

Technical Data			
Product Description			
Delrin® FG100P NC010	High Viscosity Acetal Homopolymer Developed for Food Contact Applications		
Tenac™ 4010	Tenac™ 4010 是一种聚甲醛 (POM) 均聚物产品,。 它,在北美洲、非洲和中东、欧洲或亚太地区有供货。 Tenac™ 4010 的应用领域包括工程/工业配件、房屋 和 汽车行业。 特性包括: - 阻燃/额定火焰 - 均聚物 - 良好的尺寸稳定性 - 中等粘度		
Delrin® 100P NC010	High Viscosity Acetal Homopolymer with Improved Processing		
General	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010
Manufacturer / Supplier	• DuPont Performance Polymers	• Asahi Kasei Corporation	• DuPont Performance Polymers
Generic Symbol	• 聚甲醛 (POM) 均聚物	• 聚甲醛 (POM) 均聚物	• 聚甲醛 (POM) 均聚物
Material Status	• 已商用 : 当前有效	• 已商用 : 当前有效	• 已商用 : 当前有效
资料 ¹	• Processing - Injection Molding (English) • Typical Processing for DuPont Engineering Polymers (English) • White Paper - Property Advantages of Delrin® Acetal Homopolymer - a guide for design engineers (English)	• Technical Datasheet	• Processing - Injection Molding (English) • Typical Processing for DuPont Engineering Polymers (English) • White Paper - Property Advantages of Delrin® Acetal Homopolymer - a guide for design engineers (English)
UL 黄卡 ²	• E41938-100907458	• E48285-240766	• E41938-257616
搜索 UL 黄卡	• DuPont Performance Polymers • Delrin®	• Asahi Kasei Corporation • Tenac™	• DuPont Performance Polymers • Delrin®
Availability	• 北美洲 • 非洲和中东 • 拉丁美洲 • 欧洲 • 亚太地区	• 北美洲 • 非洲和中东 • 欧洲 • 亚太地区	• 北美洲 • 非洲和中东 • 拉丁美洲 • 欧洲 • 亚太地区
Additive	• 润滑剂 • 脱模	--	• 润滑剂 • 脱模
Features	• 均聚物 • 食品接触的合规性 • 粘度 , 高	• 尺寸稳定性良好 • 均聚物 • 中等粘性	• 均聚物 • 良好的加工性能 • 粘度 , 高



General	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010		
Uses	• 非特定食品应用	• 齿轮 • 工程配件 • 紧固件 • 通用 • 外壳	--		
RoHS Compliance	• 联系制造商	--	• 联系制造商		
Automotive Specifications	--	• VOLKSWAGEN KTHC 909	• ASTM D6778 POM0111 • CHRYSLER MS-DB-100 CPN1565 • FORD WSK-M4D637-A1 • GM GMP.POM.003 • GM GMW19P-POM-H1 • GM GMW19P-POM-H1R • GM QK 005311 • IMDS ID 14075949		
Forms	• 粒子	--	• 粒子		
Processing Method	• 挤出 • 片材挤出成型 • 型材挤出成型 • 注射成型	--	• 挤出 • 片材挤出成型 • 型材挤出成型 • 注射成型		
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Shear Modulus vs. Temperature, Dynamic (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Viscosity vs. Shear Rate (ISO 11403-2)	--	• Isothermal Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Shear Modulus vs. Temperature, Dynamic (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Specific Volume vs Temperature (ISO 11403-2) • Tensile Fatigue (Wöhler) (ISO 11403-2) • Tensile Modulus vs. Temperature (ISO 11403-1) • Viscosity vs. Shear Rate (ISO 11403-2)		
Part Marking Code (ISO 11469)	• POM	--	• POM		
Resin ID (ISO 1043)	• POM	--	• POM		
Physical	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Density / Specific Gravity					
--	--	1.42	--	g/cm³	ASTM D792
--	1.42	1.42	1.42	g/cm³	ISO 1183

Physical	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.5	10	2.5	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	1.90	--	2.10	cm³/10min	ISO 1133
Molding Shrinkage					
流动	--	1.8 到 2.2	--	%	Internal Method
横向流量	2.0	--	1.9	%	ISO 294-4
流量	2.2	--	2.2	%	ISO 294-4
Water Absorption					
24 hr, 23°C, 50% RH	--	0.20	--	%	ASTM D570
饱和, 23°C, 2.00 mm	1.4	--	1.4	%	ISO 62
平衡, 23°C, 2.00 mm, 50% RH	0.30	--	0.30	%	ISO 62
Mechanical	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Tensile Modulus	2900	3200	2850	MPa	ISO 527-2
Tensile Stress					
屈服	70.0	71.0	70.0	MPa	ISO 527-2
--	--	70.0	--	MPa	ASTM D638
Tensile Strain					
屈服	25	--	25	%	ISO 527-2
断裂	--	45	--	%	ASTM D638
断裂	--	40	--	%	ISO 527-2
Nominal Tensile Strain at Break	45	--	45	%	ISO 527-2
Tensile Creep Modulus					ISO 899-1
1 hr	2700	--	2700	MPa	
1000 hr	1500	--	1500	MPa	
Flexural Modulus					
--	--	2900	--	MPa	ASTM D790
--	2600	2900	2850	MPa	ISO 178
Flexural Strength					
--	--	103	--	MPa	ASTM D790
3.5% Strain	74.0	--	77.0	MPa	ISO 178
Poisson's Ratio	0.37	--	0.37		ISO 527
Taber Abrasion Resistance	--	13.0	--	mg	ASTM D1044



