CELCON® M90 ECO-C 872

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Celcon® acetal copolymer grade M90 ECO-C 872 is a medium viscosity polymer providing optimum performance in general purpose injection molding and extrusion of thin walled tubing and thin gauge film. This grade provides overall excellent performance in many applications. Chemical abbreviation according to ISO 1043-1: POM Please also see Hostaform® C 9021.
ECO-C: Celcon® M90 ECO-C 872 incorporates circular content derived from captured carbon dioxide emissions in the finished product through mass balance allocation. The product is a drop-in replacement to the standard grade with the same performance and processing properties and contributes to the displacement of virgin fossil fuel resources. The feedstock utilizing captured carbon dioxide emissions is ISCC CFC certified as low carbon intensity methanol.

产品信息

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	8	cm^3/10min	ISO 1133
温度	190	°C	
负荷	2.16	kg	
熔体质量流动速率	9	g/10min	ISO 1133
熔体质量流动速率，温度	190	°C	
熔体质量流动速率，负荷	2.16	kg	
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	2760	MPa	ISO 527-1/-2
拉伸屈服应力, 50mm/min	65	MPa	ISO 527-1/-2
屈服伸长率, 50mm/min	10	%	ISO 527-1/-2
弯曲模量	2550	MPa	ISO 178
3.5%应变时的弯曲应力	73	MPa	ISO 178
1%形变时的压缩应力	31	MPa	ISO 604
拉伸蠕变模量, 1h	2450	MPa	ISO 899-1
拉伸蠕变模量, 1000h	1350	MPa	ISO 899-1
简支梁无缺口冲击强度, 23°C	188	kJ/m^2	ISO 179/1eU
简支梁无缺口冲击强度, -30°C	181	kJ/m^2	ISO 179/1eU
简支梁缺口冲击强度, 23°C	6	kJ/m^2	ISO 179/1eA
简支梁缺口冲击强度, -30°C	6	kJ/m^2	ISO 179/1eA
悬臂梁缺口冲击强度, 23°C	5.7	kJ/m^2	ISO 180/1A
悬臂梁缺口冲击强度, -30°C	5.5	kJ/m^2	ISO 180/1A
悬臂梁无缺口冲击强度, 23°C	180	kJ/m^2	ISO 180/1U
悬臂梁无缺口冲击强度, -30°C	160	kJ/m^2	ISO 180/1U
泊松比	0.4		

热性能

熔融温度, 10°C/min	166	°C	ISO 11357-1/-3
热变形温度, 1.8 MPa	101	°C	ISO 75-1/-2
热变形温度, 0.45 MPa	158	°C	ISO 75-1/-2
球压试验	150	°C	IEC 60695-10-2
线性热膨胀系数, 平行	120	E-6/K	ISO 11359-1/-2

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线性热膨胀系数, 垂直	120	E-6/K	ISO 11359-1/-2
熔体导热系数	0.155	W/(m K)	ISO 22007-2
有效热扩散率, 顺流	4.85E-8	m^2/s	ISO 22007-4
熔体比热容	2210	J/(kg K)	ISO 22007-4

阻燃性能

1.5mm名义厚度时的阻燃性	HB	class	IEC 60695-11-10
测试用试样的厚度	1.5	mm	IEC 60695-11-10
UL认证	yes		UL 94
氧指数	14.9	%	ISO 4589-1/-2

电性能

体积电阻率	8E12	Ohm.m	IEC 62631-3-1
表面电阻率	3E16	Ohm	IEC 62631-3-2
耐电弧性	240	s	UL 746B

其它性能

吸湿率, 2mm	0.2	%	类似ISO 62
吸水率, 2mm	0.75	%	类似ISO 62
密度	1410	kg/m^3	ISO 1183

注塑

建议干燥	否	
干燥温度	100	°C
干燥时间，除湿干燥机	3 - 4	h
加工前水分含量	≤ 0.2	%
最优熔体温度	185	°C
最低熔体温度***	180	°C
最高熔体温度	190	°C
螺杆最大切线速度	≤ 0.3	m/s
最优模具温度	100	°C
最低模具温度	80	°C
最高模具温度	120	°C
保压范围	60 - 120	MPa
保压时间 (h表示部件的最大壁厚mm)	$2h^2$-3	s
背压	4	MPa
顶出温度	130	°C

