Temperature	644 to 752 °F	340 to 400 °C
Front Temperature	653 to 752 °F	345 to 400 °C
Nozzle Temperature	653 to 752 °F	345 to 400 °C
Processing (Melt) Temp	662 to 752 °F	350 to 400 °C
Mold Temperature	275 to 329 °F	135 to 165 °C
Back Pressure	43.5 to 102 psi	0.300 to 0.700 MPa
Screw Speed	40 to 70 rpm	40 to 70 rpm
Vent Depth	9.8E-4 to 3.0E-3 in	0.025 to 0.076 mm

Injection Notes

Injection Molding Parameters

- Drying Time (Cumulative): 24 hrs

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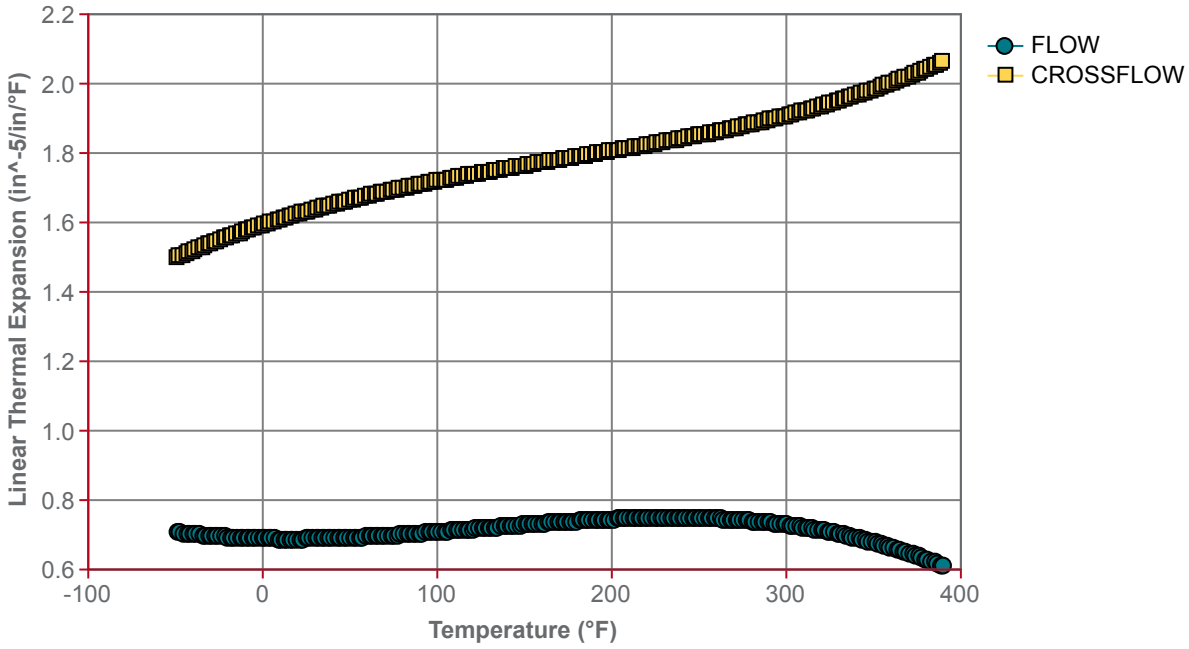
Coefficient of Thermal Expansion vs. Temperature (ASTM E831)