Impact	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Charpy Notched Impact Strength					
--	--	10	--	kJ/m²	ISO 179
-30°C	11	--	14	kJ/m²	ISO 179/1eA
23°C	14	--	15	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength					ISO 179/1eU
-30°C	350	--	400	kJ/m²	
23°C	无断裂	--	无断裂		
Notched Izod Impact					
--	--	85	--	J/m	ASTM D256
-40°C	12	--	12	kJ/m²	ISO 180/1A
23°C	14	--	14	kJ/m²	ISO 180/1A
Hardness	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Rockwell Hardness					
M 级	--	94	--		ASTM D785
R 级	--	120	--		ASTM D785
M 计秤	92	--	88		ISO 2039-2
R 计秤	120	--	119		ISO 2039-2
Ball Indentation Hardness (H 358/30)	--	--	173	MPa	ISO 2039-1
Thermal	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Deflection Temperature Under Load					
0.45 MPa, 未退火	--	172	--	°C	ASTM D648
0.45 MPa, 未退火	160	165	155	°C	ISO 75-2/B
1.8 MPa, 未退火	--	136	--	°C	ASTM D648
1.8 MPa, 未退火	93.0	105	95.0	°C	ISO 75-2/A
1.8 MPa, 退火	--	--	110	°C	ISO 75-2/A
Vicat Softening Temperature					
--	--	--	175	°C	ISO 306/A50
--	160	--	160	°C	ISO 306/B50
Melting Temperature ⁴	178	--	178	°C	ISO 11357-3



Thermal	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
CLTE					
流动	--	1.0E-4	--	cm/cm/°C	ASTM D696
流动	1.1E-4	1.0E-4	1.1E-4	cm/cm/°C	ISO 11359-2
流动：-40 到 23°C	--	--	1.0E-4	cm/cm/°C	ISO 11359-2
横向	1.1E-4	--	1.1E-4	cm/cm/°C	ISO 11359-2
横向：-40 到 23°C	--	--	1.0E-4	cm/cm/°C	ISO 11359-2
Specific Heat	--	1470	--	J/kg/°C	No Standard
Thermal Conductivity	--	0.23	--	W/m/K	No Standard
Annealing Time - Optional	--	--	30.0	min/mm	
退火温度	--	--	160	°C	
Electrical	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Surface Resistivity					
--	--	1.0E+16 到 1.0E+17	--	ohms	ASTM D257
--	--	--	2.0E+13	ohms	IEC 62631-3-2
Volume Resistivity					
23°C	--	1.0E+15 到 1.0E+16	--	ohms·cm	ASTM D257
--	--	--	1.0E+12	ohms·m	IEC 62631-3-1
Dielectric Strength					
--	--	18	--	kV/mm	ASTM D149
--	--	--	41	kV/mm	IEC 60243-1
Dielectric Constant					
23°C, 1 MHz	--	3.80	--		ASTM D150
100 Hz	--	--	3.90		IEC 62631-2-1
1 MHz	--	--	3.90		IEC 62631-2-1
Dissipation Factor					
23°C, 1 MHz	--	7.0E-3	--		ASTM D150
100 Hz	--	--	3.5E-3		IEC 62631-2-1
1 MHz	--	--	5.5E-3		IEC 62631-2-1
Arc Resistance	--	250	--	sec	ASTM D495
Comparative Tracking Index	--	--	600	V	IEC 60112



