



Delrin® 500P NC010

ACETAL RESIN

Delrin®聚甲醛树脂的共性包括优异的机械性能和物理性能比如高机械强度和刚性，优异的耐疲劳性能和抗冲击性，同时具有突出的耐潮湿、汽油、润滑剂、溶剂和多种其他中性化学品。Delrin®聚甲醛树脂还具有优良尺寸稳定性和良好的电绝缘性能，具有天然弹性、自润滑，可制成多种颜色和特殊规格。

Delrin®聚甲醛树脂通常应用于具有严苛要求的汽车、家用电器、运动、工业工程、电子和消费品工业。

Delrin® 500P NC010是一种中等粘度均聚甲醛具有很好的加工性能

总说明

树脂鉴别	POM	ISO 1043
制品标识码	>POM<	ISO 11469

流变性能

熔体体积流动速度, MVR	13 cm ³ /10min	ISO 1133
熔体质量流动速率	15 g/10min	ISO 1133
温度	190 °C	ISO 1133
负荷	2.16 kg	ISO 1133
熔体质量流率, 温度	190 °C	ISO 1133
熔体质量流率, 载荷	2.16 kg	ISO 1133
模塑收缩率, 平行	2.0 %	ISO 294-4, 2577
模塑收缩率, 垂直	1.9 %	ISO 294-4, 2577

机械性能

拉伸模量	3100 MPa	ISO 527-1/-2
屈服应力	71 MPa	ISO 527-1/-2
屈服伸长率	17 %	ISO 527-1/-2
名义断裂伸长率	30 %	ISO 527-1/-2
弯曲模量	3000 MPa	ISO 178
弯曲应力 (3.5%应变)	80 MPa	ISO 178
拉伸蠕变模量, 1h	2800 MPa	ISO 899-1
拉伸蠕变模量, 1000h	1600 MPa	ISO 899-1
简支梁无缺口冲击强度, +23°C	300 kJ/m ²	ISO 179/1eU
简支梁无缺口冲击强度, -30°C	280 kJ/m ²	ISO 179/1eU
简支梁缺口冲击强度, +23°C	9 kJ/m ²	ISO 179/1eA
简支梁缺口冲击强度, -30°C	8 kJ/m ²	ISO 179/1eA
简支梁缺口冲击强度, -40°C	8 kJ/m ²	ISO 179/1eA
冲孔大力, +23°C	2000 N	ISO 6603-2
冲孔功, +23°C	3 J	ISO 6603-2
悬臂梁缺口冲击强度, 23°C	9 kJ/m ²	ISO 180/1A
悬臂梁缺口冲击强度, -30°C	8 kJ/m ²	ISO 180/1A
无缺口悬臂梁冲击强度, 23°C	280 kJ/m ²	ISO 180/1U
无缺口悬臂梁冲击强度, -30°C	250 kJ/m ²	ISO 180/1U



Delrin[®] 500P NC010

ACETAL RESIN

洛氏硬度	92 -	ISO 2039-2
洛氏硬度, Rockwell	120 -	ISO 2039-2
球压痕硬度	192 MPa	ISO 2039-1
球压痕硬度	170 MPa	ISO 2039-1
Poisson's ratio	0.37 -	

热性能

熔融温度, 10°C/min	178 °C	ISO 11357-1/-3
热变形温度, 1.80 MPa	93 °C	ISO 75-1/-2
热变形温度	110 °C	ISO 75-1/-2
热变形温度, 0.45 MPa	160 °C	ISO 75-1/-2
维卡软化温度, 50°C/h 50N	155 °C	ISO 306
球压测试	165 °C	IEC 60695-10-2
线膨胀系数, 平行	100 E-6/K	ISO 11359-1/-2
线膨胀系数, 垂直	100 E-6/K	ISO 11359-1/-2
熔体	0.24 W/(m K)	
有效导热率 ^a	9.0E-8 m ² /s	
相对温度指数, 电气性能, 0.75mm	50 °C	UL 746B
相对温度指数, 电气性能, 1.5mm	110 °C	UL 746B
相对温度指数, 电气性能, 3mm	110 °C	UL 746B
相对温度指数, 冲击, 0.75mm	50 °C	UL 746B
相对温度指数, 冲击, 1.5mm	85 °C	UL 746B
相对温度指数, 冲击, 3mm	90 °C	UL 746B
相对温度指数, 强度, 0.75mm	50 °C	UL 746B
相对温度指数, 强度, 1.5mm	90 °C	UL 746B
相对温度指数, 强度, 3mm	95 °C	UL 746B