特性

加工方法	注塑, 薄膜挤出成型, 异型材挤出成型, 片材挤出成型, 其它挤出成型, 吹塑, 压延成型, 模压成型
可持续	碳捕集

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其他信息

注塑

Preprocessing

Drying is generally not required because Celcon® and Hostaform® acetal copolymers are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can lead to splay (silver streaking) in molded parts. For better uniformity in molding especially when using regrind or material that has been stored in containers open to the atmosphere, recommended drying conditions are 80 C (180 F) for 3hours. Desiccant hopper dryers are not required. Maximum water content = 0.35%

Processing

Standard reciprocating screw injection molding machines with a high compression screw (minimum 3:1 and preferably 4:1) and low back pressure (0.35 Mpa/50 PSI) are favored. Using a low compression screw (I.E. general purpose 2:1 compression ratio) can result in unmelted particles and poor melt homogeneity. Using a high back pressure to make up for a low compression ratio may lead to excessive shear heating and deterioration of the material.

Melt Temperature: Preferred range 182-199 C (360-390 F). Melt temperature should never exceed 230 C (450 F).

Mold Surface Temperature: Preferred range 82-93 C (180-200 F) especially with wall thickness less than 1.5 mm (0.060 in.). May require mold temperature as high as 120 C (250 F) to reproduce mold surface or to assure minimal molded in stress. Wall thickness greater than 3mm (1/8 in.) may use a cooler (65 C/150 F) mold surface temperature and wall thickness over 6mm (1/4 in.) may use a cold mold surface down to 25 C (80 F). In general, mold surface temperatures lower than 82 C (180 F) may hinder weld line formation and produce a hazy surface or a surface with flow lines, pits and other included defects that can hinder part performance.

Postprocessing

Postprocessing conditioning and moisturizing are not required. It may be necessary to fixture large or complicated parts with varying wall thickness to prevent warpage while cooling to ambient temperature.

薄膜挤出成型

Preprocessing

Drying is generally not required because Celcon materials are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can cause surface defects on the extruded film. For better uniformity especially when using regrind or material that has been stored in containers open to the atmosphere, recommended drying conditions are 3 Hrs. at 80 C (180 F). Desiccant hopper dryers are not required. Max. moisture content = 0.35%.

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Processing

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and melt homogeneity. The design should be approximately 35% each for feed and metering sections with the remaining 30% as the transition zone.

Melt temperature: 160-220 C (320-430 F)

Postprocessing

Postprocessing conditioning or moisturizing is not required.

其他挤出成型

Preprocessing

Drying is generally not required because Celcon materials are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can cause surface defects. For better uniformity especially when using regrind or material that has been stored in containers open to the atmosphere, recommended drying is 3 hours at 80 C (180 F). Desiccant hopper dryers are not required. Max. moisture content = 0.35%

Processing

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and uniform melt homogeneity. The design should be approximately 35% each for the feed and metering sections with the remaining 30% as transition zone.

Melt temperature 180-220 C (355-430F)

Postprocessing

Postprocessing conditioning or moisturizing are not required. For thick walled sections (>3mm or 1/8 in.), annealing is recommended to reduce internal stresses.

Annealing temperature: 130-140 C (265-285 F)

Annealing time: 10 min/mm thickness

型材挤出成型

Preprocessing

Drying is generally not required because Celcon materials are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can cause surface defects on the extrusion. For better uniformity especially when using regrind or material that has been stored in containers open to the

atmosphere, recommended drying conditions are 3 Hrs. at 80 C (180 F). Desiccant hopper dryers are not required. Max. moisture content = 0.035%.

Processing

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and melt homogeneity. The design should be approximately 35% each for feed and metering sections with the remaining 30% as the transition zone.

Melt temperature: 180-220 C (360-430 F).

