

Zytel® 103HSL NC010

NYLON RESIN

Zytel® 尼龙树脂的共性包括良好的机械和物理性能，例如高机械强度，刚性和韧性之间良好的平衡，良好的高温性能、电性能和阻燃性能，优异的耐磨损和耐化学品性能。另外，Zytel®

尼龙树脂有不同改性和增强规格为特殊加工和终端客户提供定制的性能。Zytel®

尼龙树脂，包括大多数阻燃规格，提供了染色可能性。

Zytel® 尼龙树脂良好的热稳定性通常使正确处理的生产废弃物回收成为可能。如果不能回收使用，杜邦建议的优先选择是在合适的装置中焚烧进行能量回收（基体树脂-31kJ/g）。废弃处理需遵守当地法规。

Zytel® 尼龙树脂通常应用于要求严苛的汽车、家具、家用电器、运动器材和建筑业。

Zytel® 103HSL NC010是一种未增强, 热稳定, 尼龙66

总说明

树脂鉴别	PA66	ISO 1043
制品标识码	>PA66<	ISO 11469
ISO名称	ISO 16396-PA66,,M1G1HNR,S14-030	

流变性能

	dry/cond.		
粘数.	150/* ^[1]	cm ³ /g	ISO 307, 1157, 1628
模塑收缩率, 平行	1.3/-	%	ISO 294-4, 2577
模塑收缩率, 垂直	1.3/-	%	ISO 294-4, 2577

[1]: Sulfuric acid 96%

机械性能

	dry/cond.		
拉伸模量	3100/1400	MPa	ISO 527-1/-2
屈服应力	85/55	MPa	ISO 527-1/-2
屈服伸长率	4.5/25	%	ISO 527-1/-2
名义断裂伸长率	20/>50	%	ISO 527-1/-2
断裂伸长率	40/-	%	ISO 527-1/-2
弯曲模量	2800/1300 ^[DS]	MPa	ISO 178
弯曲应力 (3.5%应变)	95/65	MPa	ISO 178
拉伸蠕变模量, 1h	*/1200	MPa	ISO 899-1
拉伸蠕变模量, 1000h	*/650	MPa	ISO 899-1
简支梁无缺口冲击强度, +23°C	N/N	kJ/m ²	ISO 179/1eU
简支梁无缺口冲击强度, -30°C	400/N	kJ/m ²	ISO 179/1eU
简支梁缺口冲击强度, +23°C	5.5/12	kJ/m ²	ISO 179/1eA
简支梁缺口冲击强度, -30°C	4.5/3.5	kJ/m ²	ISO 179/1eA
简支梁缺口冲击强度, -40°C	2.5/2.5	kJ/m ²	ISO 179/1eA
悬臂梁缺口冲击强度, 23°C	5/10	kJ/m ²	ISO 180/1A
悬臂梁缺口冲击强度, -30°C	4/4	kJ/m ²	ISO 180/1A
悬臂梁缺口冲击强度, -40°C	4/3.5 ^[DS]	kJ/m ²	ISO 180/1A
无缺口悬臂梁冲击强度, 23°C	N/N	kJ/m ²	ISO 180/1U
无缺口悬臂梁冲击强度, -30°C	300/N	kJ/m ²	ISO 180/1U

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球压痕硬度	180/85	MPa	ISO 2039-1
球压痕硬度	160/-	MPa	ISO 2039-1
Poisson's ratio	0.37/0.43	-	

[DS]: Derived from similar grade

Tribological properties

滑动摩擦系数, 1h, 钢	dry/cond.	-/0.6	ASTM 1894
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热性能

	dry/cond.		
熔融温度, 10°C/min	262/*	°C	ISO 11357-1/-3
玻璃化转变温度, 10°C/min	60/-	°C	ISO 11357-1/-2
热变形温度, 1.80 MPa	70/*	°C	ISO 75-1/-2
热变形温度, 0.45 MPa	200/*	°C	ISO 75-1/-2
维卡软化温度, 50°C/h 50N	240/*	°C	ISO 306
线膨胀系数, 平行	100/*	E-6/K	ISO 11359-1/-2
线膨胀系数, 垂直	110/*	E-6/K	ISO 11359-1/-2
熔体	0.16	W/(m K)	
有效导热率 ^a	5.0E-8	m ² /s	
熔体的比热	2790	J/(kg K)	
相对温度指数, 电气性能, 0.75mm	140	°C	UL 746B
相对温度指数, 电气性能, 1.5mm	140	°C	UL 746B
相对温度指数, 电气性能, 3mm	140	°C	UL 746B
相对温度指数, 冲击, 0.75mm	95	°C	UL 746B
相对温度指数, 冲击, 1.5mm	110	°C	UL 746B
相对温度指数, 冲击, 3mm	110	°C	UL 746B
相对温度指数, 强度, 0.75mm	115	°C	UL 746B
相对温度指数, 强度, 1.5mm	125/*	°C	UL 746B
相对温度指数, 强度, 3mm	125	°C	UL 746B
温度指数, 拉伸强度	140/*	°C	IEC 60216-1
温度指数, 拉伸强度	155/*	°C	IEC 60216-1