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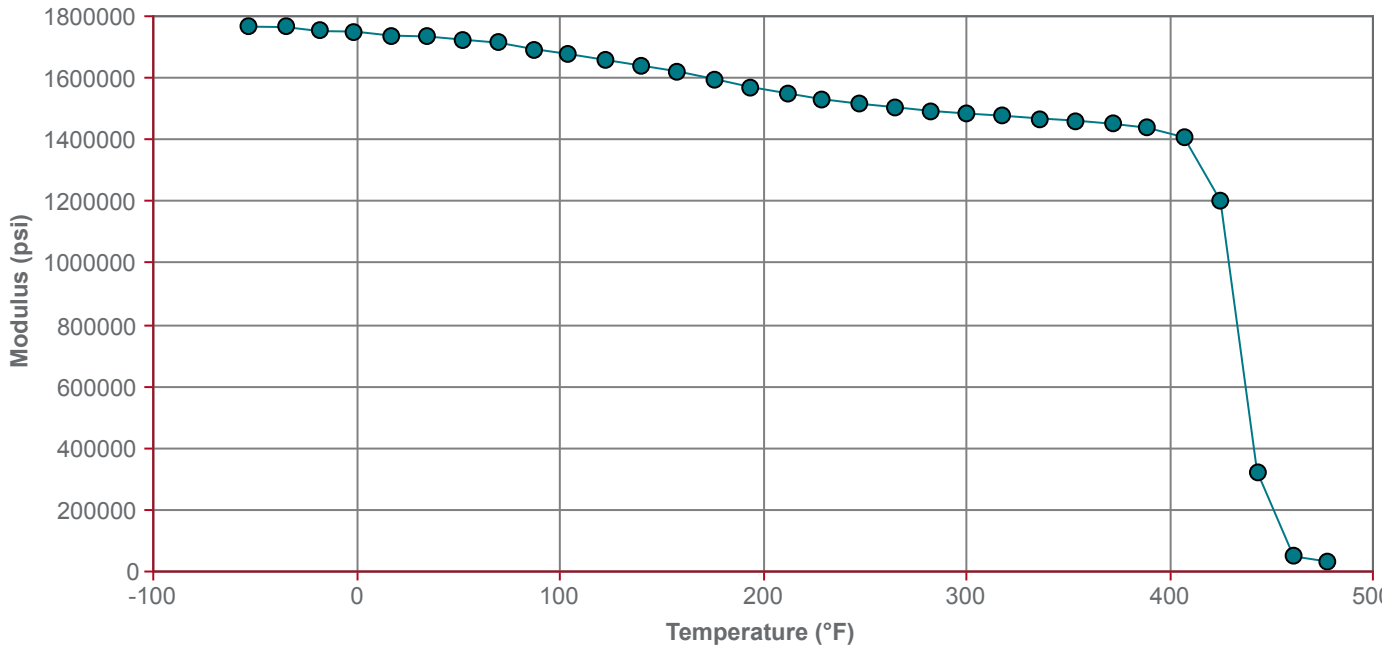
Elastic Modulus vs Temperature (ASTM D4065)



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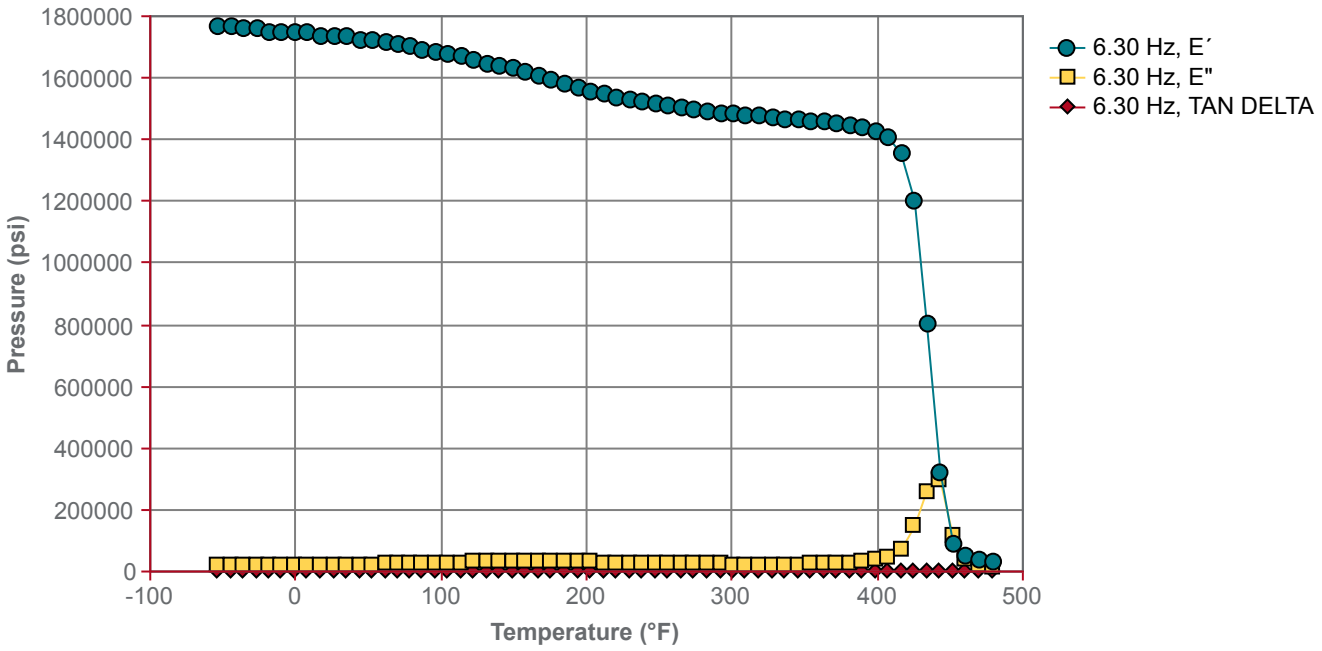
Flexural DMA (ASTM D4065)