Postprocessing

Postprocessing or moisturizing is not required. For thick walled extrusions (>3 mm or 1/8 in.), annealing is recommended to reduce internal stresses.

Annealing temperature: 130-140 C (265-285 F)
Annealing time: 10 min/mm thickness

板材挤出成型

Preprocessing

Drying is generally not required because Celcon materials are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can lead to surface defects. For better uniformity in sheet extrusion especially when using regrind or material that has been stored in containers open to the atmosphere, recommended drying is 3 hours at 80 C (180 F). Desiccant hopper dryers are not required. Max. water content = 0.35%.

Processing

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio (at least 3:1 and preferably 4:1) to assure good melting and uniform melt homogeneity. The screw design should be approximately 35% each for the feed and metering sections with the remaining 30% as the transition zone.

Melt temperature 180-190 C (355-375 F).

Postprocessing

Postprocessing conditioning or moisturizing is not required. For thick walled sections (>3mm or 1/8 in.), annealing is recommended to reduce internal stresses.

Annealing temperature: 130-140 C (265-285 F)

Annealing time: 10 min/mm wall thickness

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吹塑

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Preprocessing

Consult product information services.

Processing

Consult product information services.

Postprocessing

Consult product information services.

压延成型

Preprocessing

Consult product information services.

Processing

Consult product information services.

Postprocessing

Consult product information services.

模压成型

Preprocessing

Consult product information services.

Processing

Consult product information services.

Postprocessing

Consult product information services.