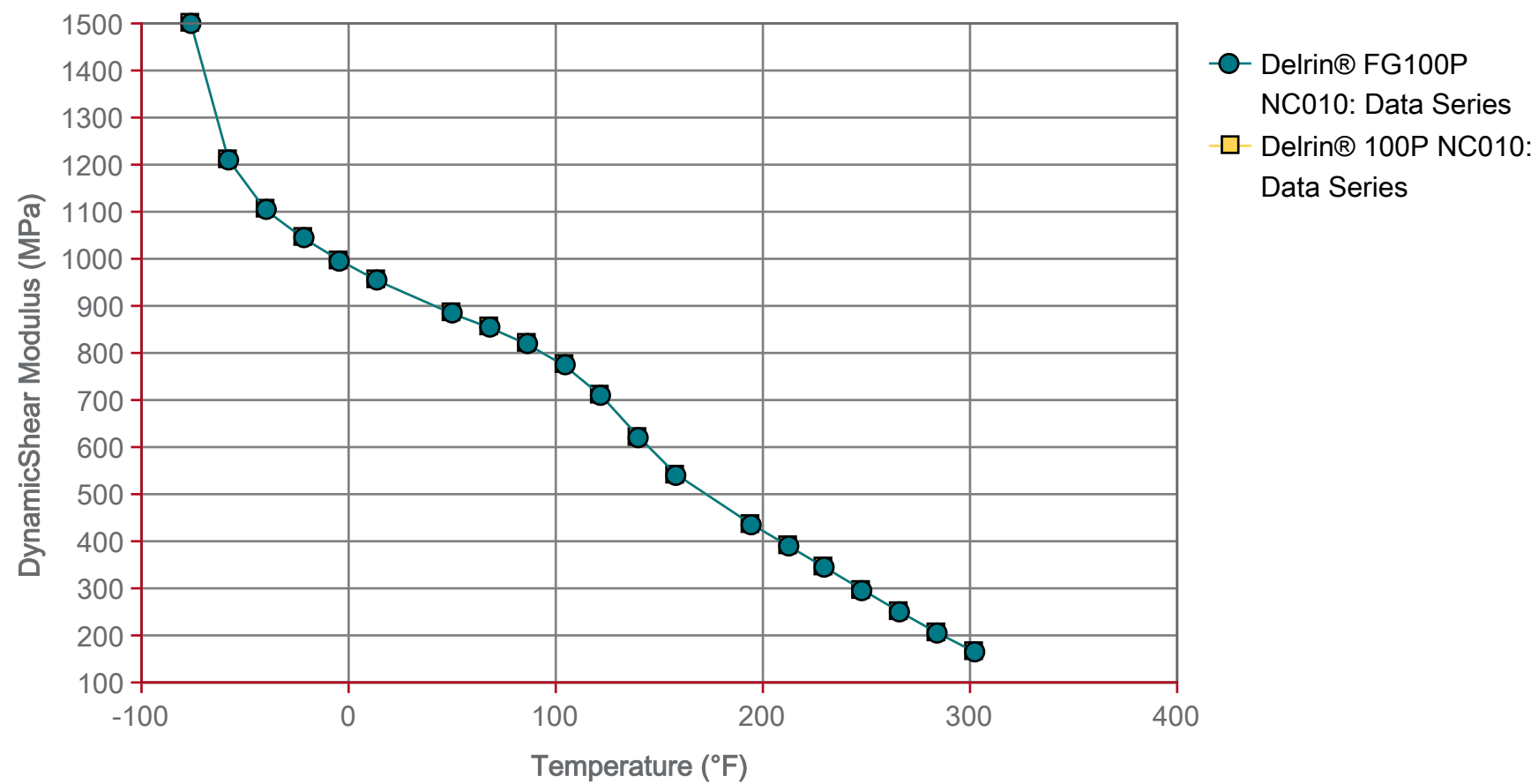
Flammability	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Burning Rate ⁵ (1.00 mm)	--	--	50	mm/min	ISO 3795
Flame Rating					
0.75 mm	HB	--	--		UL 94 IEC 60695-11-10, -20
0.8 mm	--	--	HB		UL 94 IEC 60695-11-10, -20
1.5 mm	HB	HB	HB		UL 94
1.5 mm	HB	--	HB		IEC 60695-11-10, -20
FMVSS 可燃性	B	--	B		FMVSS 302
雾化 - F-value (refraction)	91	--	--	%	ISO 6452
Fill Analysis	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	
Melt Density	--	--	1.19	g/cm³	
Specific Heat Capacity of Melt	--	--	3000	J/kg/°C	
Thermal Conductivity of Melt	--	--	0.22	W/m/K	
Additional Information	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	测试方法
Emission	< 8.00	--	< 8.00	mg/kg	VDA 275
Injection	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制	
Drying Temperature	80	--	80	°C	
Drying Time - 热风干燥机	2.0 到 4.0	--	2.0 到 4.0	hr	
Suggested Max Moisture	0.20	--	0.20	%	
Processing (Melt) Temp	210 到 220	--	210 到 220	°C	
Melt Temperature, Optimum	215	--	215	°C	
Mold Temperature	80 到 100	--	80 到 100	°C	
Mold Temperature, Optimum	80	--	90	°C	
Holding Pressure	90.0 到 110	--	90.0 到 110	MPa	
Drying Recommended	yes	--	yes		
Hold Pressure Time	8.00	--	8.00	s/mm	



