CYCOLAC™ Resin MG47 - Americas

Acrylonitrile Butadiene Styrene

SABIC

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Technical Data

Product Description	
Multi-purpose, injection molding ABS providing a favorable balance of engineering properties.	

General			
Material Status	• Commercial: Active		
Literature [1]	• Technical Datasheet		
UL Yellow Card [2]	• E121562-101224646 • E121562-101224647		
Search for UL Yellow Card	• SABIC • CYCOLAC™ Resin		
Availability	• Latin America	• North America	
Uses	• Additive Manufacturing (3D Printing) • Aerospace Applications • Appliances • Automotive Applications • Automotive Exterior Parts • Automotive Interior Parts • Automotive Lighting	• Construction Applications • Electrical/Electronic Applications • Electronic Displays • Household Goods • Industrial Applications • Lawn and Garden Equipment • Lenses	• Lighting Applications • Medical/Healthcare Applications • Non-specific Food Applications • Outdoor Applications • Pharmaceuticals • Sporting Goods
Automotive Specifications	• CHRYSLER MS-DB-200 Type A CPN2877 Color: 90% Color Match • CHRYSLER MS-DB-200 Type A CPN3128 Color: Black • CHRYSLER MS-DB-200 Type A CPN3178 Color: Natural • CHRYSLER MS-DB-200 Type A CPN3213 Color: 100% Color Match • CHRYSLER MS-DB-200 Type A CPN3394 Color: Color As Noted On Drawing • FORD WSS-M4D827-A3 • GM GMP.ABS.001 • GM GMP.ABS.017 • IMDS ID 5690380		
Processing Method	• Injection Molding		
Multi-Point Data	• Coefficient of Thermal Expansion vs. Temperature (ASTM E831) • Flexural DMA (ASTM D4065) • Pressure-Volume-Temperature (PVT - Zoller Method) • Shear DMA (ASTM D4065) • Specific Heat vs. Temperature (ASTM D3417) • Tensile Creep (ASTM D2990) • 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			
--	1.04	1.04 g/cm³	ASTM D792
--	1.04 g/cm³	1.04 g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	5.6 g/10 min	5.6 g/10 min	ASTM D1238
220°C/10.0 kg	18 g/10 min	18 g/10 min	ISO 1133
Molding Shrinkage - Flow (0.126 in (3.20 mm))	5.0E-3 to 8.0E-3 in/in	0.50 to 0.80 %	Internal Method

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- [4]	329000 psi	2270 MPa	ASTM D638
--	344000 psi	2370 MPa	ISO 527-2/1

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Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength			
Yield [5]	6380 psi	44.0 MPa	ASTM D638
Yield	6820 psi	47.0 MPa	ISO 527-2/50
Break [5]	4790 psi	33.0 MPa	ASTM D638
Break	5080 psi	35.0 MPa	ISO 527-2/50
Tensile Elongation			
Yield [5]	2.0 %	2.0 %	ASTM D638
Yield	2.5 %	2.5 %	ISO 527-2/50
Break [5]	24 %	24 %	ASTM D638
Break	25 %	25 %	ISO 527-2/50
Flexural Modulus			
1.97 in (50.0 mm) Span [6]	334000 psi	2300 MPa	ASTM D790
-- [7]	319000 psi	2200 MPa	ISO 178
Flexural Stress			
-- [7, 8]	10200 psi	70.0 MPa	ISO 178
Yield, 1.97 in (50.0 mm) Span [6]	10200 psi	70.0 MPa	ASTM D790
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy Notched Impact Strength [9]			ISO 179/1eA
-22°F (-30°C)	4.3 ft·lb/in²	9.0 kJ/m²	
73°F (23°C)	12 ft·lb/in²	26 kJ/m²	
Notched Izod Impact			
73°F (23°C)	6.0 ft·lb/in	320 J/m	ASTM D256
-22°F (-30°C) [10]	3.8 ft·lb/in²	8.0 kJ/m²	ISO 180/1A
73°F (23°C) [10]	10 ft·lb/in²	22 kJ/m²	ISO 180/1A
Instrumented Dart Impact			ASTM D3763
73°F (23°C), Total Energy	266 in·lb	30.0 J	
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness (R-Scale)	112	112	ASTM D785
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed, 0.126 in (3.20 mm)	201 °F	94.0 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.126 in (3.20 mm)	176 °F	80.0 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.157 in (4.00 mm), 2.52 in (64.0 mm) Span [10]	178 °F	81.0 °C	ISO 75-2/Af
Vicat Softening Temperature			
--	210 °F	99.0 °C	ASTM D1525 [11]
--	208 °F	98.0 °C	ISO 306/B50
--	212 °F	100 °C	ISO 306/B120
CLTE			ASTM E831
Flow : -40 to 104°F (-40 to 40°C)	4.9E-5 in/in/°F	8.8E-5 cm/cm/°C	
Transverse : -40 to 104°F (-40 to 40°C)	4.9E-5 in/in/°F	8.8E-5 cm/cm/°C	
RTI Elec	140 °F	60.0 °C	UL 746
RTI Imp	140 °F	60.0 °C	UL 746
RTI Str	140 °F	60.0 °C	UL 746
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Arc Resistance [12]	PLC 6	PLC 6	ASTM D495
Comparative Tracking Index (CTI)	PLC 0	PLC 0	UL 746
High Amp Arc Ignition (HAI) [13]	PLC 0	PLC 0	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 3	PLC 3	UL 746
Hot-wire Ignition (HWI)	PLC 3	PLC 3	UL 746