加工注意事项

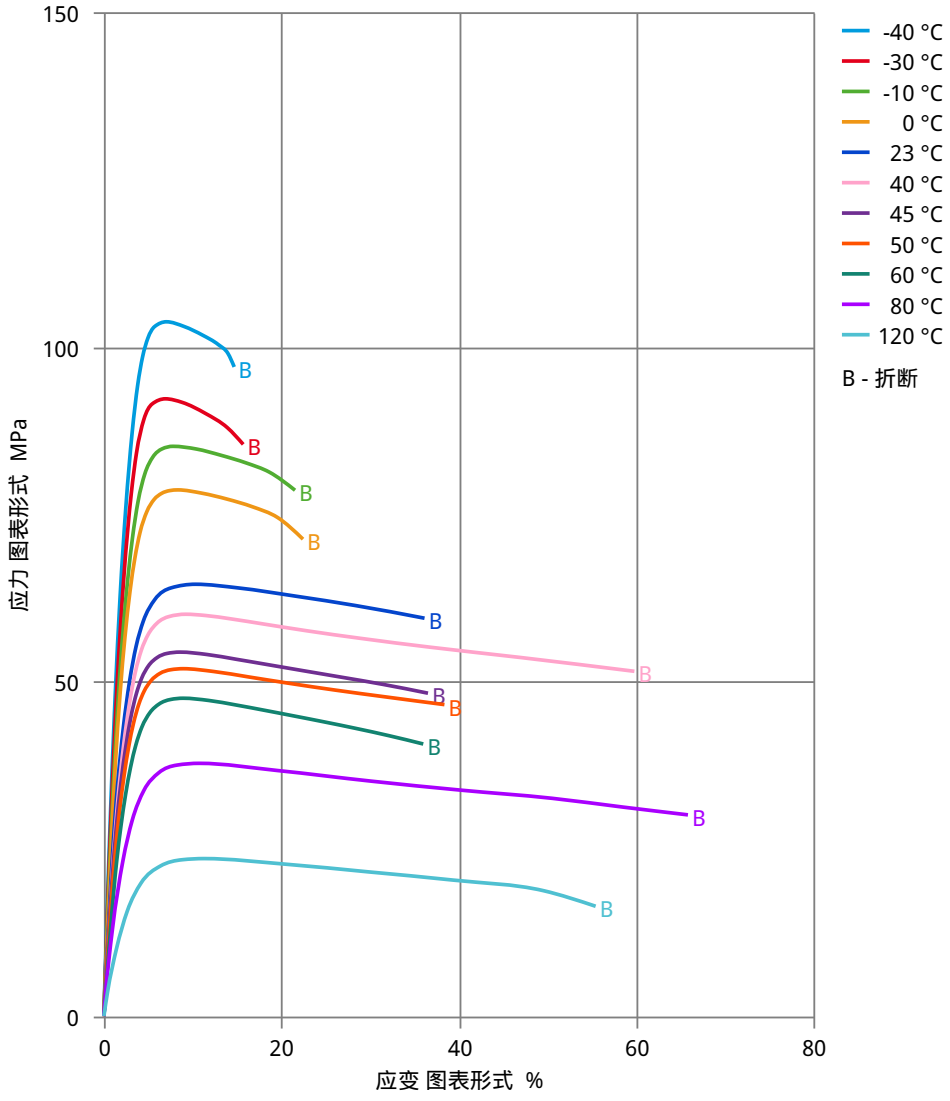
Pre-Drying

Drying is not normally required. If material has come in contact with moisture through improper storage or handling or through regrind use, drying may be necessary to prevent splay and odor problems.