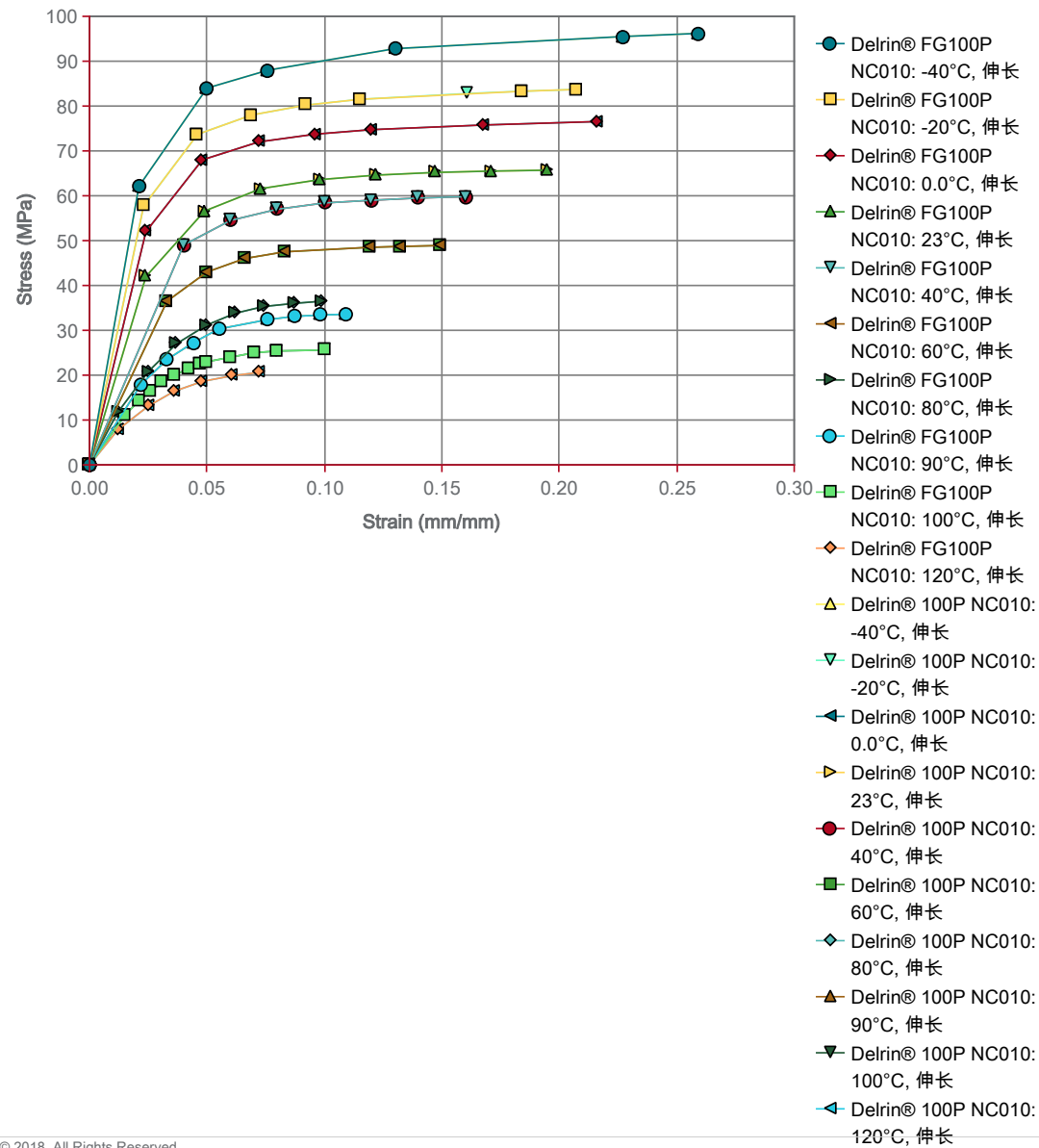
Extrusion	Delrin® FG100P NC010	Tenac™ 4010	Delrin® 100P NC010	单位制
Drying Temperature	75 到 85	--	75 到 85	°C
Drying Time	2.0 到 4.0	--	2.0 到 4.0	hr
Suggested Max Moisture	0.20	--	0.20	%
Melt Temperature	195 到 205	--	195 到 205	°C
Extrusion Melt Temperature, Optimum	200	--	200	°C



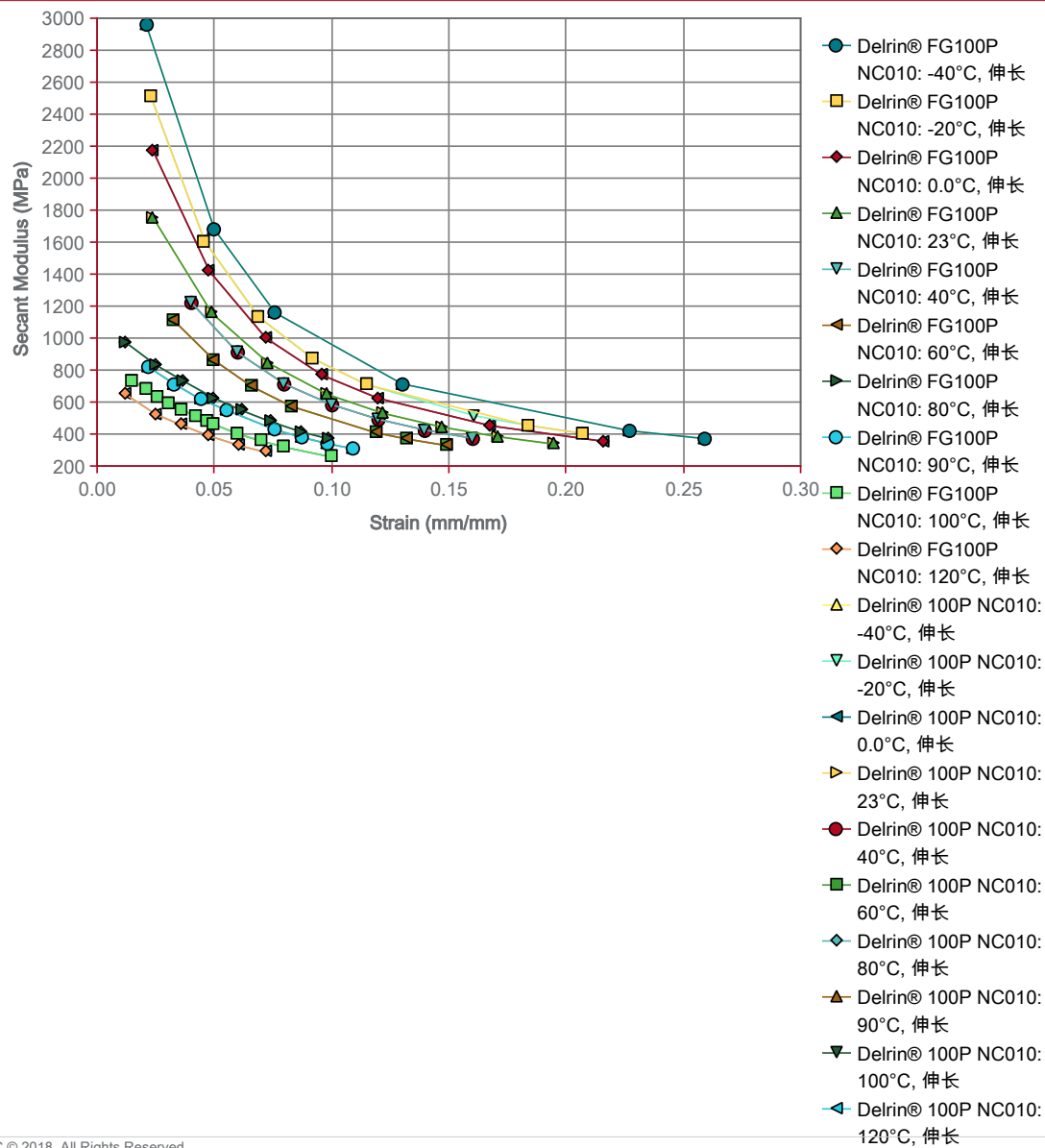
Shear Modulus vs. Temperature, Dynamic (ISO 11403-1)