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Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating (0.06 in (1.5 mm))	HB	HB	UL 94

Fill Analysis	Nominal Value (English)	Nominal Value (SI)	Test Method
Melt Viscosity (464°F (240°C), 1000 sec^-1)	225 Pa·s	225 Pa·s	ASTM D3835

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 to 203 °F	80 to 95 °C
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.10 %	0.10 %
Suggested Shot Size	50 to 70 %	50 to 70 %
Rear Temperature	374 to 410 °F	190 to 210 °C
Middle Temperature	401 to 437 °F	205 to 225 °C
Front Temperature	419 to 464 °F	215 to 240 °C
Nozzle Temperature	428 to 500 °F	220 to 260 °C
Processing (Melt) Temp	428 to 500 °F	220 to 260 °C
Mold Temperature	122 to 158 °F	50 to 70 °C
Back Pressure	43.5 to 102 psi	0.300 to 0.700 MPa
Screw Speed	30 to 60 rpm	30 to 60 rpm
Vent Depth	1.5E-3 to 2.0E-3 in	0.038 to 0.051 mm

Injection Notes

Injection Molding Parameters

- Drying Time (Cumulative): 8 hrs

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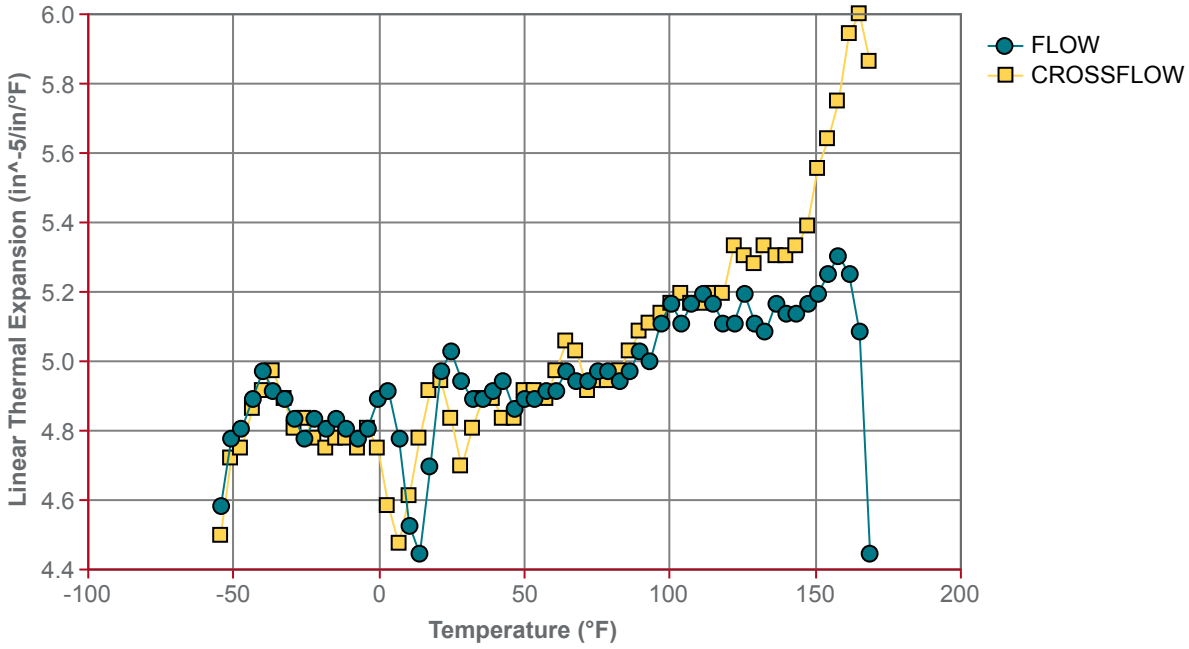
Coefficient of Thermal Expansion vs. Temperature (ASTM E831)