燃烧性能

1.5mm名义厚度时的燃烧性	HB class	IEC 60695-11-10
测试用试样的厚度	1.5 mm	IEC 60695-11-10
UL注册	yes -	UL 94
厚度为h时的燃烧性	HB class	IEC 60695-11-10
测试用试样的厚度	0.8 mm	IEC 60695-11-10
UL注册	yes -	UL 94
燃烧性 - 氧指数	22 %	ISO 4589-1/-2
灼热丝燃烧指数, 1mm	550 °C	IEC 60695-2-12
灼热丝燃烧指数, 2mm	550 °C	IEC 60695-2-12
灼热丝燃烧指数, 3mm	550 °C	IEC 60695-2-12
FMVSS Class	B -	ISO 3795 (FMVSS 302)
燃烧速率, 厚度: 1毫米	20 mm/min	ISO 3795 (FMVSS 302)

Delrin[®] 500P NC010

ACETAL RESIN

电性能

相对介电常数., 100Hz	3.8 -	IEC 62631-2-1
相对介电常数., 1MHz	3.8 -	IEC 62631-2-1
介质损耗因子, 100Hz	90 E-4	IEC 62631-2-1
介质损耗因子, 1MHz	90 E-4	IEC 62631-2-1
体积电阻率	2E12 Ohm.m	IEC 62631-3-1
表面电阻率	4E14 Ohm	IEC 62631-3-2
介电强度	44 kV/mm	IEC 60243-1
相对漏电起痕指数	600 -	IEC 60112
相对介电常数., 2.5 GHz	3.1 -	IEC 61189-2-721
介质损耗因子, 2.5 GHz	430 E-4	IEC 61189-2-721

其它性能

吸湿性, 2mm	0.2 %	类似ISO 62
吸水性, 2mm	1.3 %	类似ISO 62
密度	1420 kg/m ³	ISO 1183
熔体密度	1190 kg/m ³	

VDA性能

甲醛散发	<8 ^[1] mg/kg	VDA 275
雾化	90 %	ISO 6452
雾化	0.35 mg	ISO 6452
[1]: <5		

注塑

建议干燥	是
干燥温度	80 °C
干燥时间, 除湿干燥机	2 - 4 h
加工前水分含量	≤0.2 %
好的熔体温度	215 °C
注塑 熔体温度	210 °C
注塑 熔体温度	220 °C
螺杆大的切线速度	0.3 m/s
好的模具温度	90 °C
模具温度	80 °C
模具温度	100 °C
保压范围	80 - 100 MPa
保压时间	8 s/mm
回火时间, 可选	30 min/mm
回火温度	160 °C



Delrin[®] 500P NC010

ACETAL RESIN

典型数据

添加剂

脱模助剂

成型

注塑

Drying is recommended, but not necessary for newly opened packaging stored in a dry location.

Follow the drying guidelines above in the following cases:

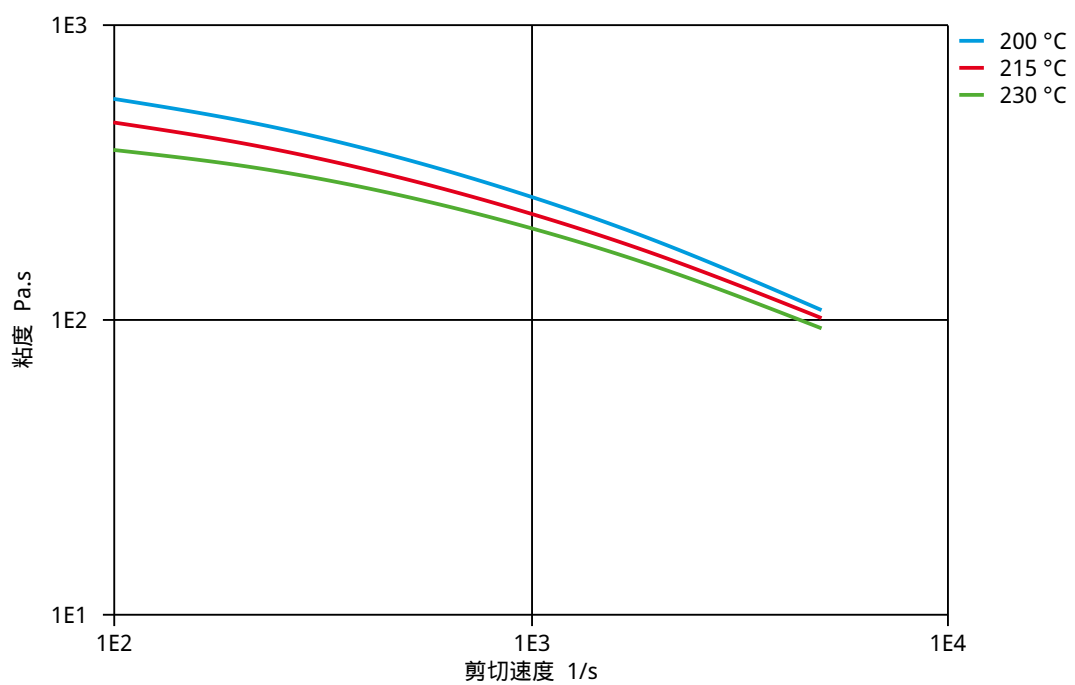
- If moisture is above the Processing Moisture Content recommendation,
- When a resin container is damaged,
- When the material is not properly stored in a dry place at room temperature, or
- When packaging stays open for a significant time.