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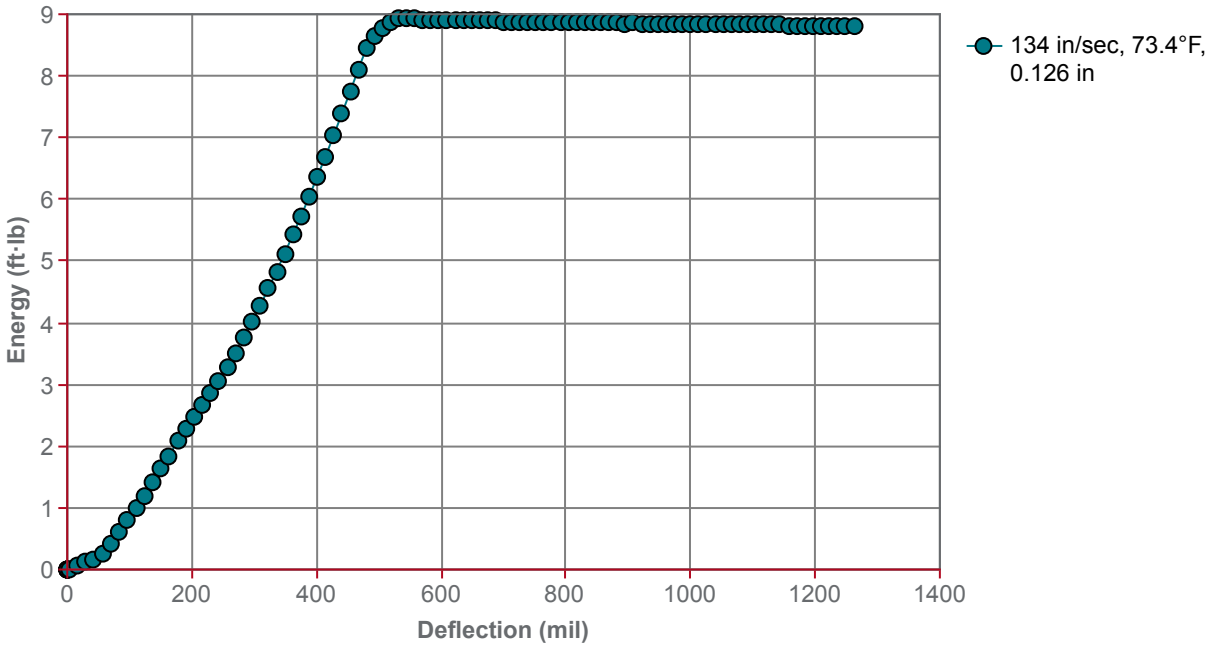
Instrumented Impact (Energy) (ASTM D3763)



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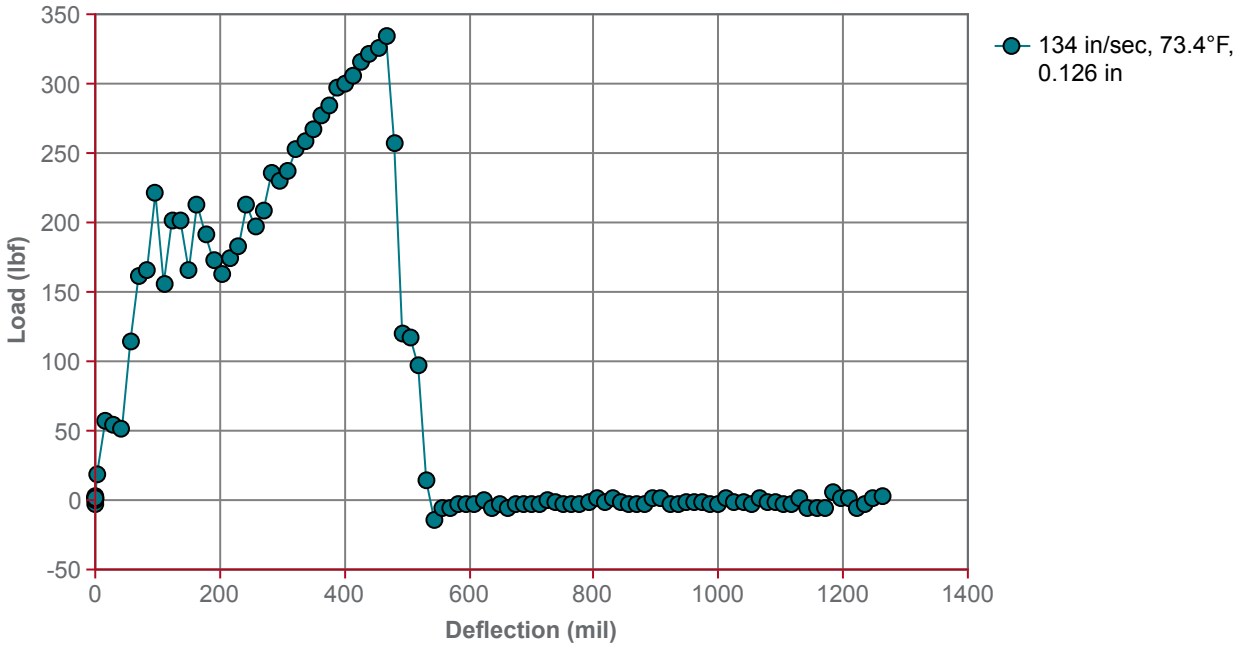
Instrumented Impact (Load) (ASTM D3763)