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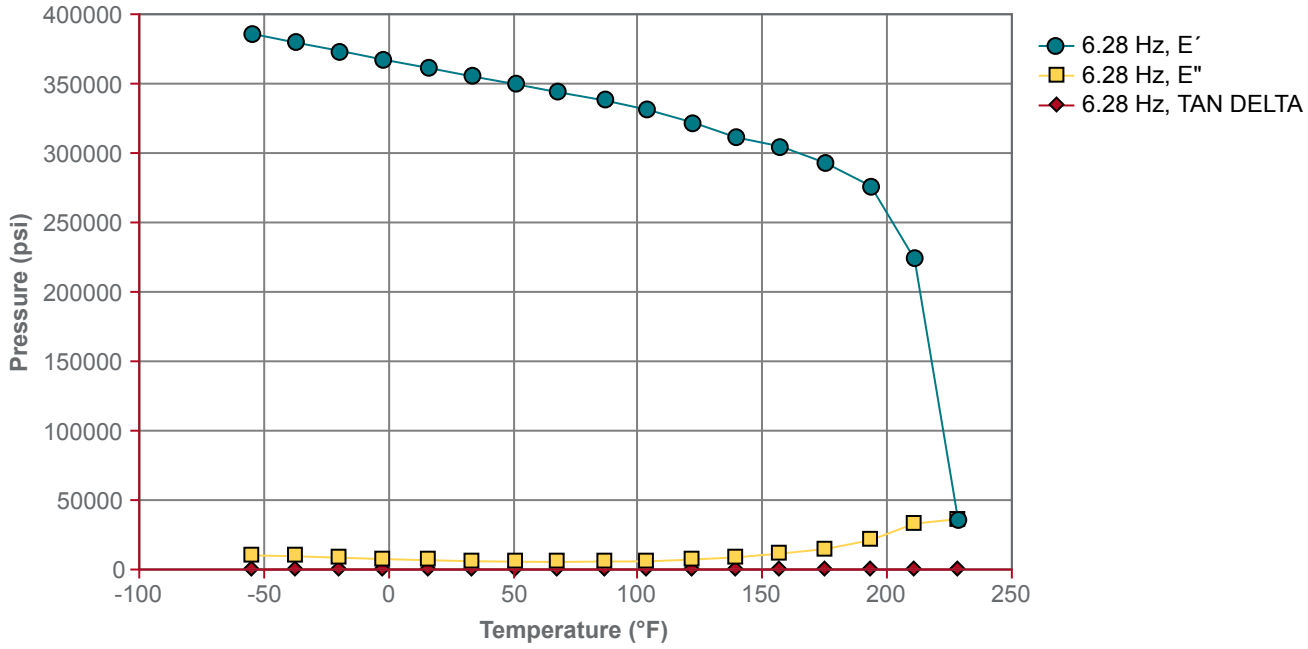
Flexural DMA (ASTM D4065)



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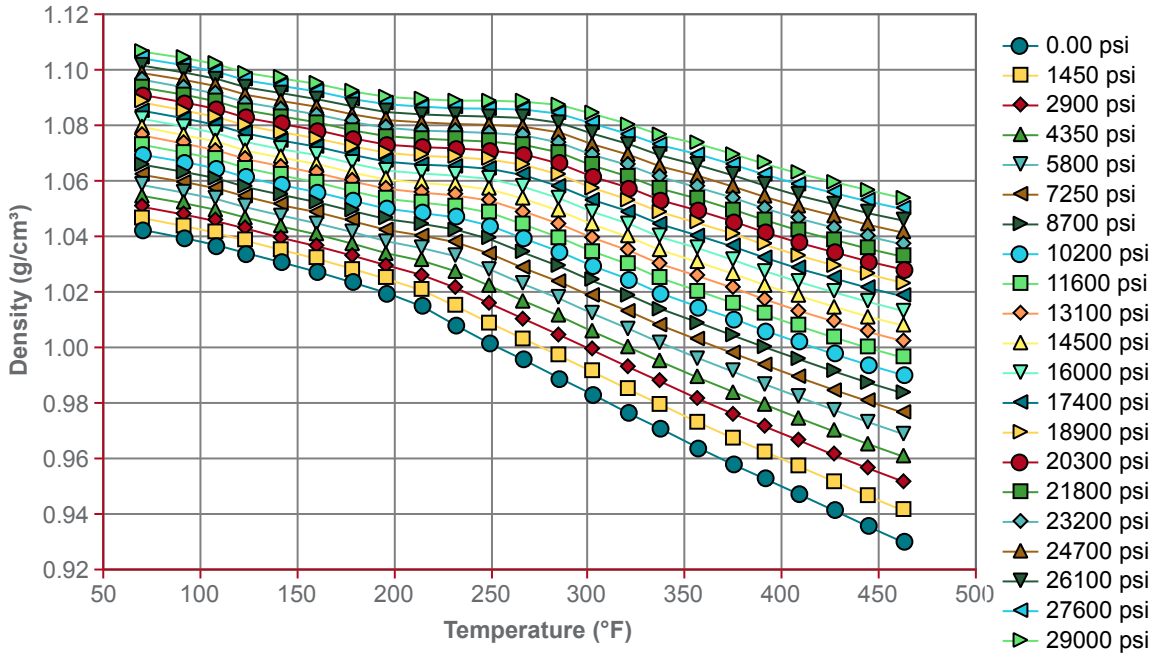
Pressure-Volume-Temperature (PVT - Zoller Method)