Delrin[®] 500P NC010

ACETAL RESIN

粘度 - 剪切速度

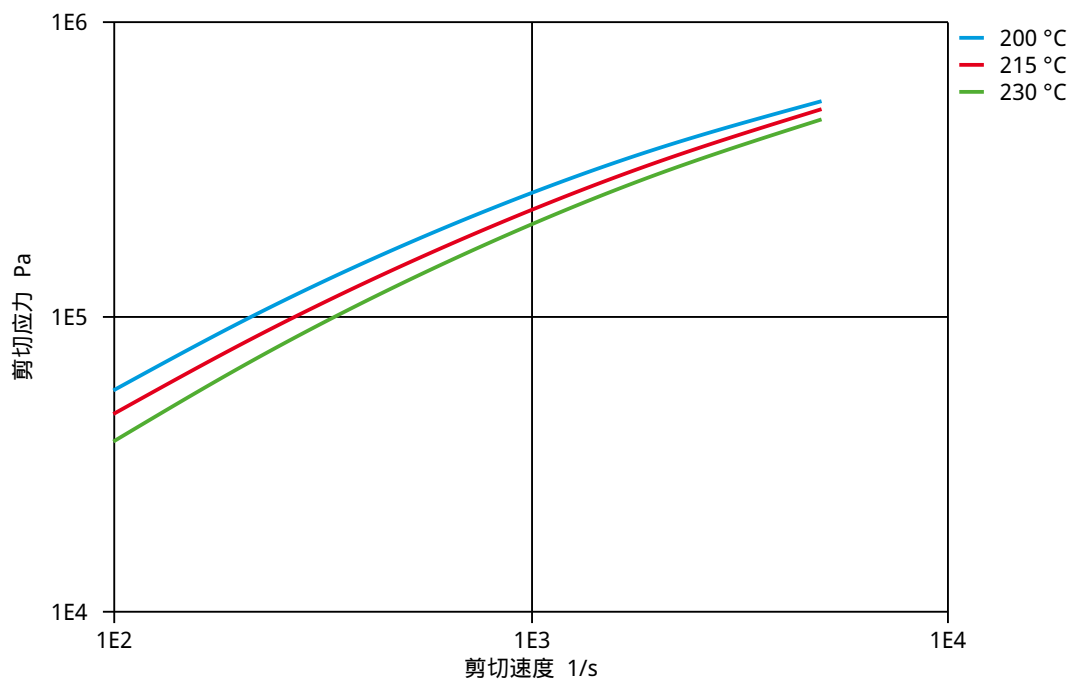




Delrin[®] 500P NC010

ACETAL RESIN

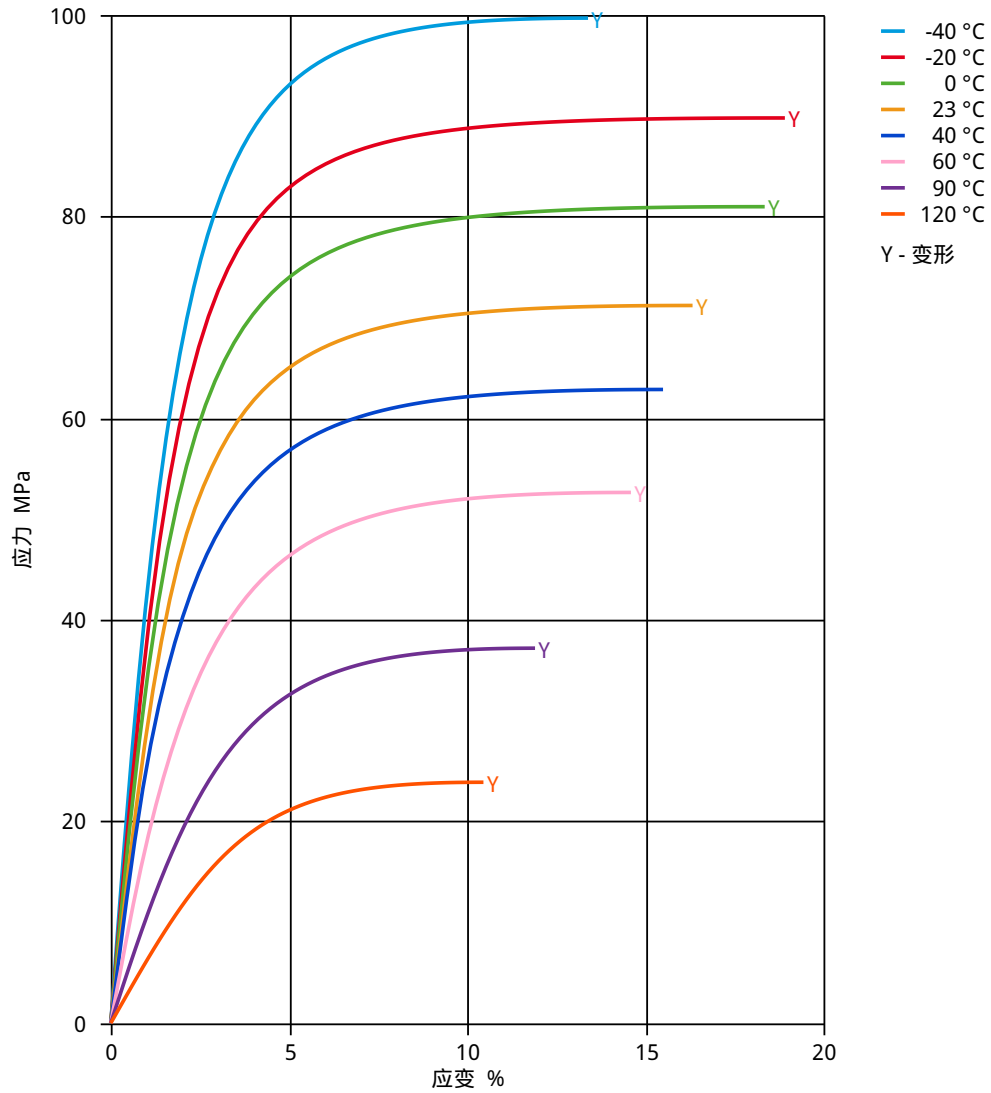
剪切应力 - 剪切速度



Delrin[®] 500P NC010

ACETAL RESIN

应力 - 应变.