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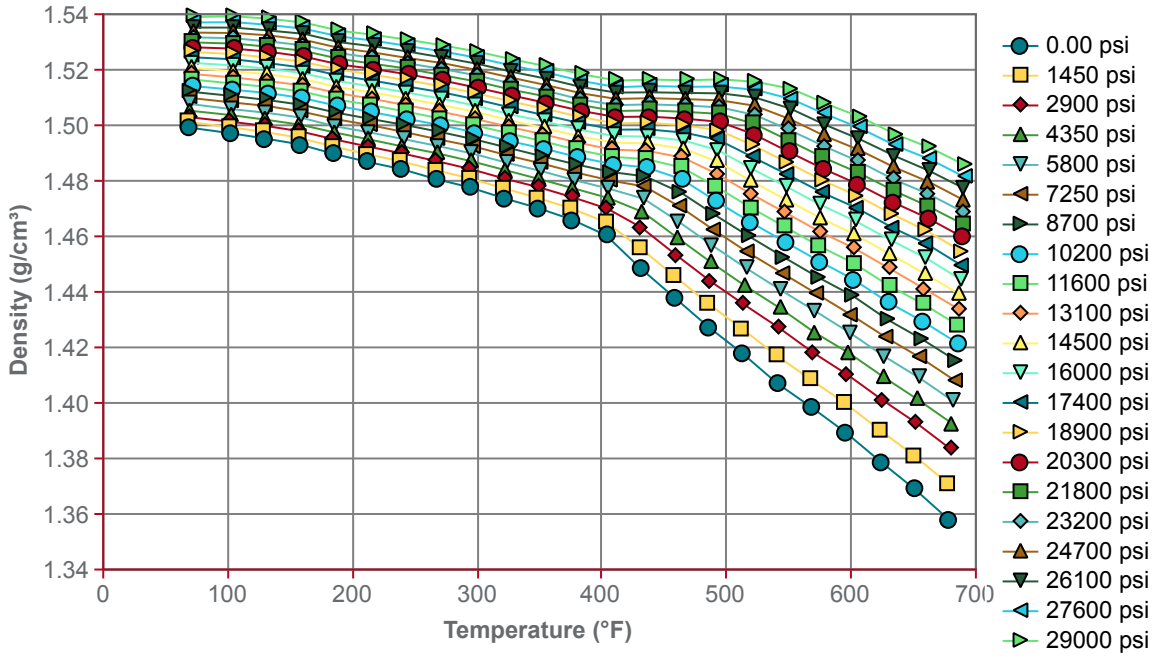
Pressure-Volume-Temperature (PVT - Zoller Method)



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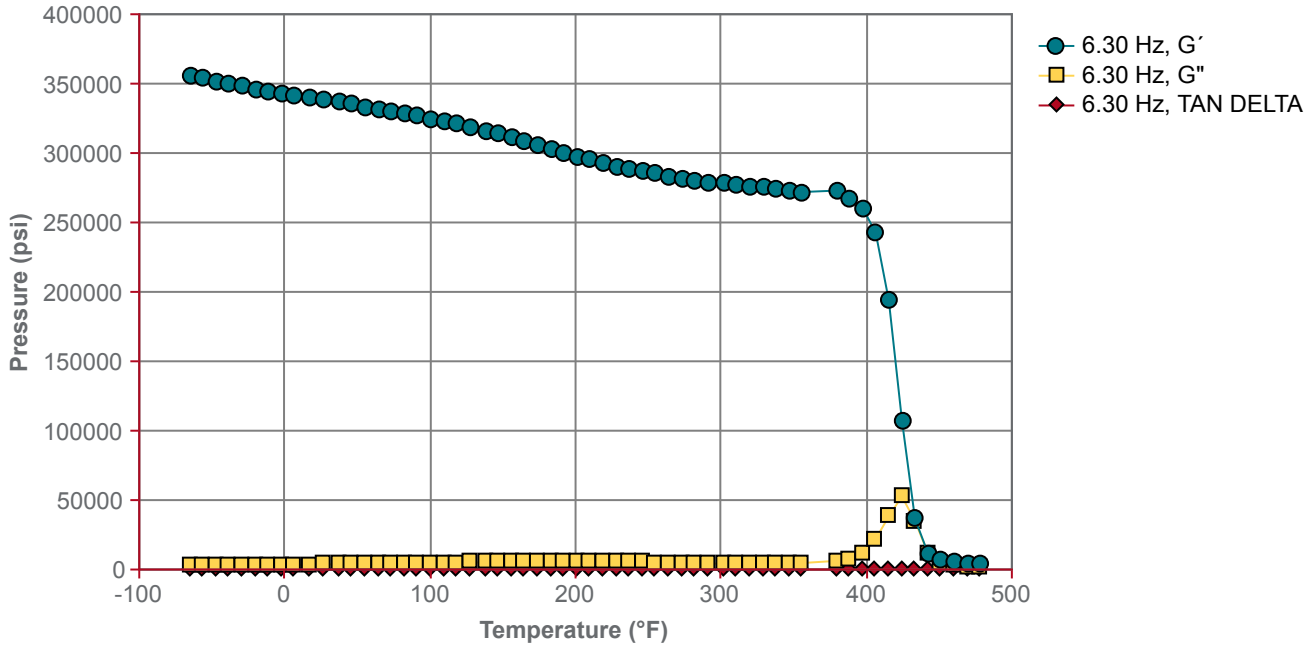
Shear DMA (ASTM D4065)