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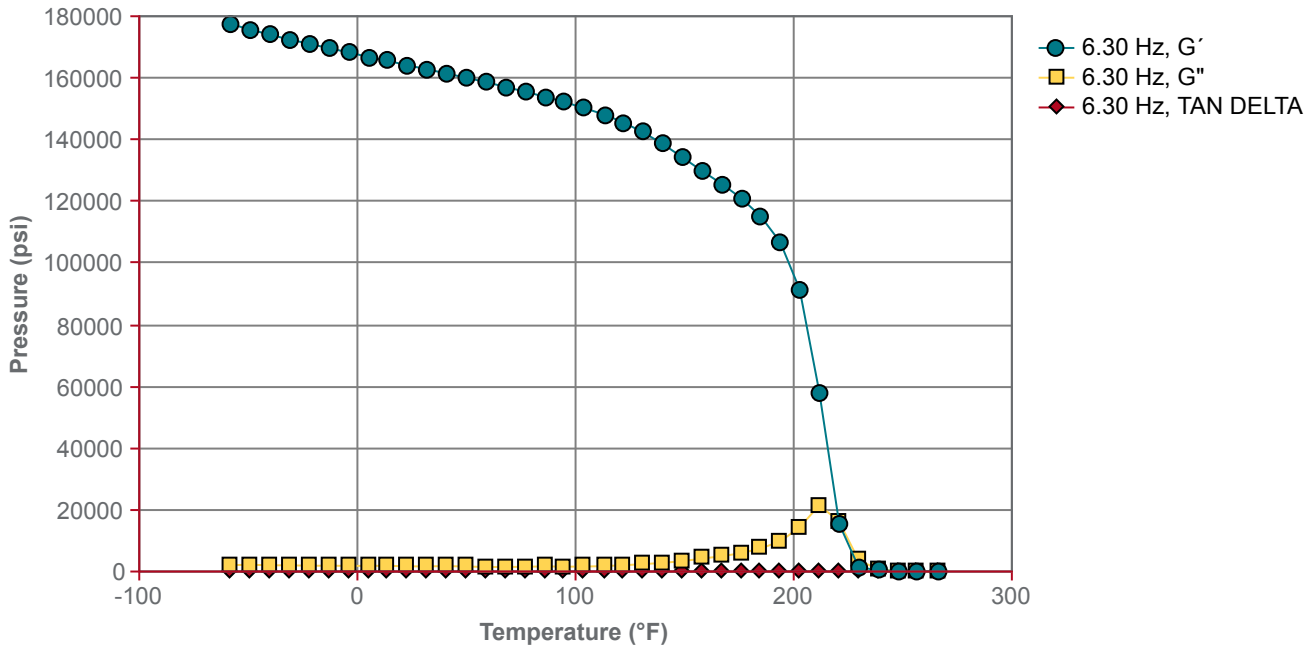
Shear DMA (ASTM D4065)