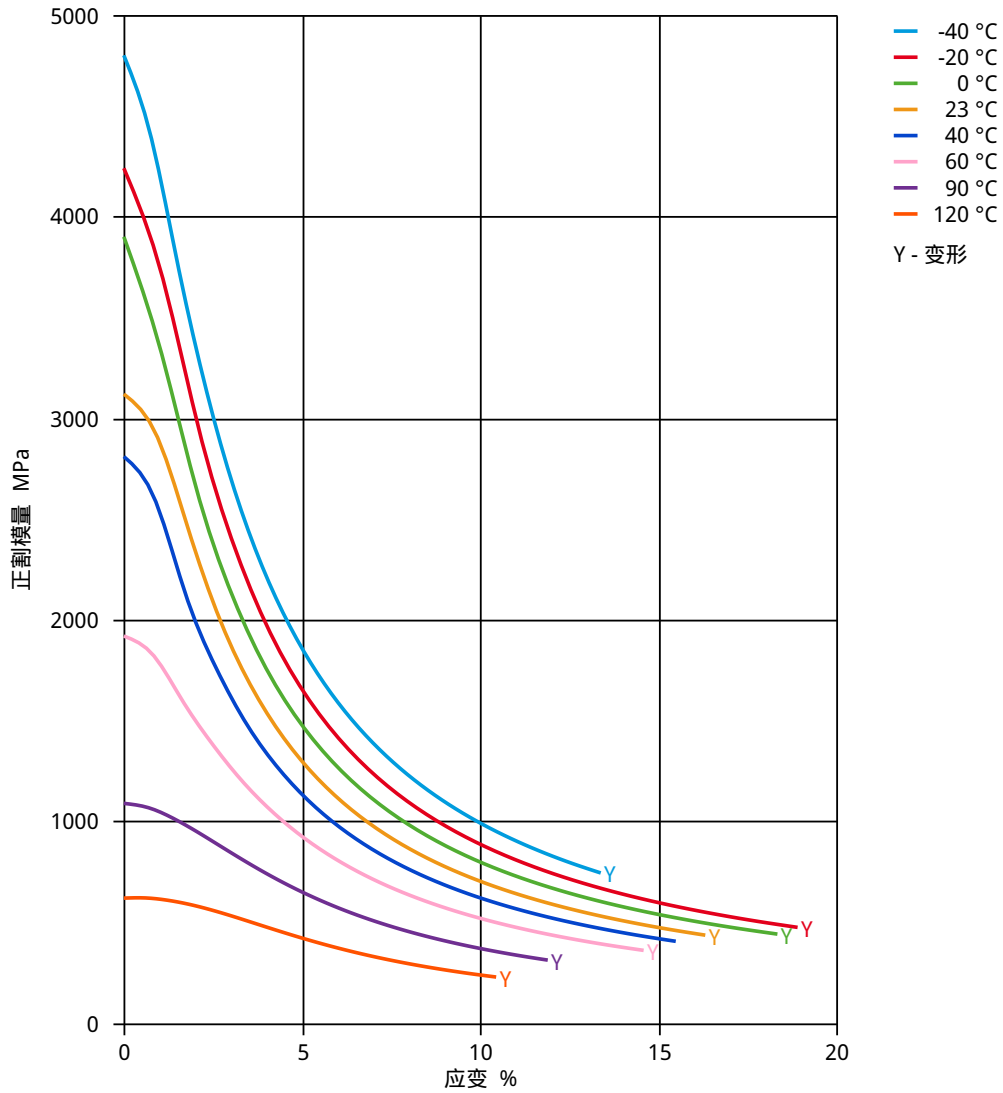




Delrin[®] 500P NC010

ACETAL RESIN

正割模量 - 应变.