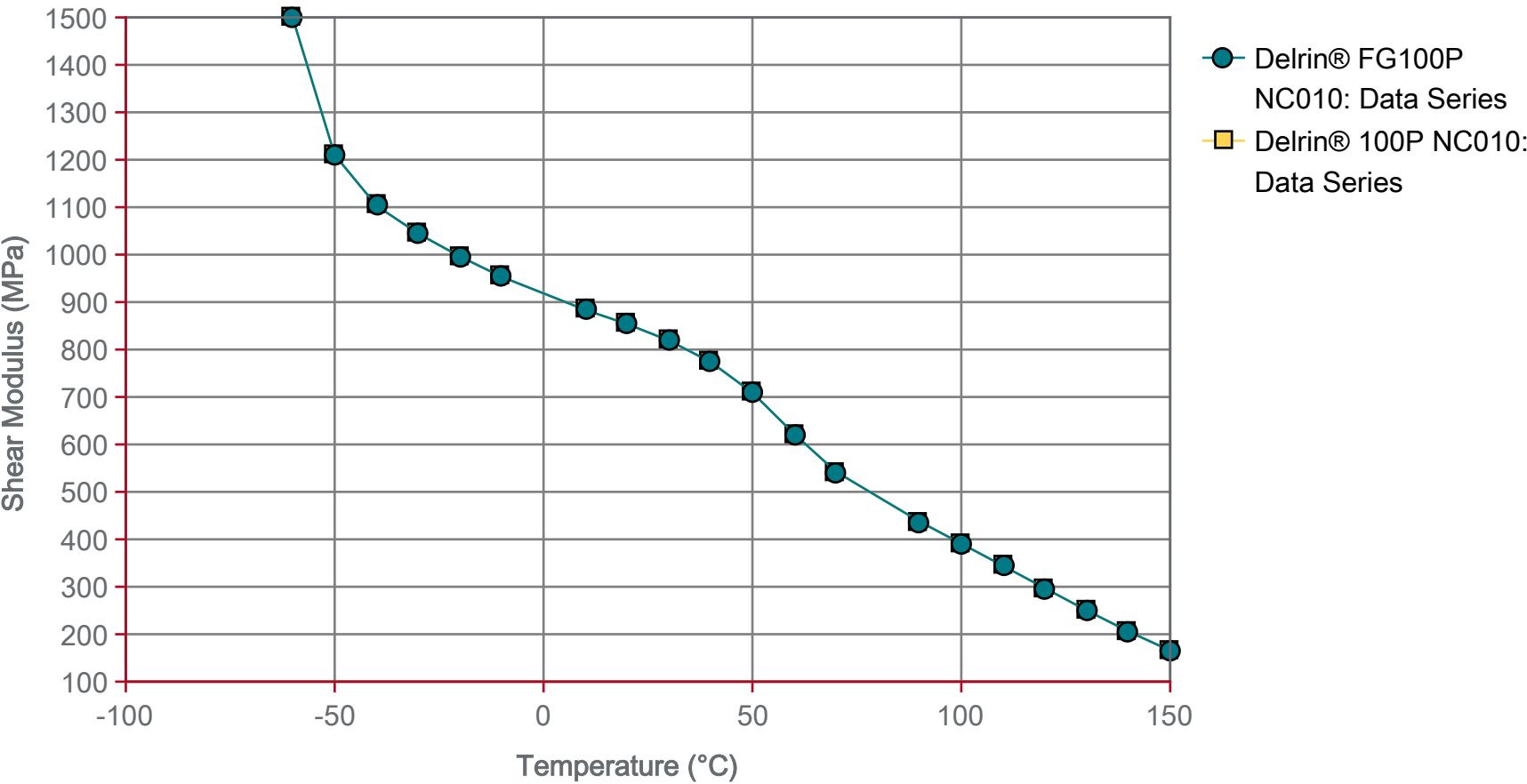
Isothermal Stress vs. Strain (ISO 11403-1)