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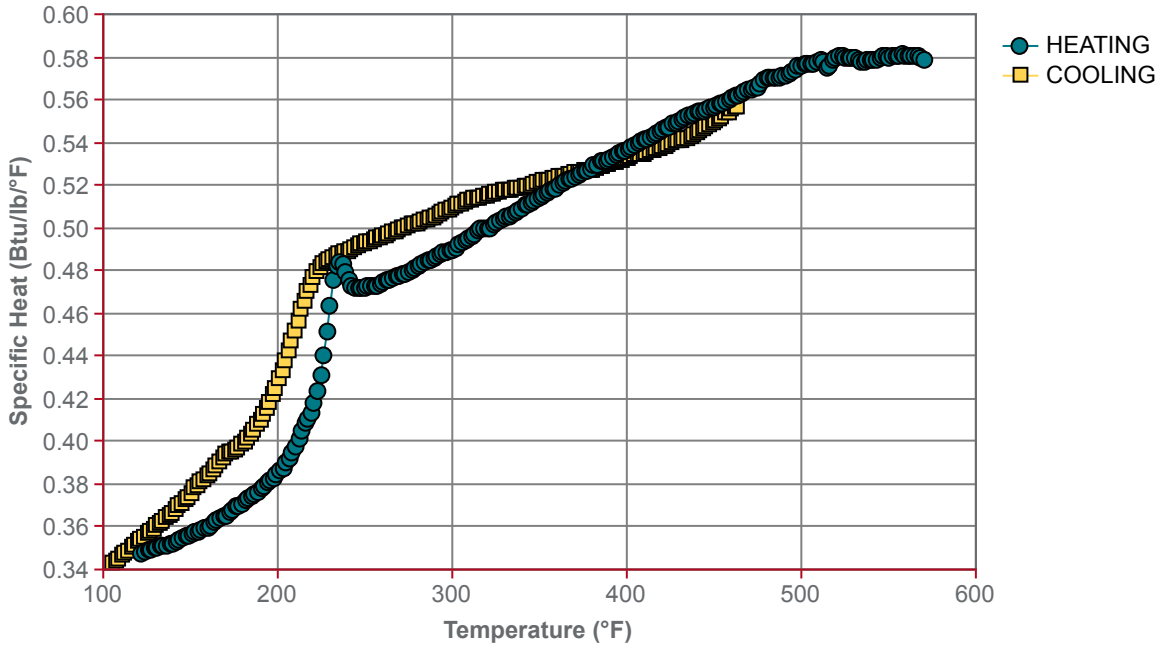
Specific Heat vs. Temperature (ASTM D3417)



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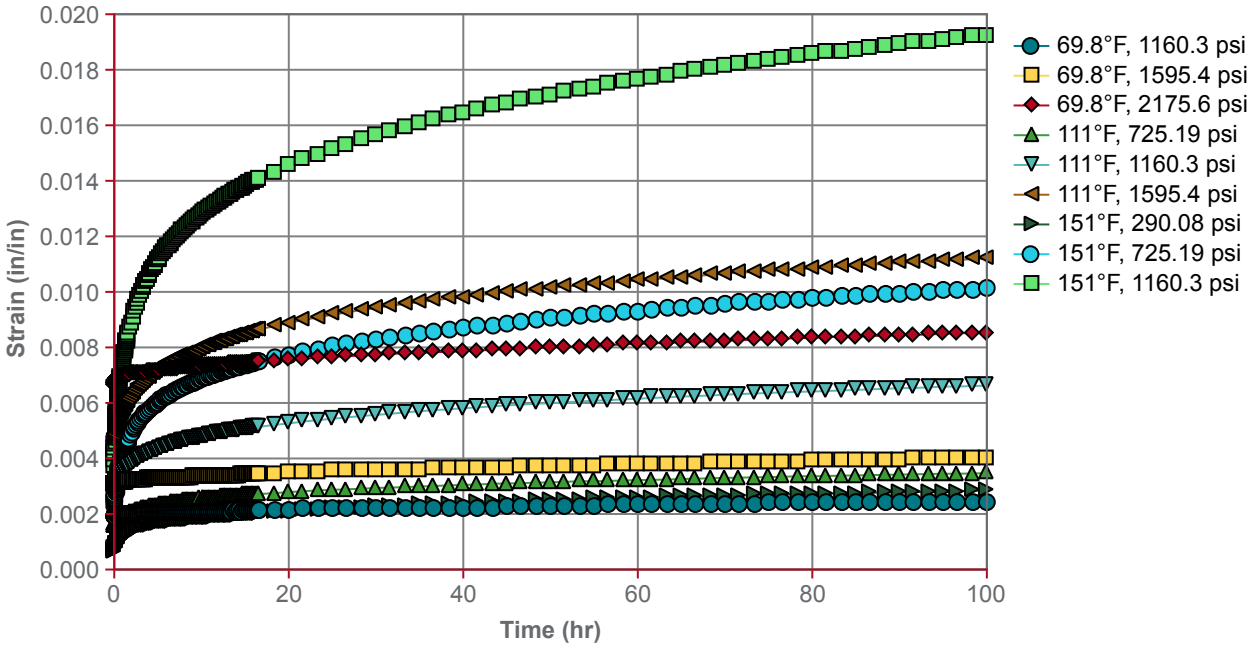
Tensile Creep (ASTM D2990)