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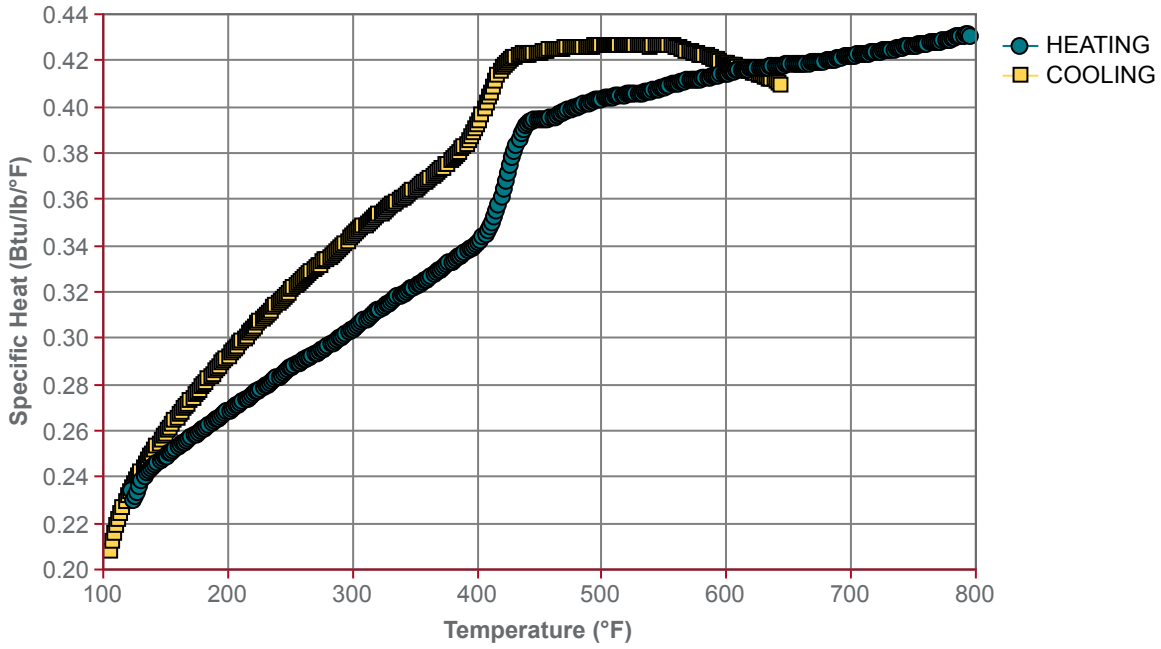
Specific Heat vs. Temperature (ASTM D3417)