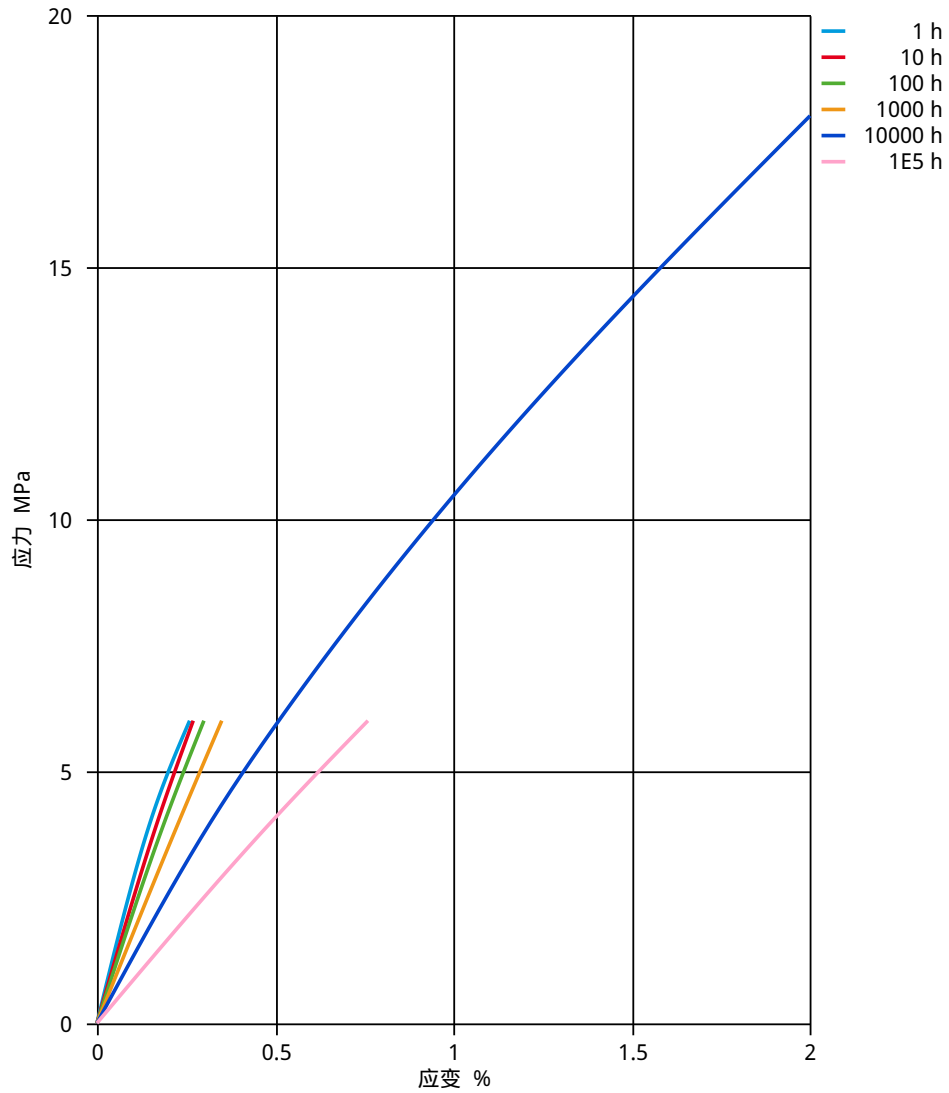




Delrin[®] 500P NC010

ACETAL RESIN

应力 - 应变(等时的) 23°C

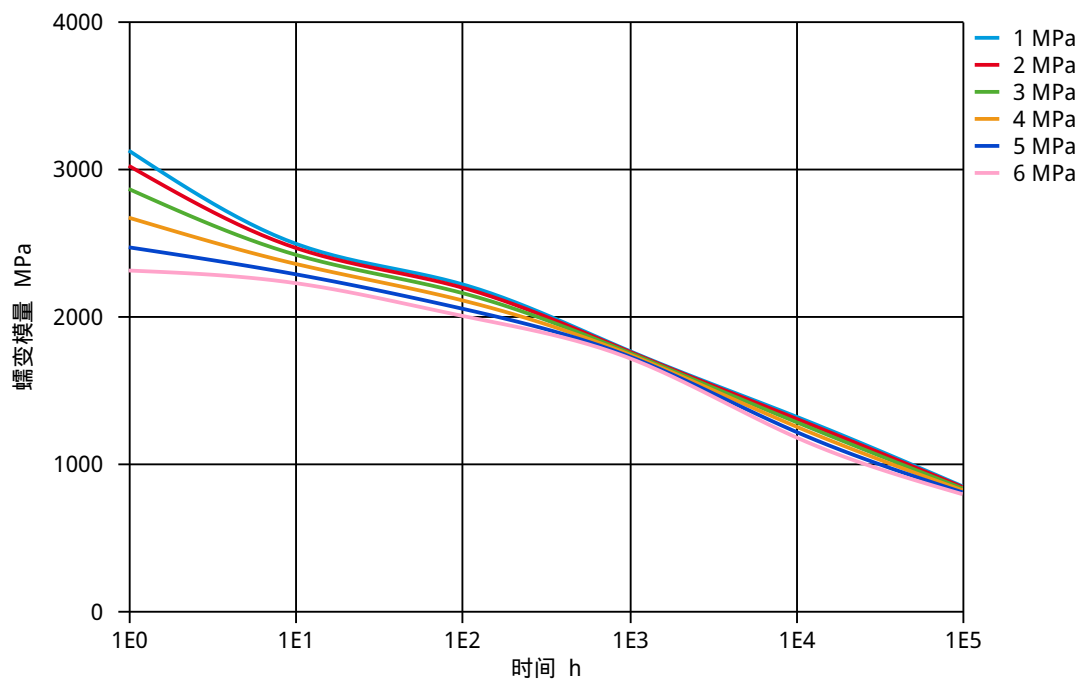