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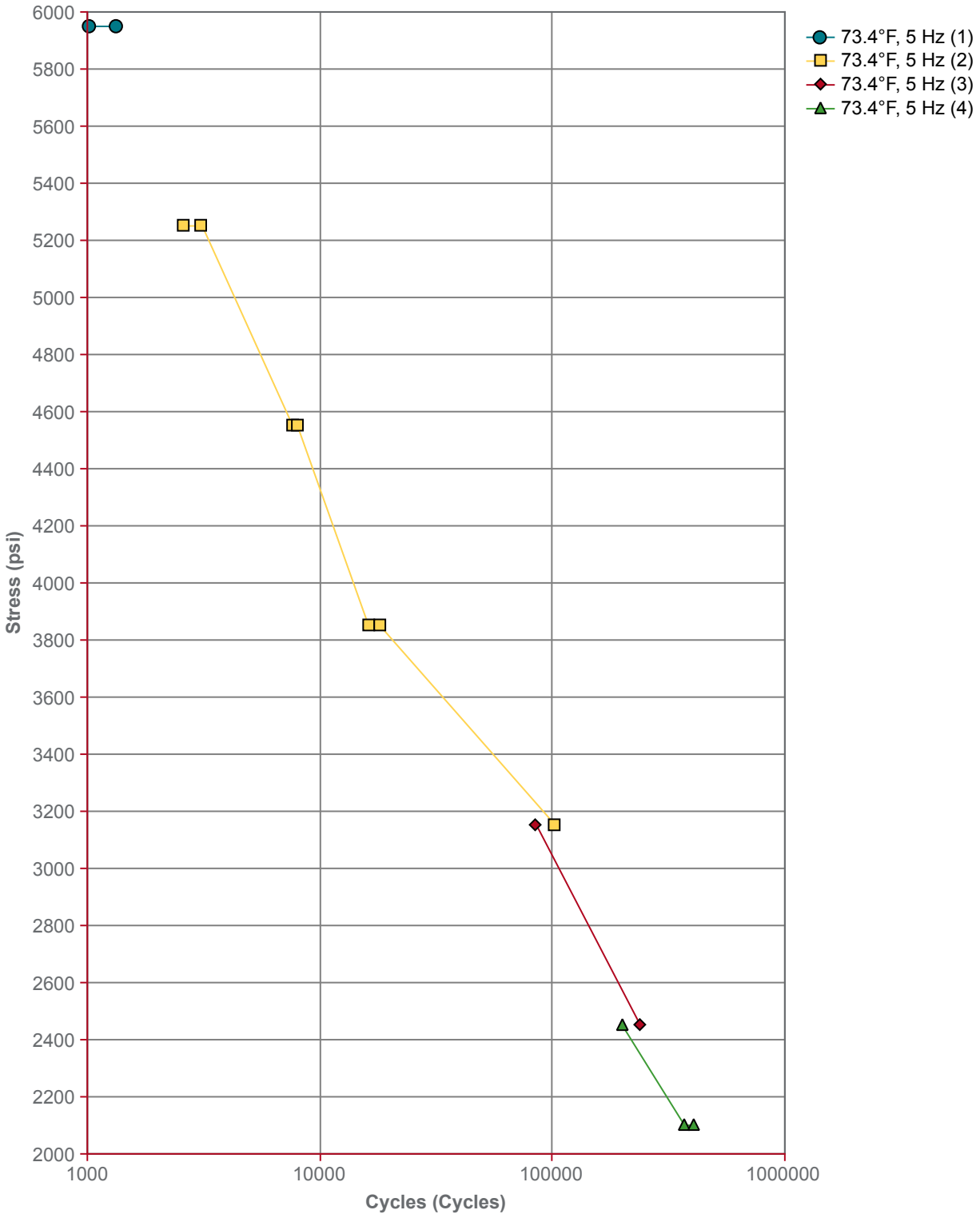
Tensile Fatigue