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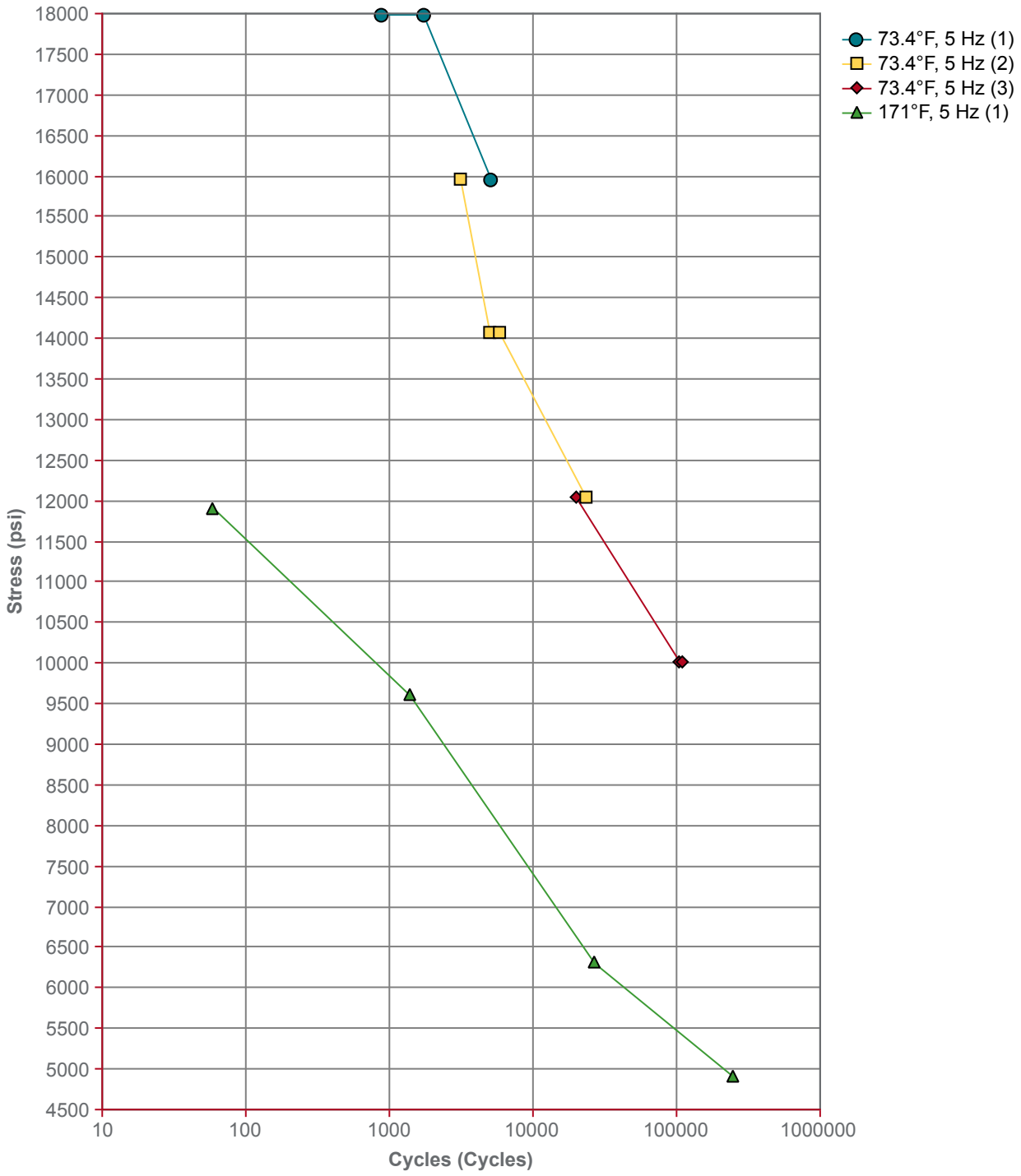
Tensile Fatigue