Delrin[®] 500P NC010

ACETAL RESIN

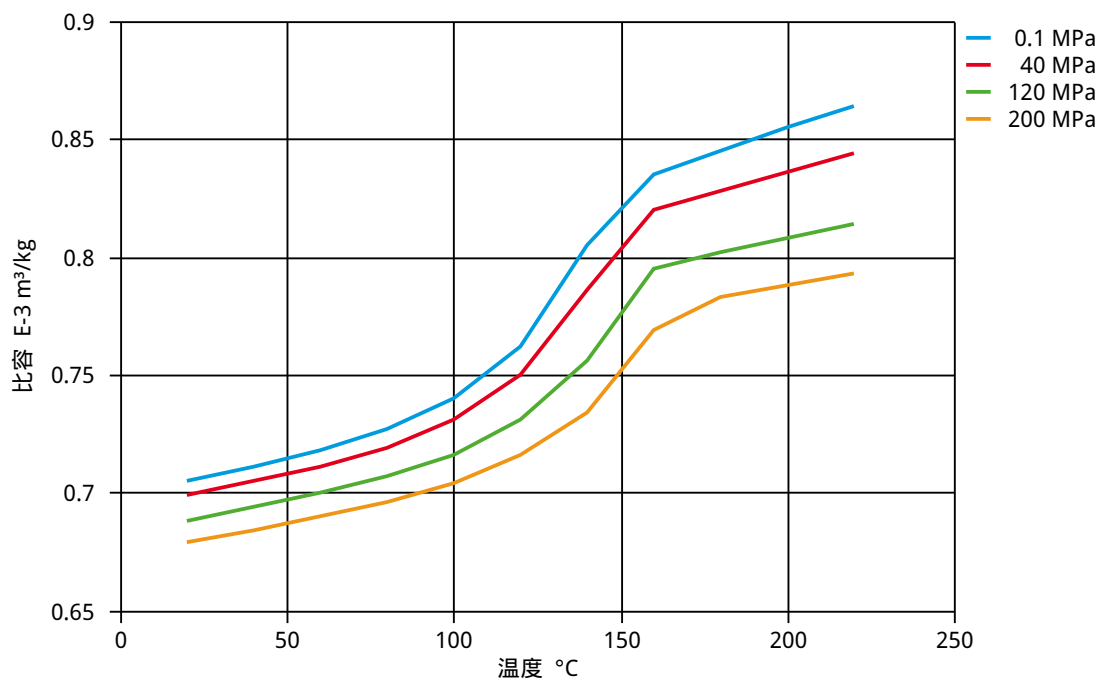
蠕变模量 - 时间. 23°C



Delrin[®] 500P NC010

ACETAL RESIN

比容 - 温度(pvT)