Data Notes

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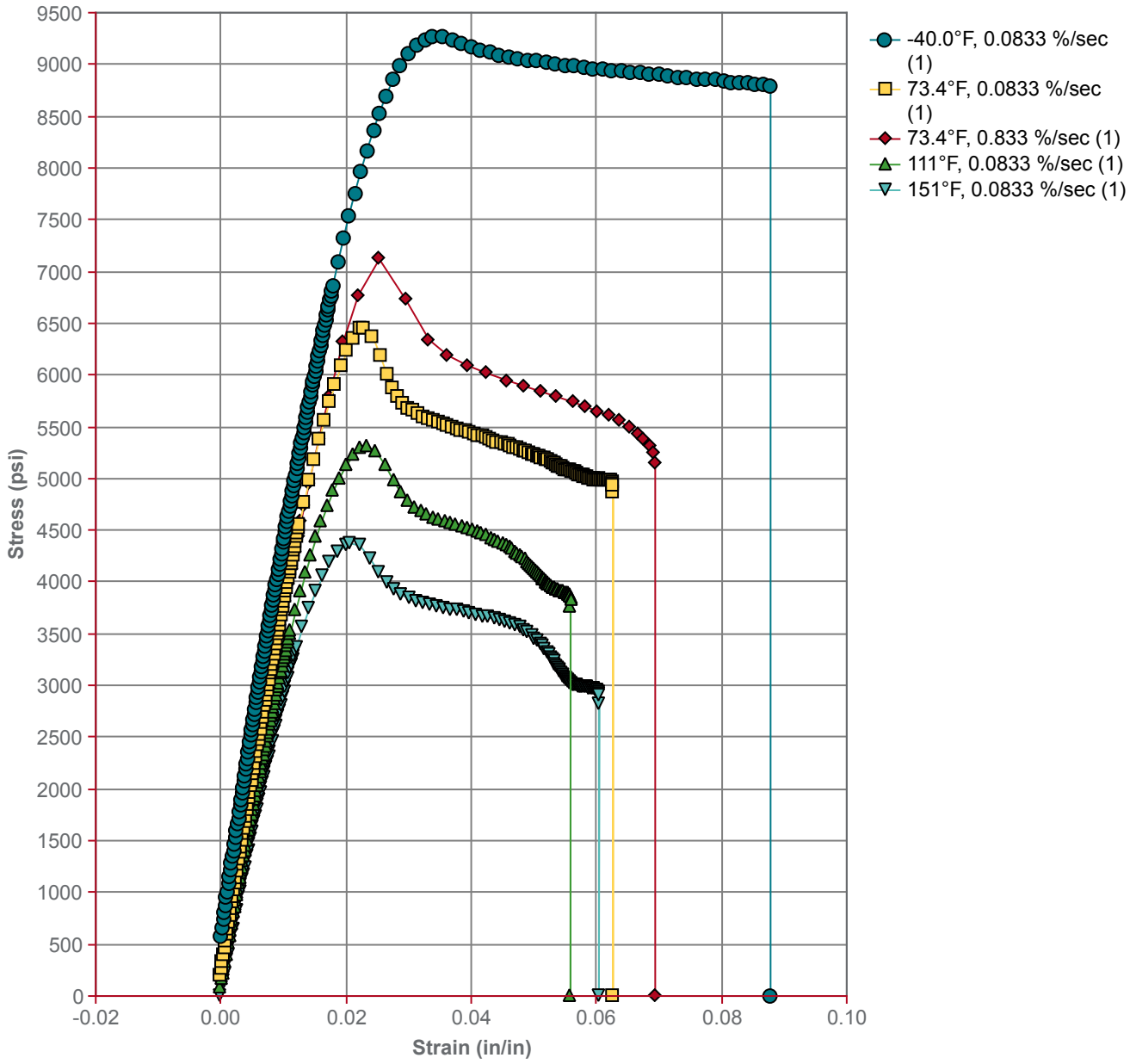
Tensile Stress vs. Strain (ASTM D638)



Data Notes
(1) - BREAK

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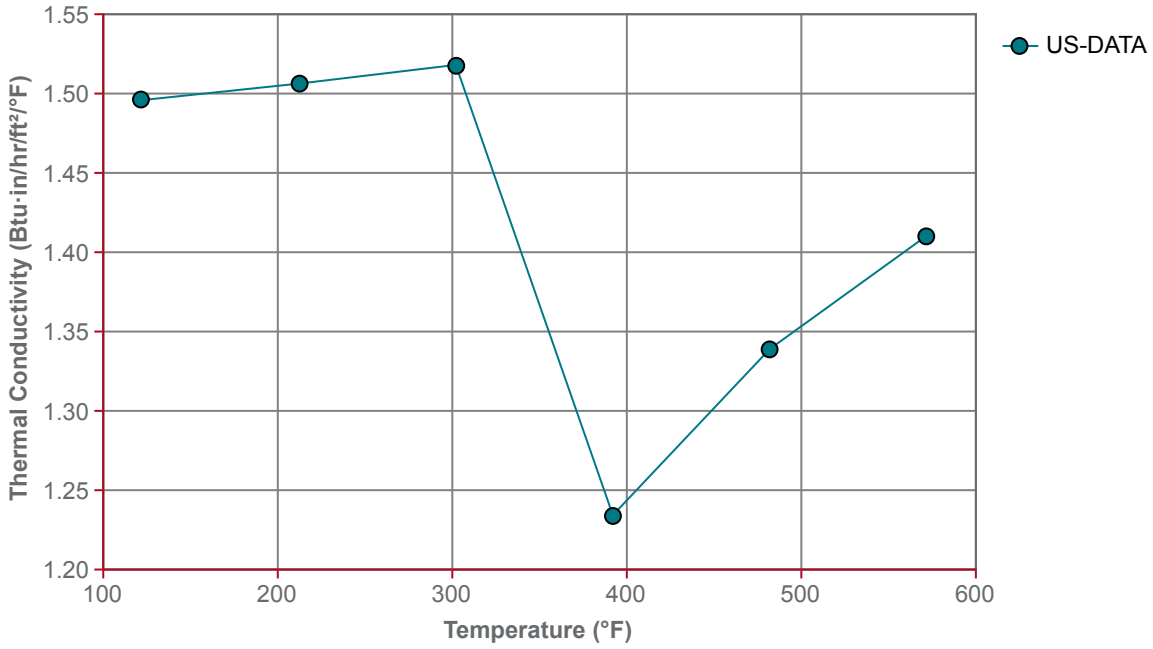
Thermal Conductivity vs. Temperature (ASTM E1530)