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应力 - 应变

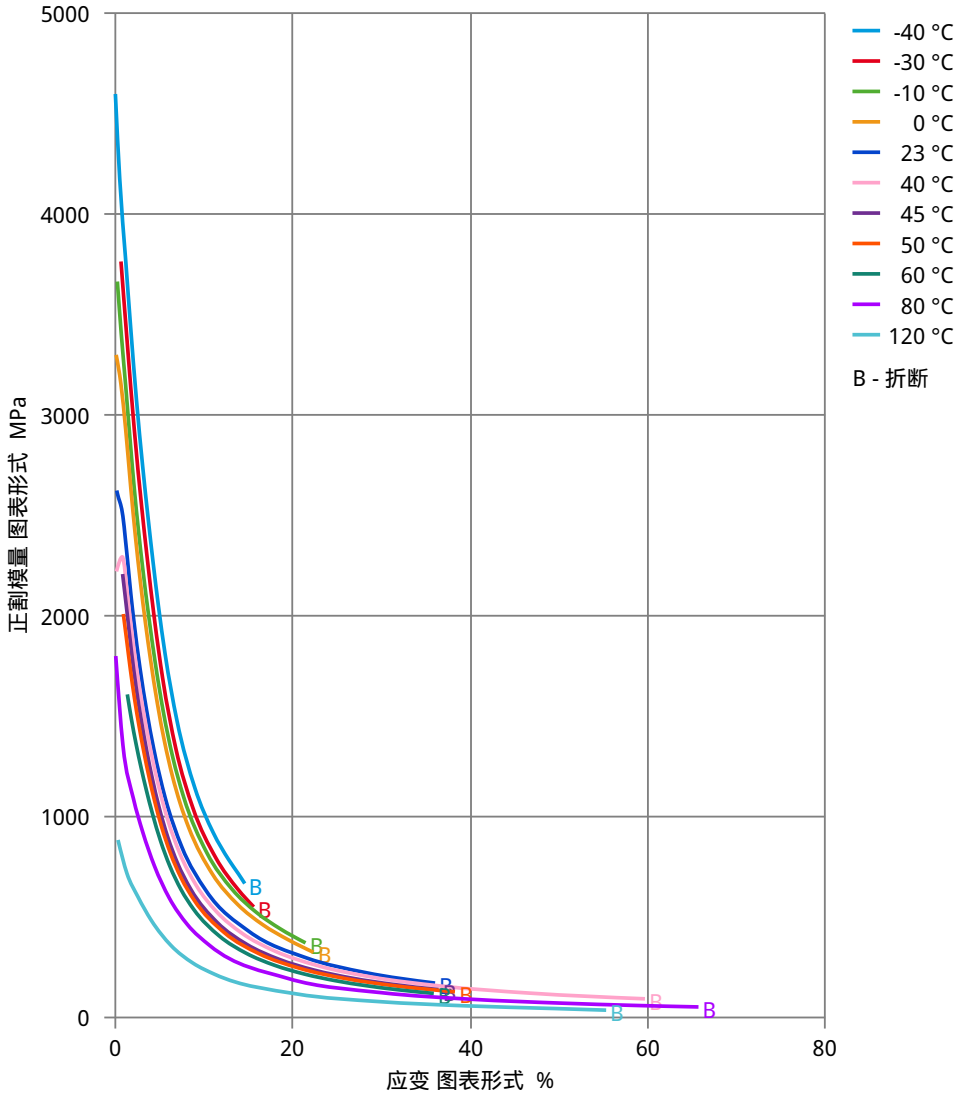


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正割模量 - 应变

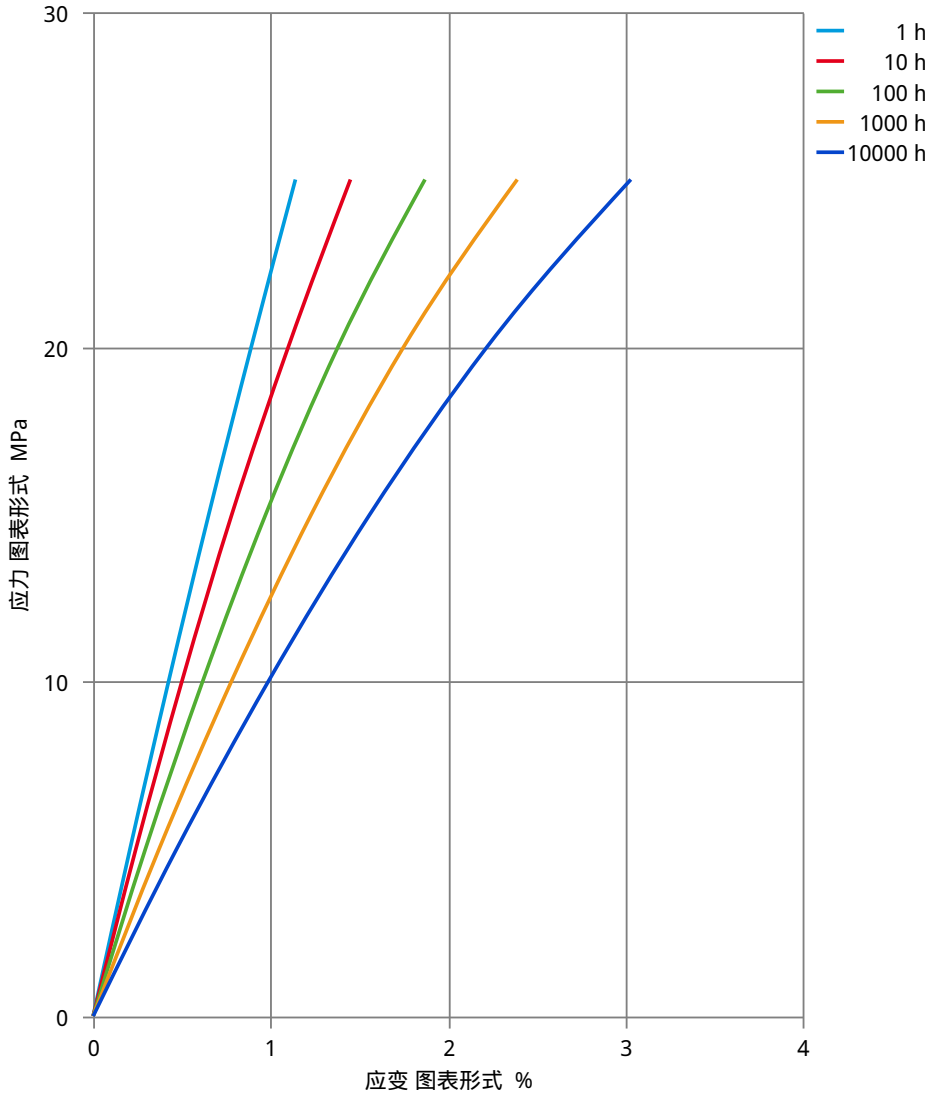