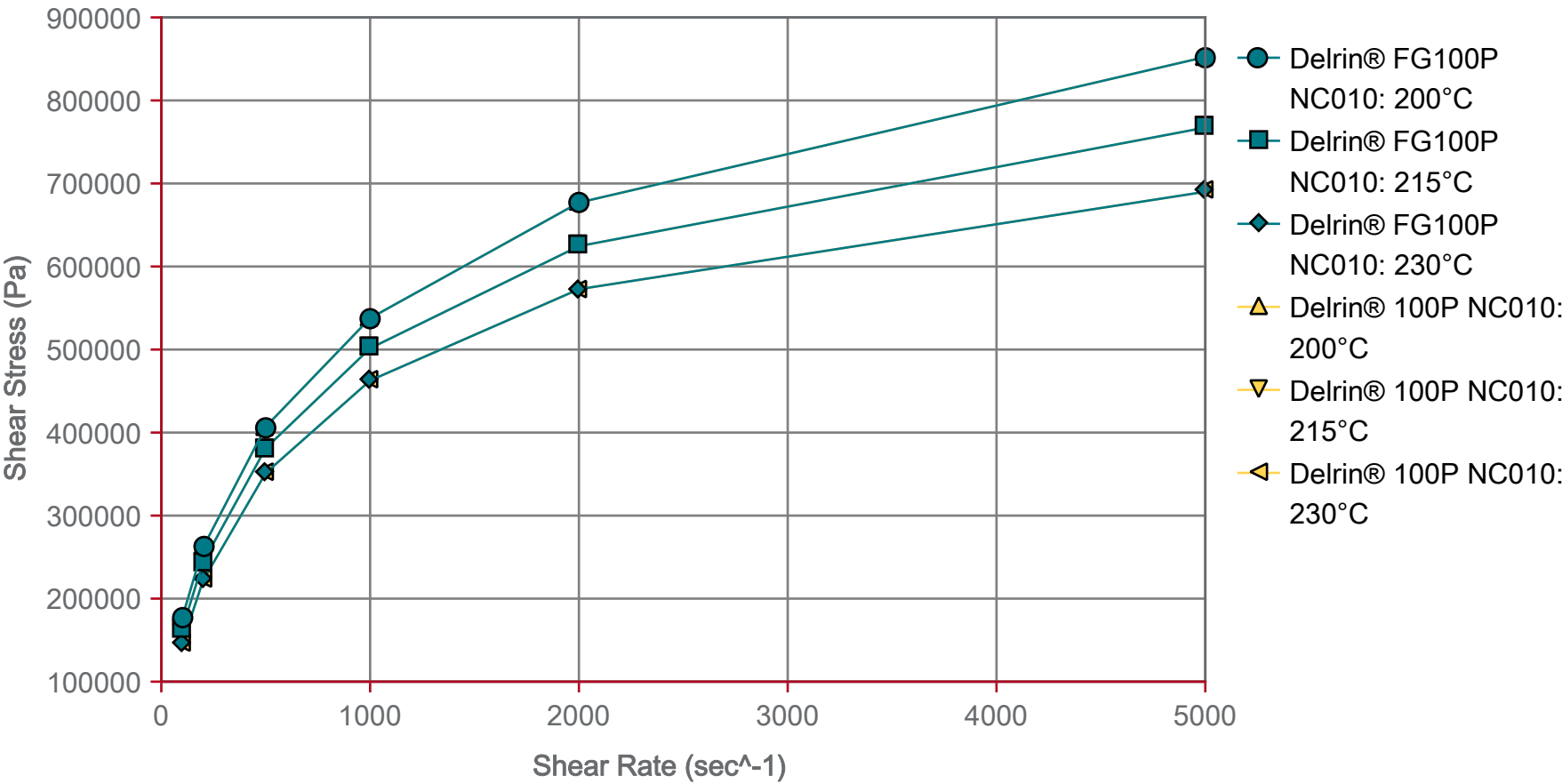
Secant Modulus vs. Strain (ISO 11403-1)



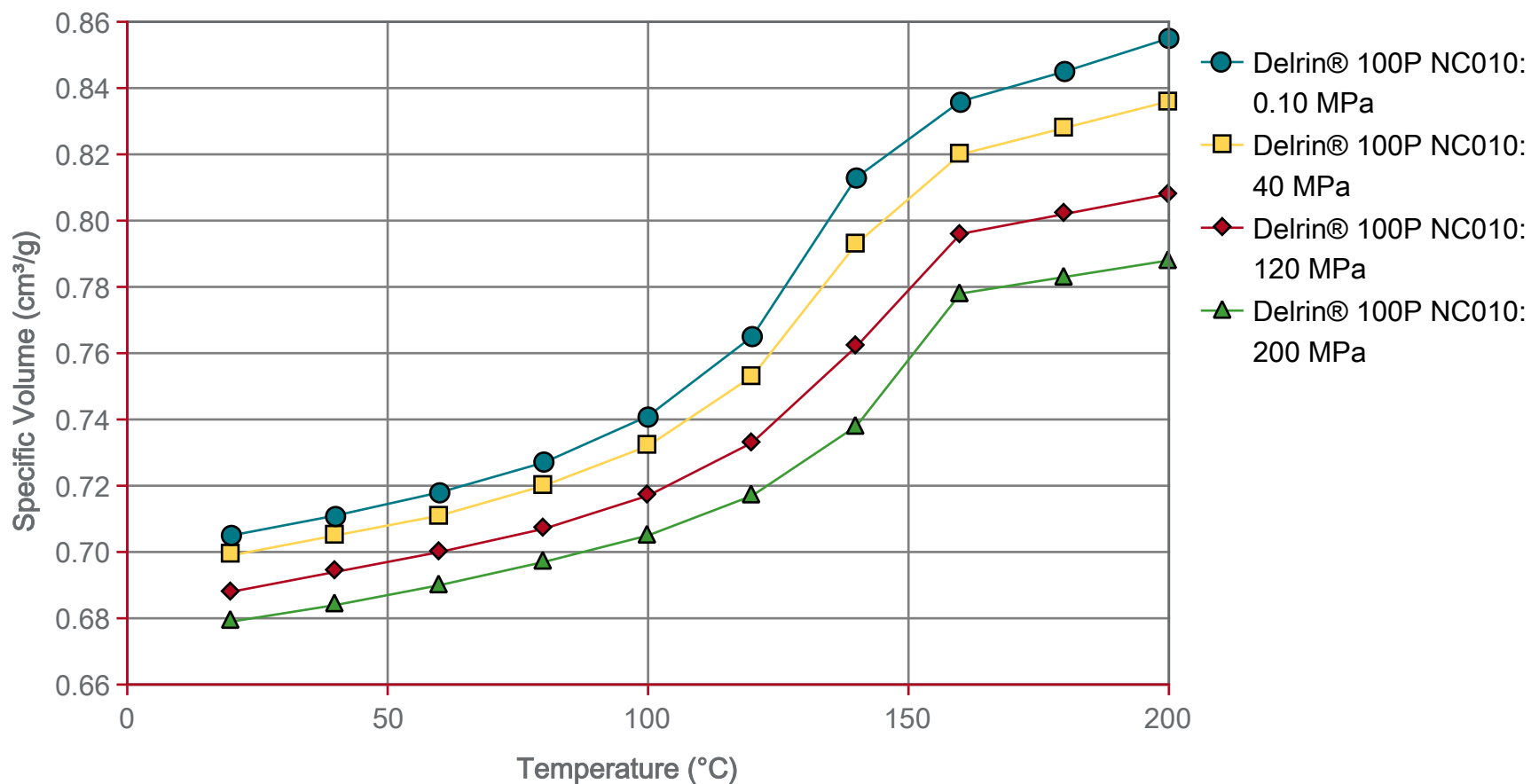
Shear Modulus vs. Temperature (ISO 11403-1)