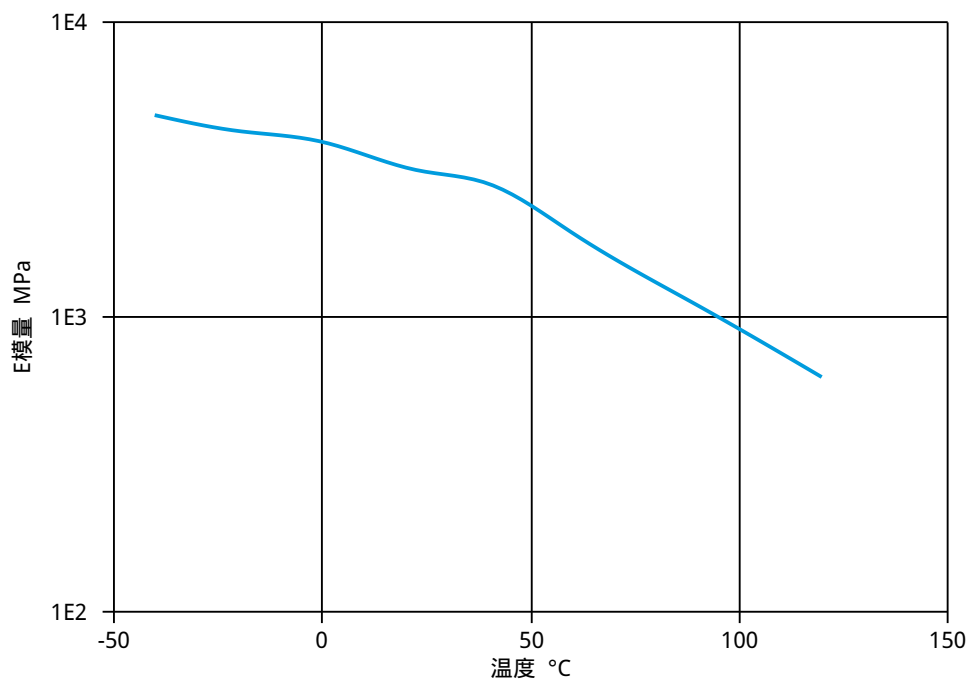




Delrin[®] 500P NC010

ACETAL RESIN

拉伸模量 - 温度



Delrin[®] 500P NC010

ACETAL RESIN

耐化学性

酸类

- ✓ 醋酸 (5g/100g), 23°C
- ✗ 柠檬酸溶液 (10g/100g), 23°C
- ✗ 乳酸 (10g/100g), 23°C
- ✗ 盐酸 (36g/100g), 23°C
- ✗ 硝酸 (40g/100g), 23°C
- ✗ 硫酸 (38g/100g), 23°C
- ✗ 硫酸 (5g/100g), 23°C
- ✗ 铬酸溶液 (40g/100g), 23°C

碱类

- ✗ 氢氧化钠溶液 (35g/100g), 23°C
- ✗ 氢氧化钠溶液 (1g/100g), 23°C
- ✗ 氨水(氢氧化铵) (10g/100g), 23°C

醇类

- ✓ 异丙醇, 23°C
- ✓ 甲醇, 23°C
- ✓ 乙醇, 23°C

碳氢化合物

- ✓ n-乙烷, 23°C
- ✓ 甲苯, 23°C
- ✓ 异辛烷, 23°C

酮类

- ✓ 丙酮, 23°C

醚类

- ✓ (二)乙醚, 23°C

矿物油

- ✓ SAE 10W40号多效润滑油, 23°C
- ✗ SAE 10W40号多效润滑油, 130°C
- ✗ SAE 89/90号变速箱润滑油, 130°C
- ✓ 绝缘油, 23°C

标准燃油

- ✓ ISO 1817 燃油1号, 60°C
- ✓ ISO 1817 燃油2号, 60°C
- ✓ ISO 1817 燃油3号, 60°C
- ✓ ISO 1817 燃油4号, 60°C
- ✓ 不含酒精的标准燃油(优先使用C类ISO 1817 燃油), 23°C
- ✓ 含酒精的标准燃油(优先使用4号ISO 1817 燃油), 23°C
- ✓ 柴油(优先使用F类ISO 1817液体), 23°C
- ✗ 柴油(优先使用F类ISO 1817液体), 90°C
- ✗ 柴油(优先使用F类ISO 1817液体), >90°C

Delrin[®] 500P NC010

ACETAL RESIN

✗ 柴油EN590, 100°C

盐溶液

- ✓ 氯化钠溶液(10g/100g), 23°C
- ✗ 次氯化钠溶液 (10g/100g), 23°C
- ✗ 碳酸钠溶液 (20g/100g), 23°C
- ✗ 碳酸钠溶液 (2g/100g), 23°C
- ✗ 氯化锌溶液 (50g/100g), 23°C

其它

- ✓ 乙酸乙酯, 23°C
- ✗ 过氧化氢, 23°C
- ✗ DOT4号刹车油, 130°C
- ✗ 乙二醇水溶液 (50g/100g), 108°C
- ✓ 1g/100g 基苯氧- 聚环氧乙烷乙烯水溶液, 23°C
- ✓ 油酸 (50g/100g) + 橄榄油 (50g/100g), 23°C
- ✓ 水, 23°C
- ✗ 去离子水, 90°C
- ✗ 酚溶液(5g/100g), 23°C

Symbols used:

- ✓ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

The information set forth herein is furnished free of charge, is based on technical data that DuPont believes to be reliable, and represents typical values that fall within the normal range of properties. This information relates only to the specific material designated and may not be valid for such material used in combination with other materials or in other processes. It is intended for use by persons having technical skill, at their own discretion and risk. This information should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards and comply with applicable law. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

CAUTION: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract or other acknowledgement that is consistent with the DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative.

DuPont's sole warranty is that our products will meet our standard sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DUPONT SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR NON-INFRINGEMENT. DUPONT DISCLAIMS LIABILITY FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.