燃烧性能

	dry/cond.		
1.5mm名义厚度时的燃烧性	V-2/*	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	V-2/*	class	IEC 60695-11-10
测试用试样的厚度	0.71/*	mm	IEC 60695-11-10
UL注册	yes/*	-	UL 94
燃烧性 - 氧指数	28/*	%	ISO 4589-1/-2
灼热丝燃烧指数, 0.75mm	850/-	°C	IEC 60695-2-12
灼热丝燃烧指数, 1.5mm	960/-	°C	IEC 60695-2-12
灼热丝燃烧指数, 3mm	960/-	°C	IEC 60695-2-12
灼热丝起燃温度, 0.75mm	725/-	°C	IEC 60695-2-13
灼热丝起燃温度, 1.5mm	725/-	°C	IEC 60695-2-13

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灼热丝起燃温度, 3mm	725/-	°C	IEC 60695-2-13
灼热丝温度, 无火, 0.75mm	700/-	°C	IEC 60335-1
灼热丝温度, 无火, 1mm	700/-	°C	IEC 60335-1
灼热丝温度, 无火, 1.5mm	700/-	°C	IEC 60335-1
灼热丝温度, 无火, 2mm	700/-	°C	IEC 60335-1
灼热丝温度, 无火, 3mm	700/-	°C	IEC 60335-1
FMVSS Class	SE	-	ISO 3795 (FMVSS 302)

电性能

dry/cond.

相对介电常数., 100Hz	3.8/12.8	-	IEC 62631-2-1
相对介电常数., 1MHz	3.5/4	-	IEC 62631-2-1
介质损耗因子, 100Hz	75/5800	E-4	IEC 62631-2-1
介质损耗因子, 1MHz	165/700	E-4	IEC 62631-2-1
体积电阻率	1E13/1E11	Ohm.m	IEC 62631-3-1
介电强度	31/28	kV/mm	IEC 60243-1
相对漏电起痕指数	600/-	-	IEC 60112
相对漏电起痕指数	0/-	PLC	UL 746A

其它性能

dry/cond.

吸湿性, 2mm	2.6/*	%	类似ISO 62
吸水性, 2mm	8.5/*	%	类似ISO 62
密度	1140/-	kg/m ³	ISO 1183
熔体密度	980	kg/m ³	
吸水性, 浸泡 24小时	1.2/* ^[2]	%	类似ISO 62

[2]: 3mm wall thickness

机械性能(薄膜)

dry/cond.

屈服应变., parallel	4.5/*	%	ISO 527-3
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VDA性能

有机化合物的排放	2.1	□ gC/g	VDA 277
气味测试	2.5	class	VDA 270

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	%
最优熔体温度	290	°C
注塑 熔体温度	280	°C
注塑 熔体温度	300	°C
螺杆最大切线速度	0.4	m/s
最优模具温度	70	°C



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模具温度	50 °C
模具温度	90 °C
保压范围	50 - 100 MPa
保压时间	4 s/mm
喷射温度	190 °C