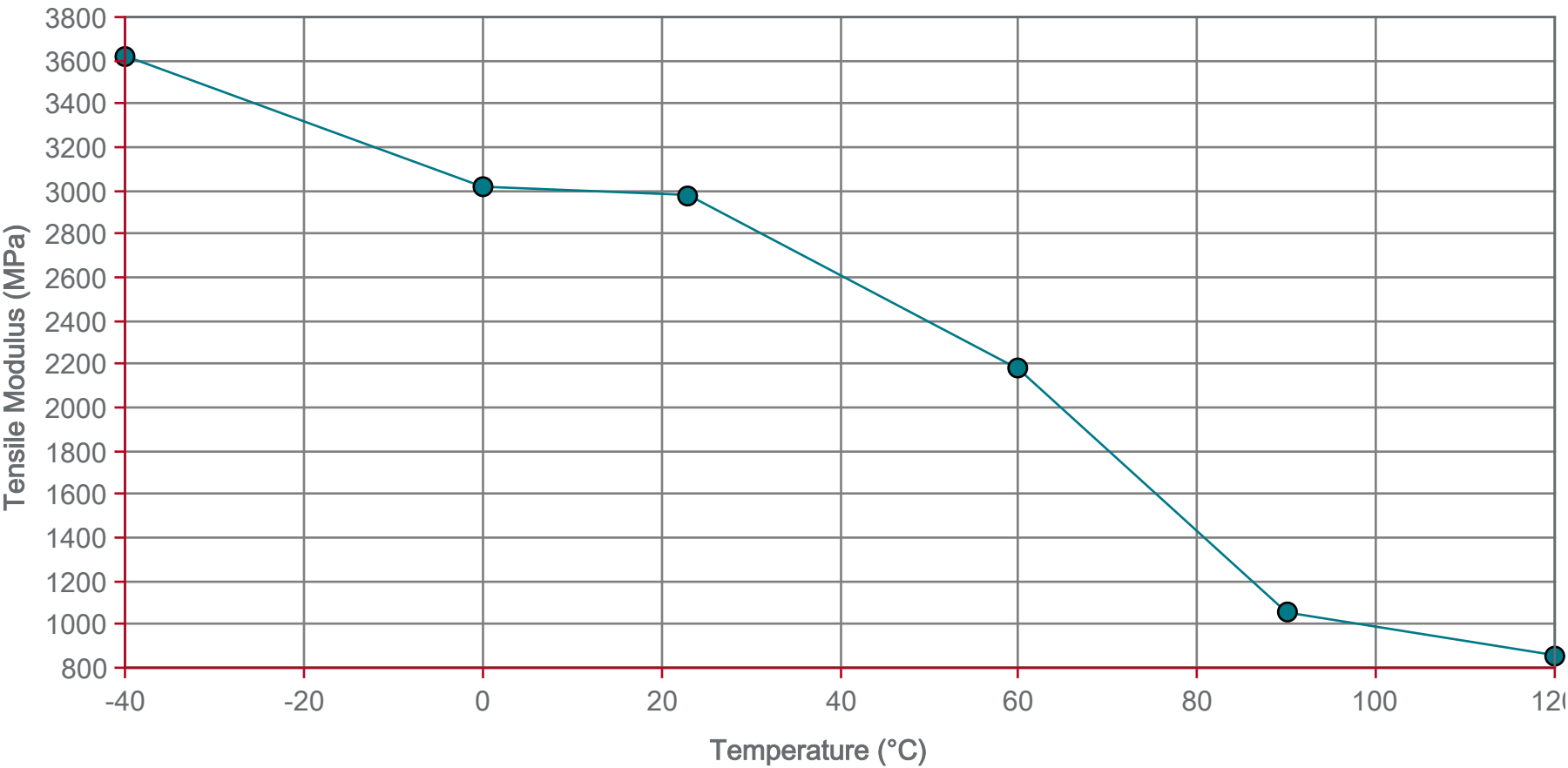
Shear Stress vs. Shear Rate (ISO 11403-1)