Data Notes
(1) - Series 1
(2) - Series 2

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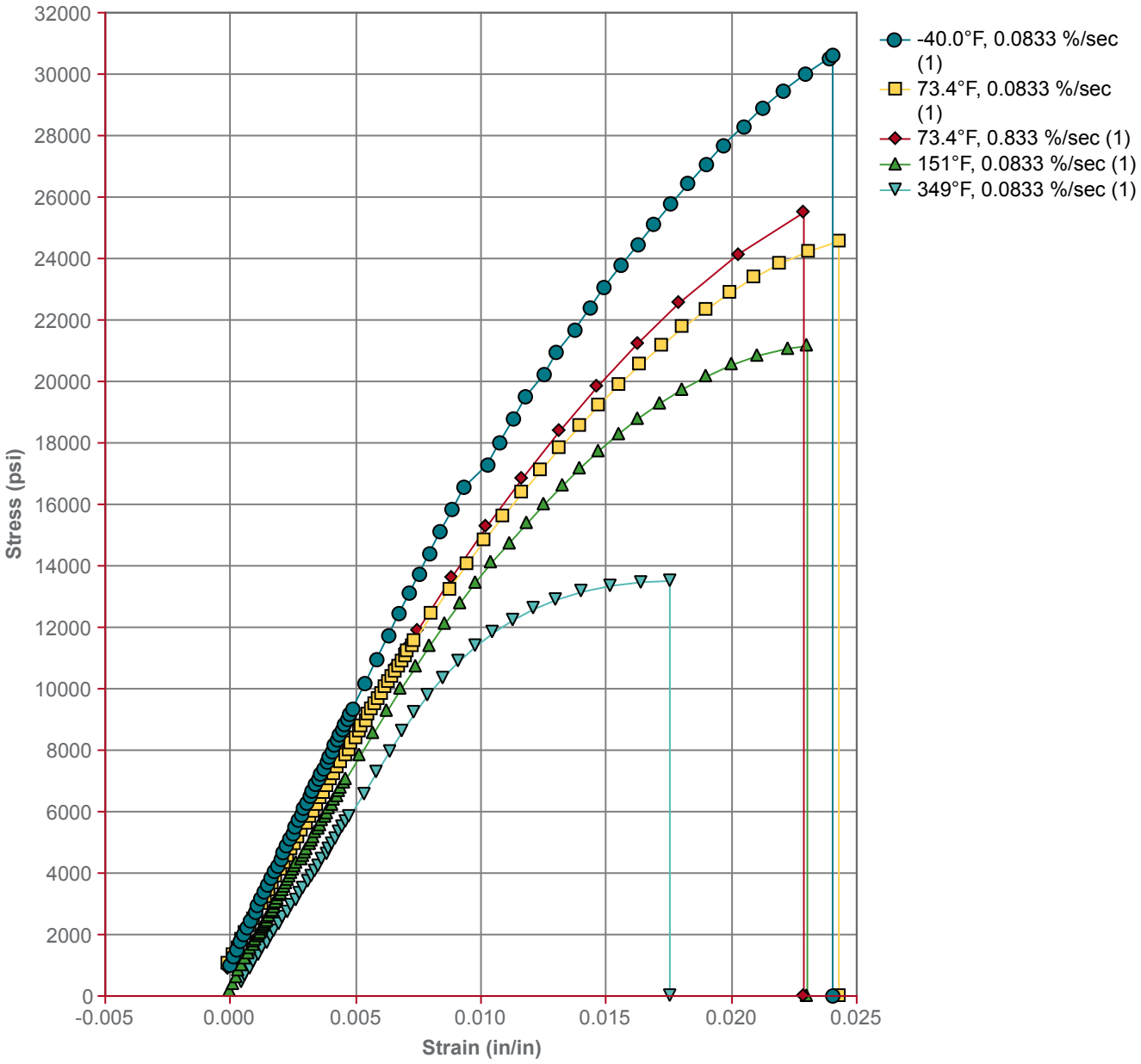
Tensile Stress vs. Strain (ASTM D638)



Data Notes
(1) - BREAK

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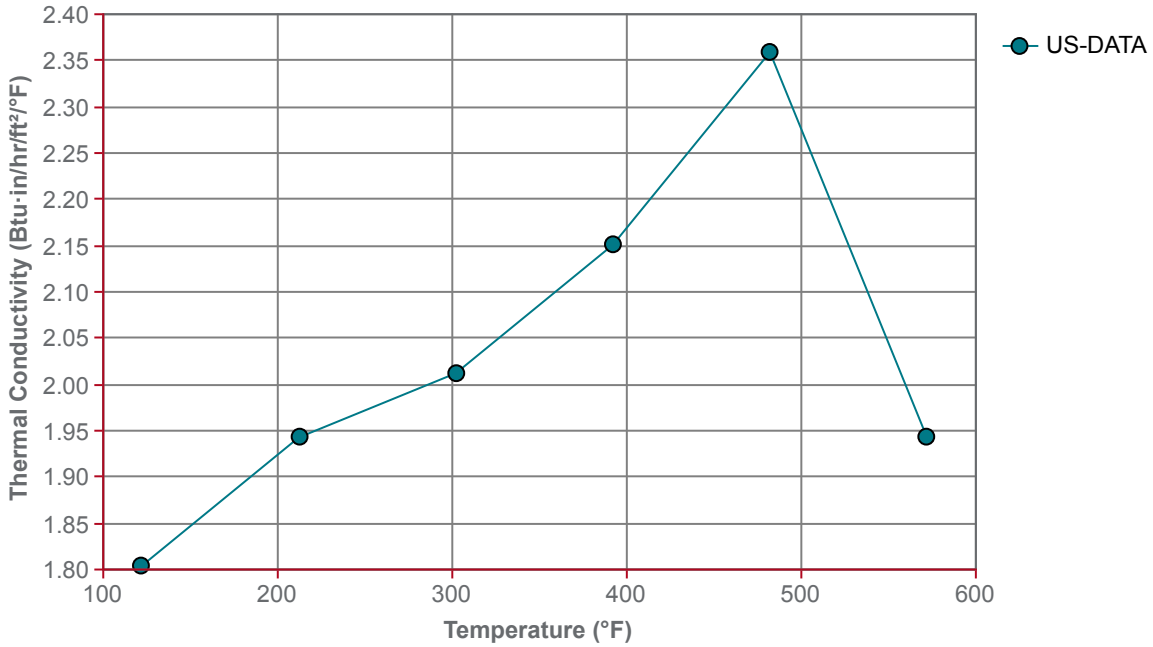
Thermal Conductivity vs. Temperature (ASTM E1530)