典型数据

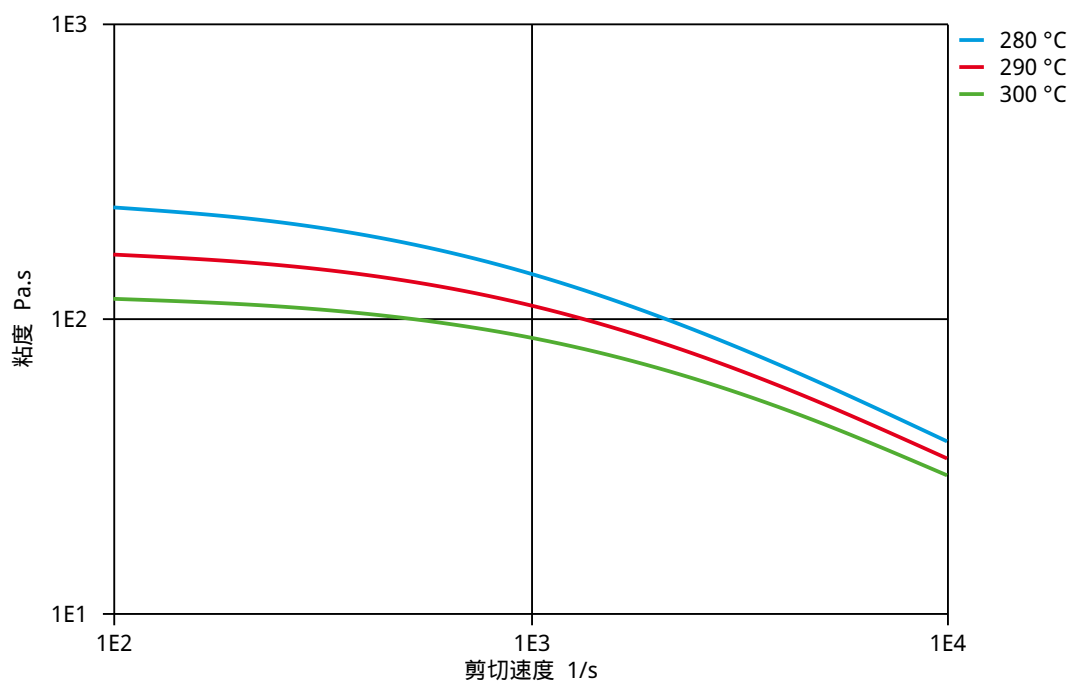
添加剂	脱模助剂
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粘度 - 剪切速度