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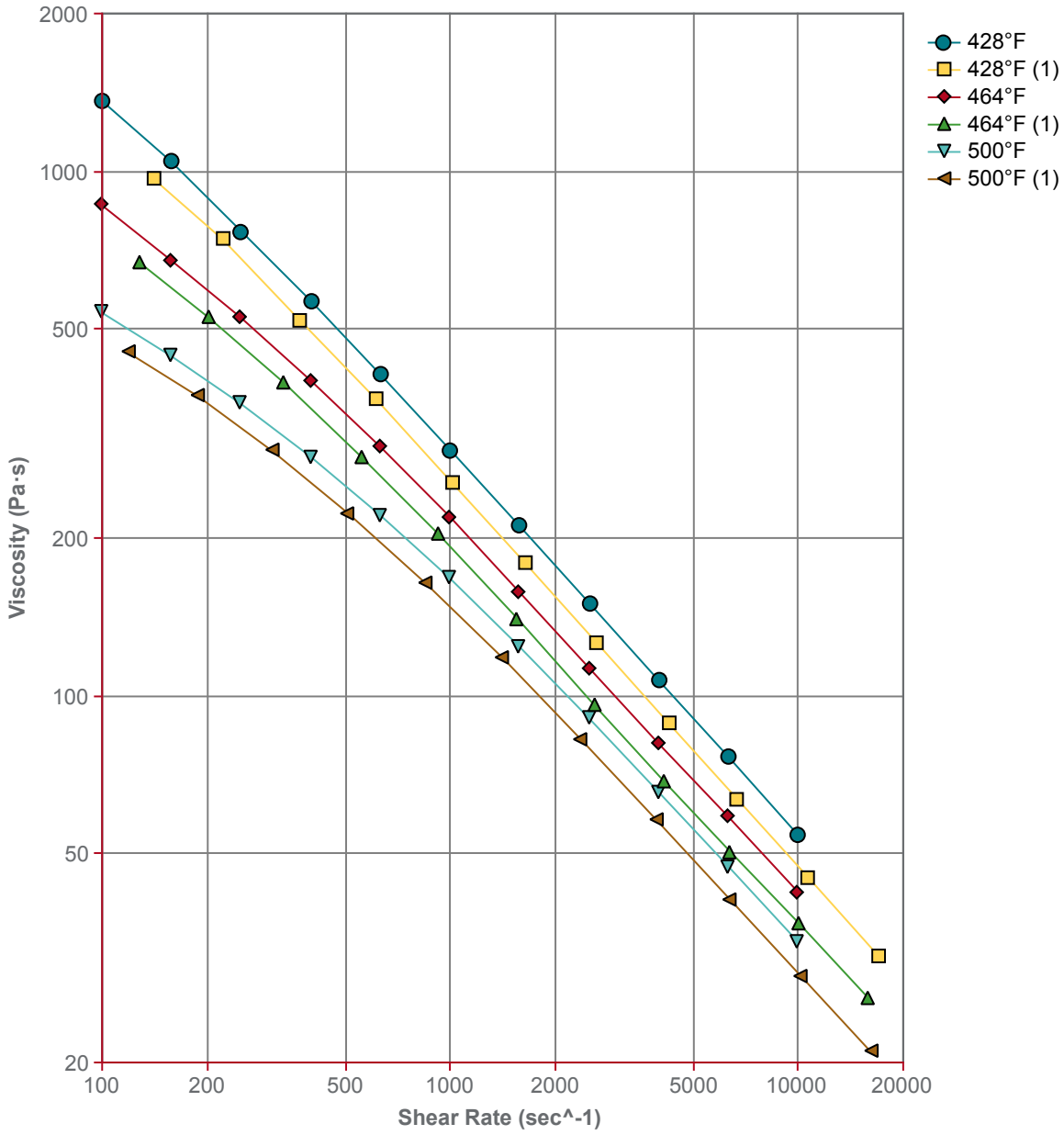
Viscosity vs. Shear Rate (ASTM D3835)



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] 0.051 in/min (1.3 mm/min)

[7] 0.079 in/min (2.0 mm/min)

[8] at Yield

[9] 80*10*4 sp=62mm

[10] 80*10*4 mm

[11] Rate A (50°C/h), Loading 2 (50 N)

[12] Tungsten Electrode

[13] Surface

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