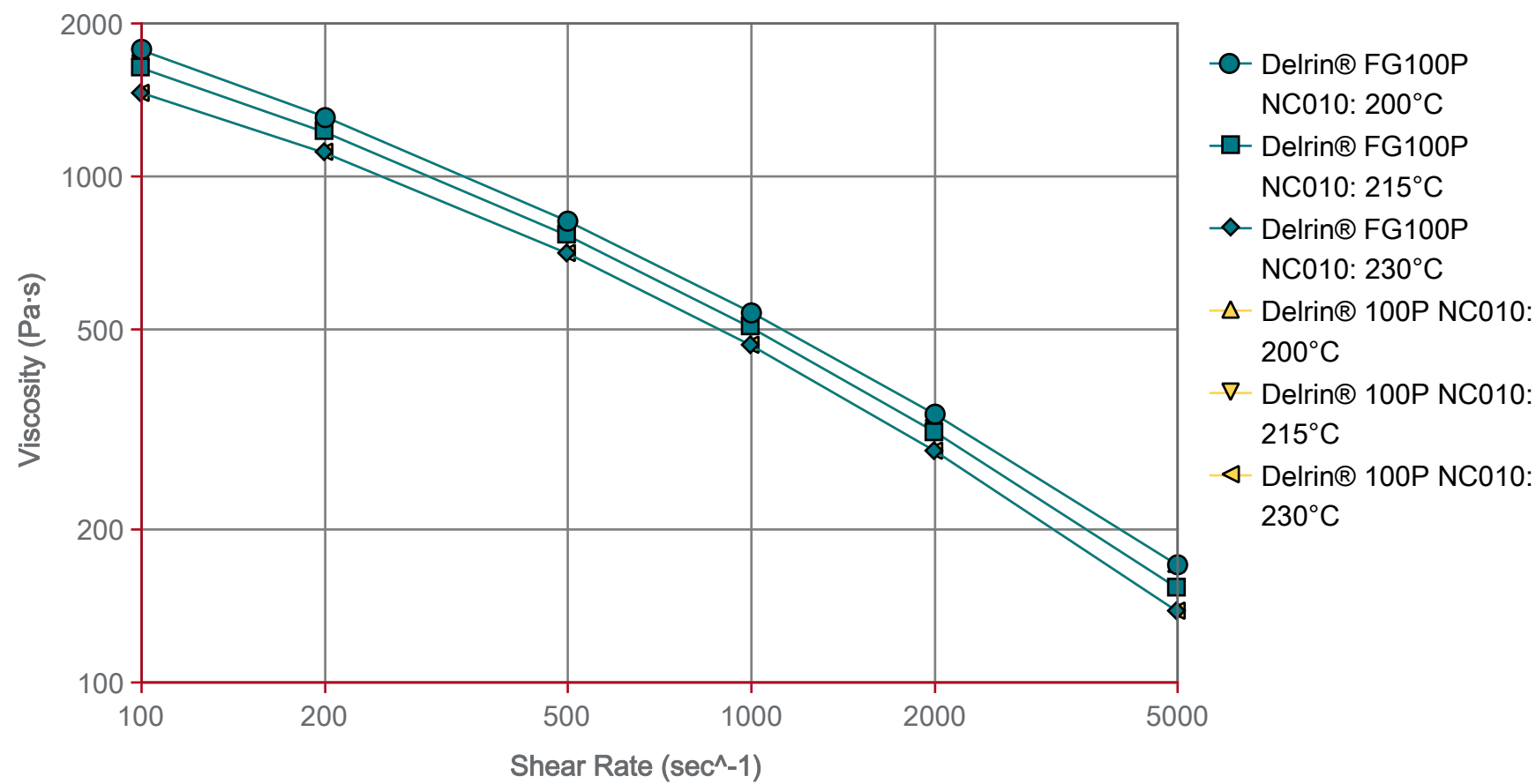
Specific Volume vs Temperature (ISO 11403-2)



Tensile Modulus vs. Temperature (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



备注

- ¹ 通过这些链接您能够访问供应商资料。我们尽量保证及时更新资料；不过您可以从供应商处了解最新资料。
- ² UL 黄卡含有 UL 验证的易燃性和电气特性。UL Prospector 持续努力在 Prospector 中将黄卡链接至单个塑料材料，然而此列表可能未包括所有相应链接。重要的是，我们对 Prospector 中找到的这些黄卡和塑料材料之间的关联进行验证。如需完整的黄卡列表，请访问 UL 黄卡搜索。
- ³ 一般属性：这些不能被视为规格。
- ⁴ 10°C/min
- ⁵ FMVSS 302



购买地点	
供应商	
Delrin® FG100P NC010	DuPont Performance Polymers Wilmington, DE USA 电话: 302-999-4592 Web: http://plastics.dupont.com/
Tenac™ 4010	Asahi Kasei Corporation Web: https://www.akchem.com/en/contact/
Delrin® 100P NC010	DuPont Performance Polymers Wilmington, DE USA 电话: 302-999-4592 Web: http://plastics.dupont.com/



分销商

Delrin® FG100P NC010

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Delrin® FG100P NC010

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