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NYLON RESIN

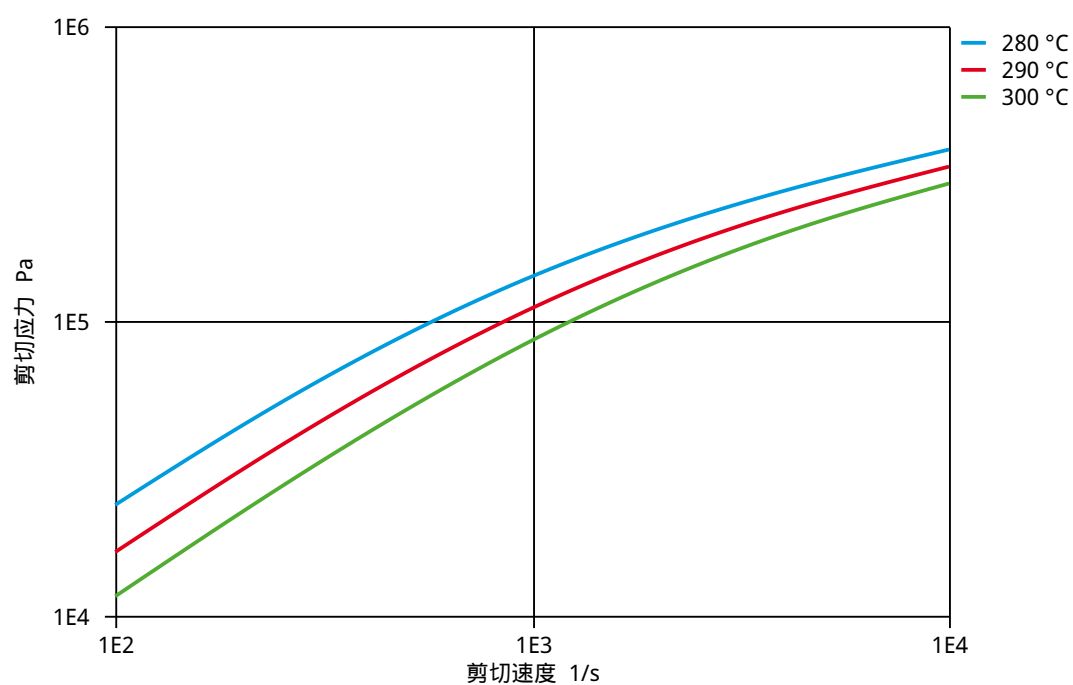




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剪切应力 - 剪切速度

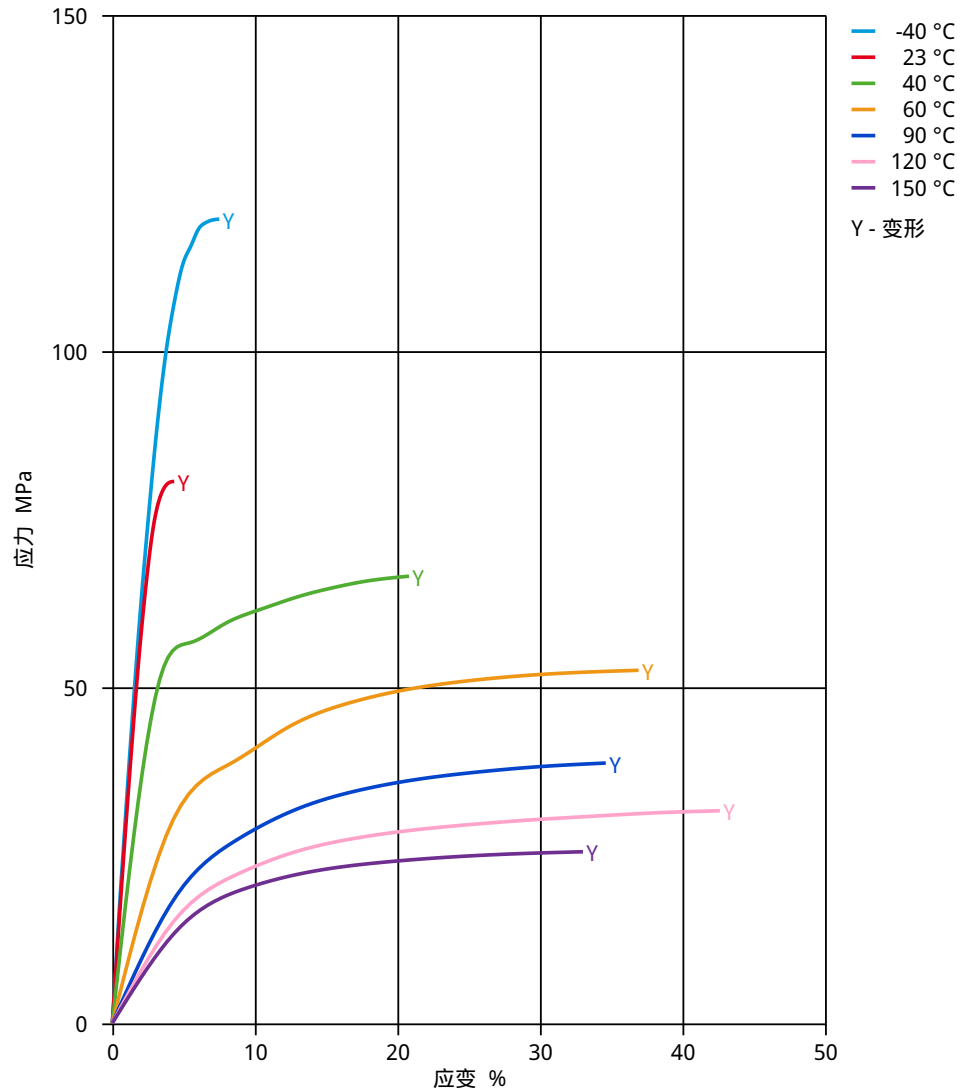




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应力 - 应变. (dry)