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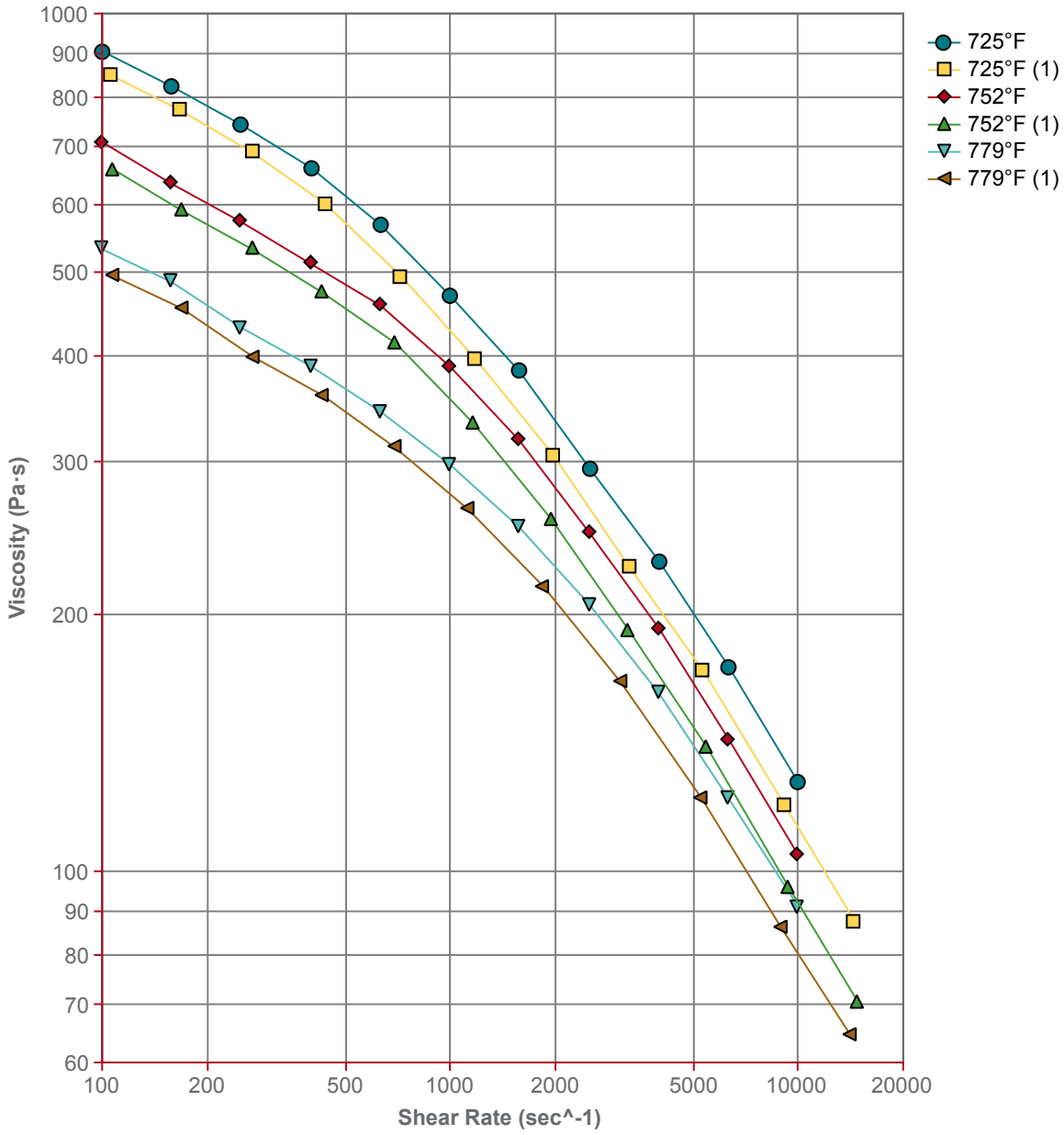
Viscosity vs. Shear Rate (ASTM D3835)



Data Notes
(1) - Rab. Corrected Data

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Notes

[1] These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

[2] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[3] Typical properties: these are not to be construed as specifications.

[4] 0.20 in/min (5.0 mm/min)

[5] Type I, 0.20 in/min (5.0 mm/min)

[6] 0.10 in/min (2.6 mm/min)

[7] Rate A (50°C/h), Loading 2 (50 N)

[8] Tungsten Electrode

[9] Surface

[10] 4 min

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