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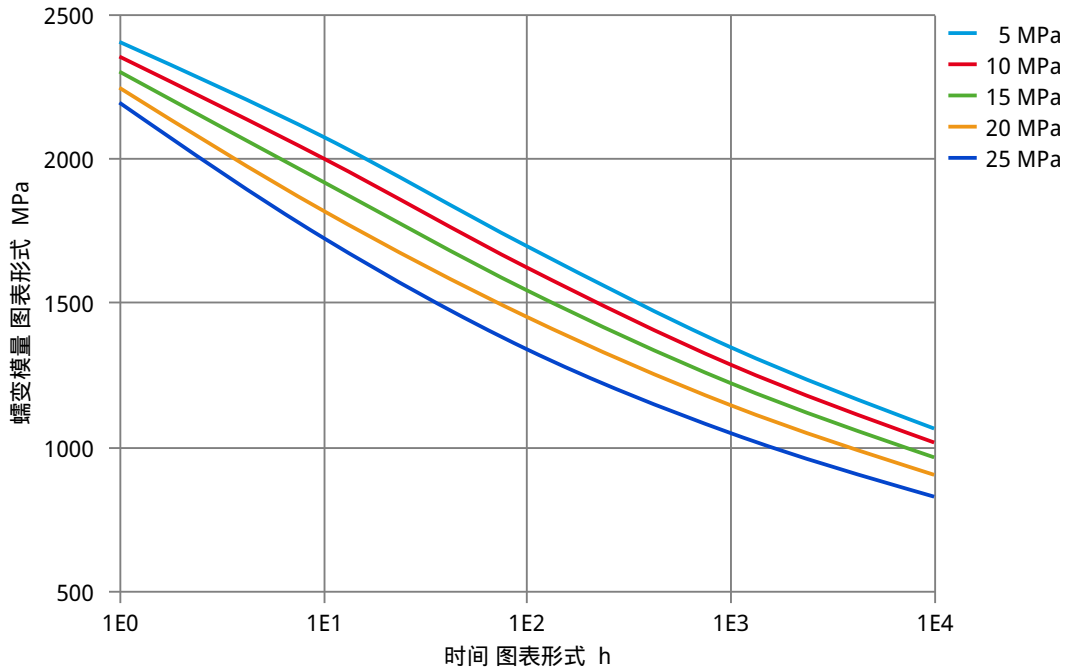
应力 - 应变 (等时的) 23°C



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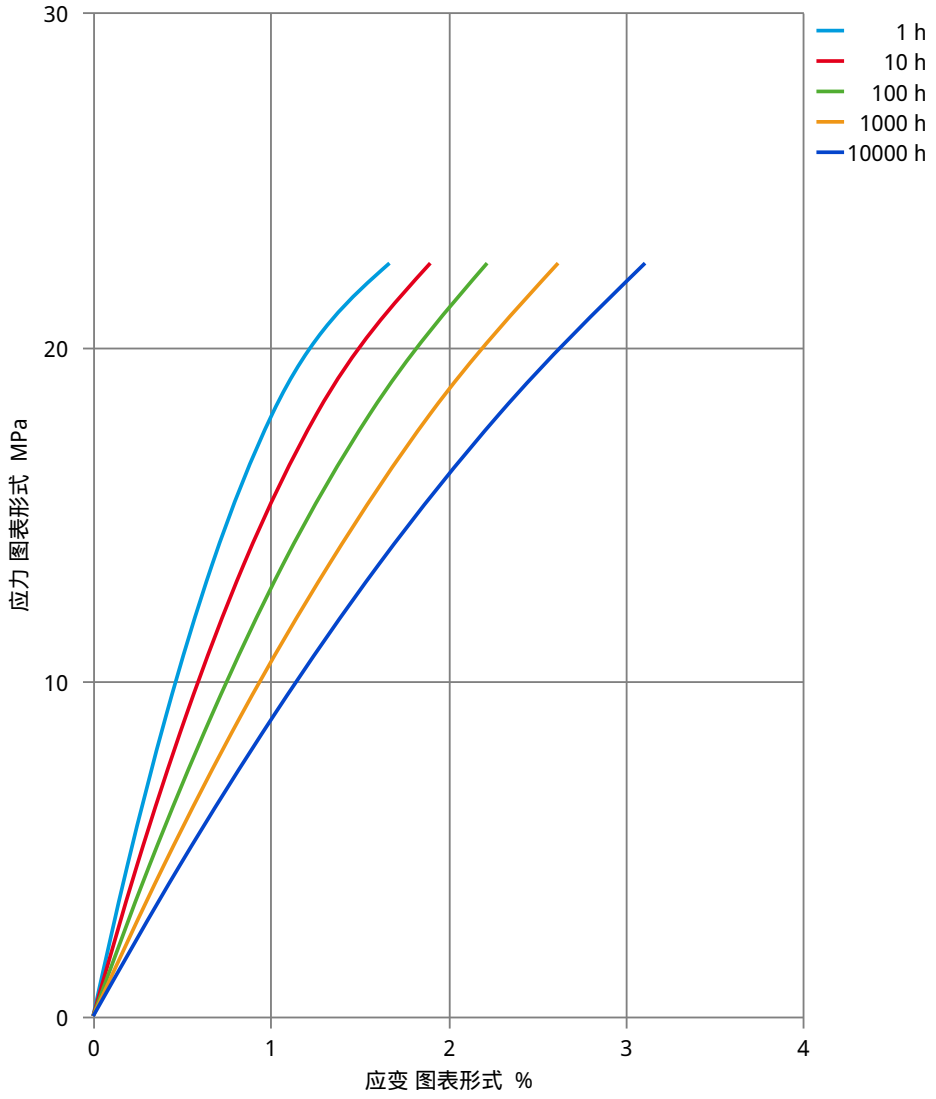
蠕变模量 - 时间 23°C