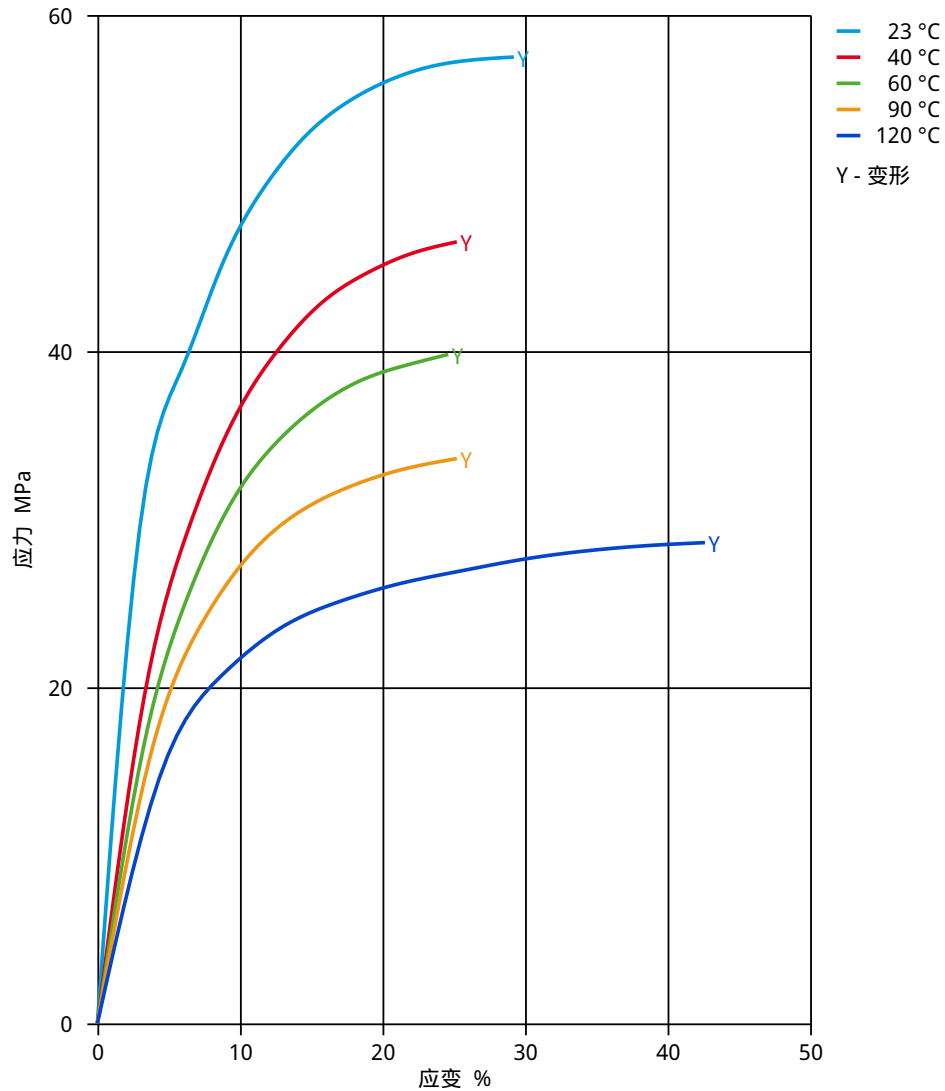




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NYLON RESIN

应力 - 应变. (cond.)

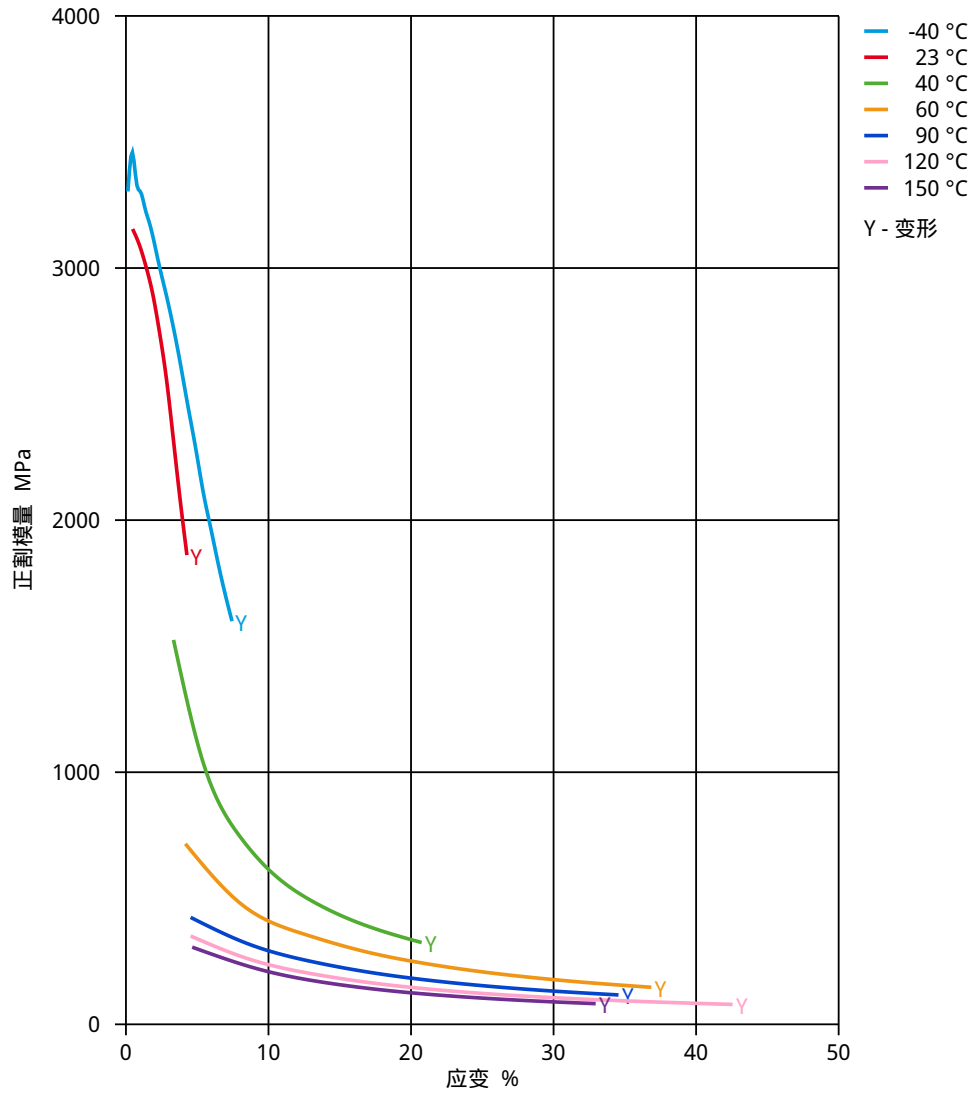




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正割模量 - 应变. (dry)

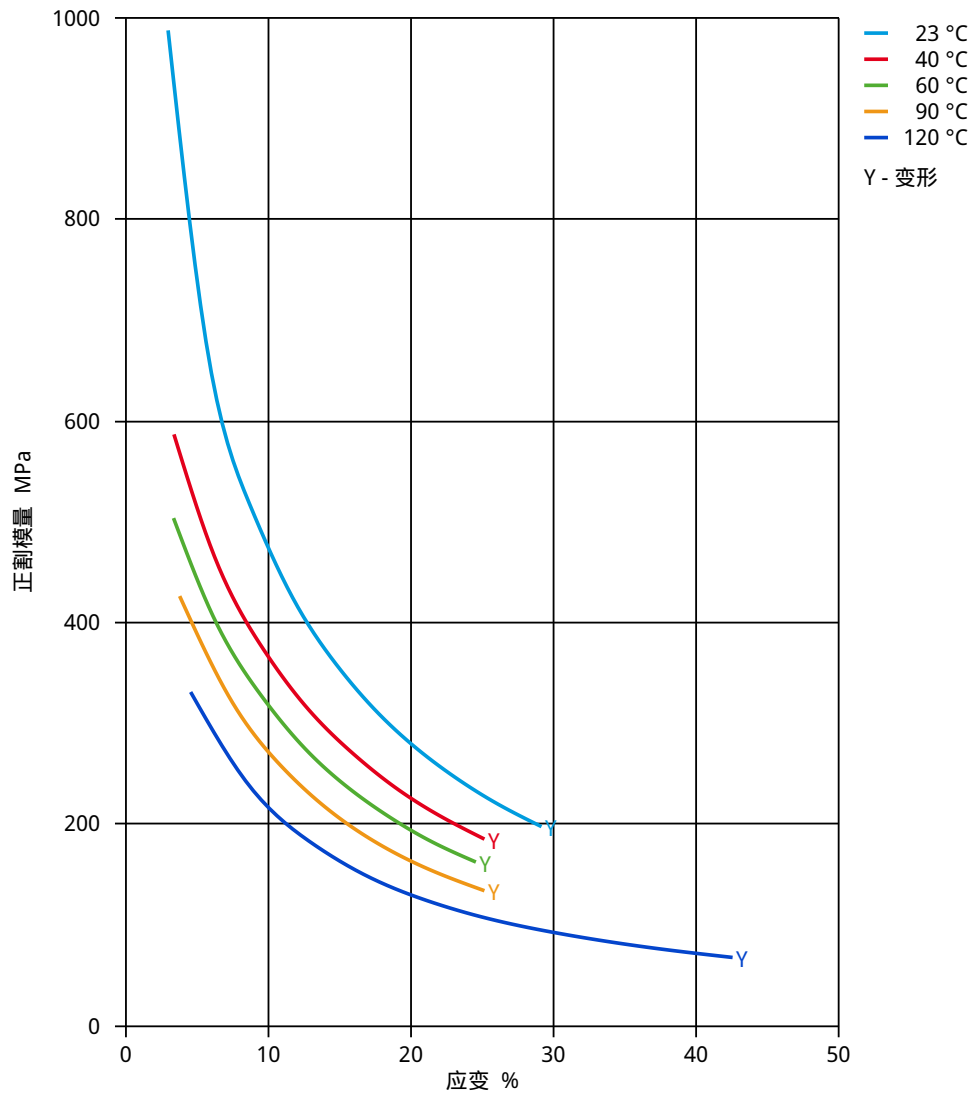




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NYLON RESIN

正割模量 - 应变. (cond.)