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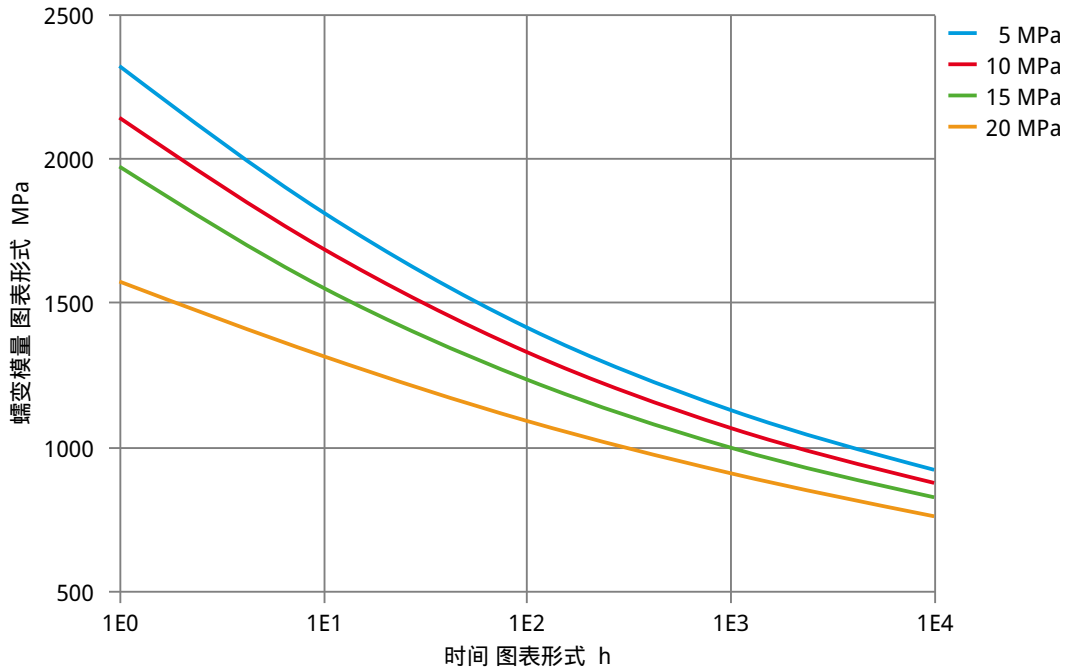
应力 - 应变 (等时的) 40°C



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蠕变模量 - 时间 40°C



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