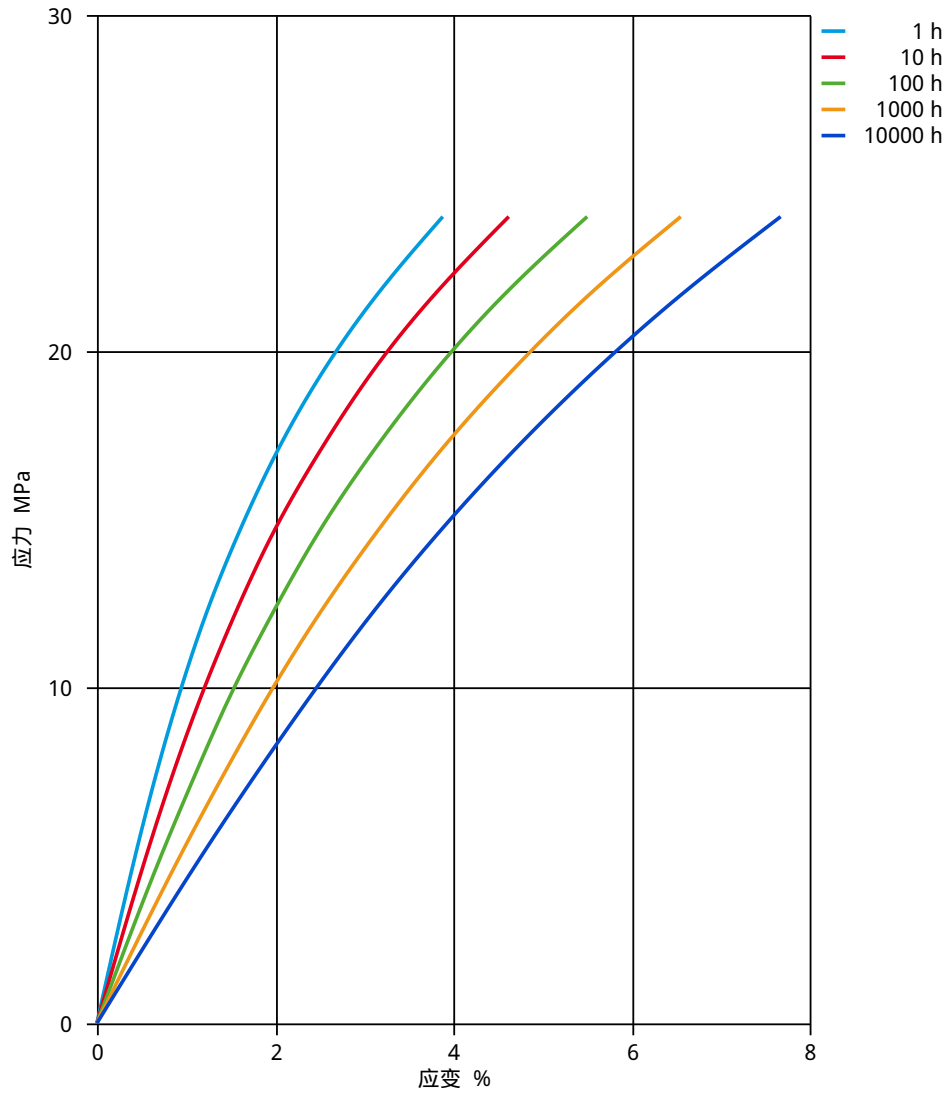




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NYLON RESIN

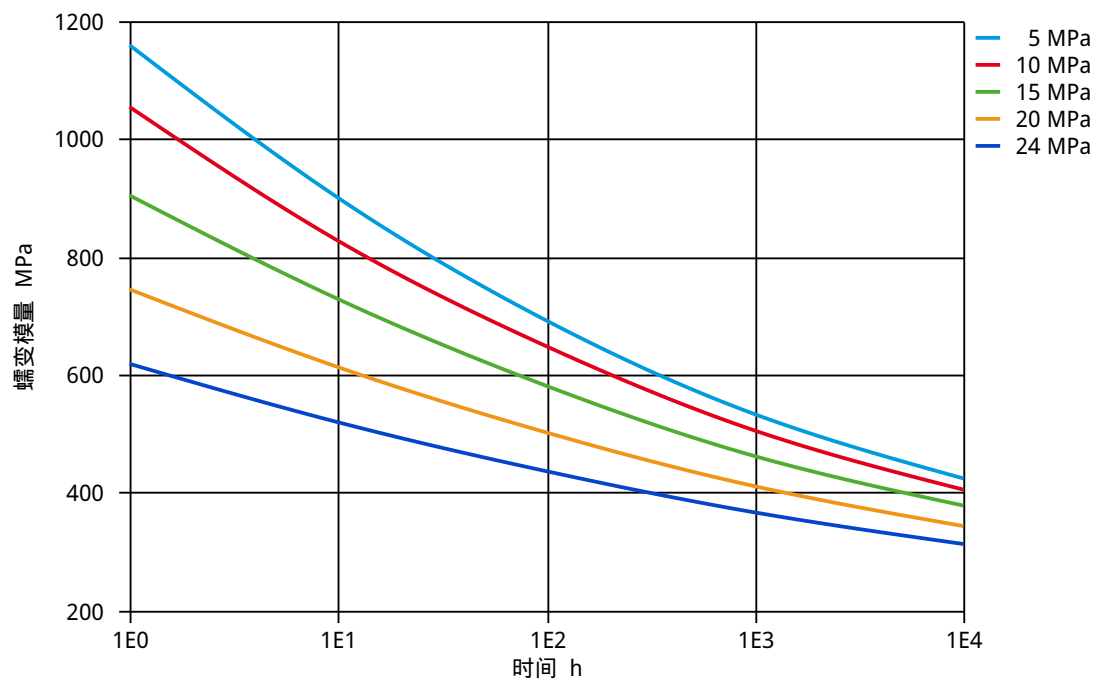
应力 - 应变(等时的) 23°C (cond.)



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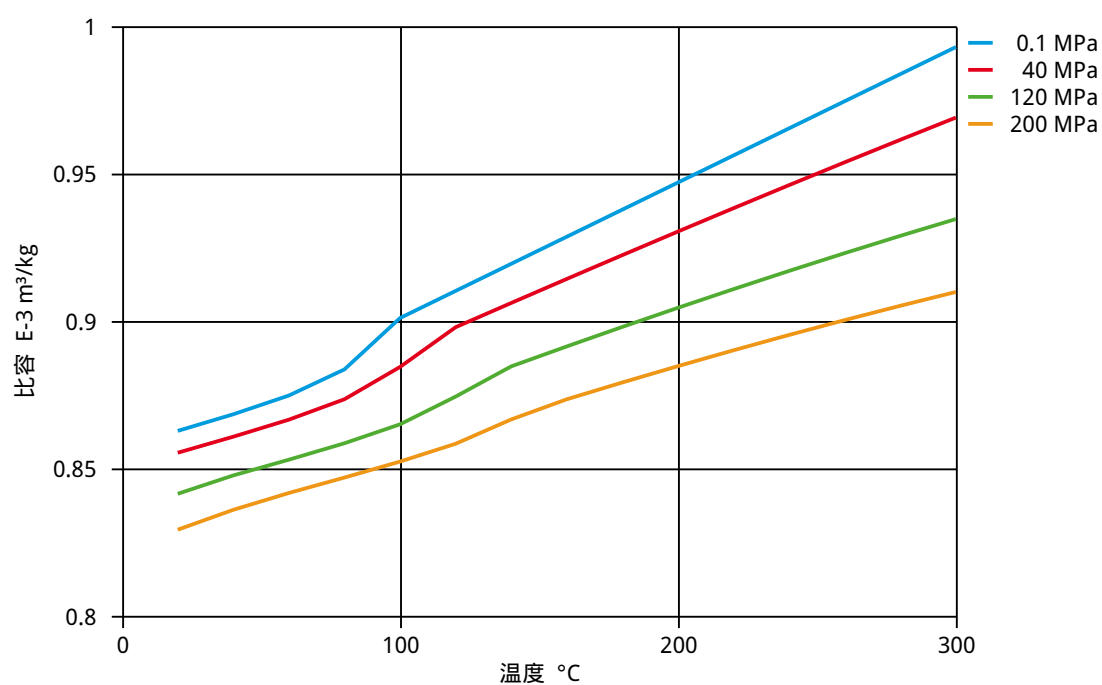
蠕变模量 - 时间. 23°C (cond.)



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比容 - 温度(pvT)



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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
- ✗ 滑油OS206 304 Ref.Eng.Oil, ISP, 135°C
- ✗ 自动准双曲面齿轮油壳牌壳牌Donax, 135°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

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- ✓ 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

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).

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