



Makrolon® 2458

PC

Covestro Deutschland AG

- MVR (300 °C/1.2 kg) 19 cm³/10 min
- medical devices
- suitable for ETO and steam sterilization at 121 °C
- biocompatible according to many ISO 10993-1 test requirements
- low viscosity
- easy release

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	19	cm³/10min	ISO 1133
Temperature	300	°C	-
Load	1.2	kg	-
Molding shrinkage, parallel	0.7	%	ISO 294-4, 2577
Molding shrinkage, normal	0.7	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2400	MPa	ISO 527
Yield stress	65	MPa	ISO 527
Yield strain	6.1	%	ISO 527
Nominal strain at break	>50	%	ISO 527
Tensile Creep Modulus, 1h	2200	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	1900	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	no break	kJ/m²	ISO 179/1eU
Puncture - maximum force, +23°C	5100	N	ISO 6603-2
Puncture - maximum force, -30°C	6000	N	ISO 6603-2
Puncture energy, +23°C	55	J	ISO 6603-2
Puncture energy, -30°C	65	J	ISO 6603-2

Thermal Properties	Value	Unit	Test Standard
ISO Data			
Glass Transition Temperature (10°C/min)	146	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	125	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	139	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	145	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	65	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	65	E-6/K	ISO 11359-1/-2
Oxygen index	28	%	ISO 4589-1/-2

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.1	-	IEC 62631-2-1
Relative permittivity, 1MHz	3	-	IEC 62631-2-1
Dissipation Factor, 100Hz	5	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	90	E-4	IEC 62631-2-1
Volume Resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	>1E15	Ohm	IEC 62631-3-2
Electric Strength	34	kV/mm	IEC 60243-1
Comparative tracking index	250	-	IEC 60112

Other Properties	Value	Unit	Test Standard
ISO Data			
Water Absorption	0.3	%	Sim. to ISO 62
Humidity absorption	0.12	%	Sim. to ISO 62
Density	1200	kg/m³	ISO 1183

Material Specific Properties	Value	Unit	Test Standard
ISO Data			
Luminous transmittance	89	%	ISO 13468-1, -2

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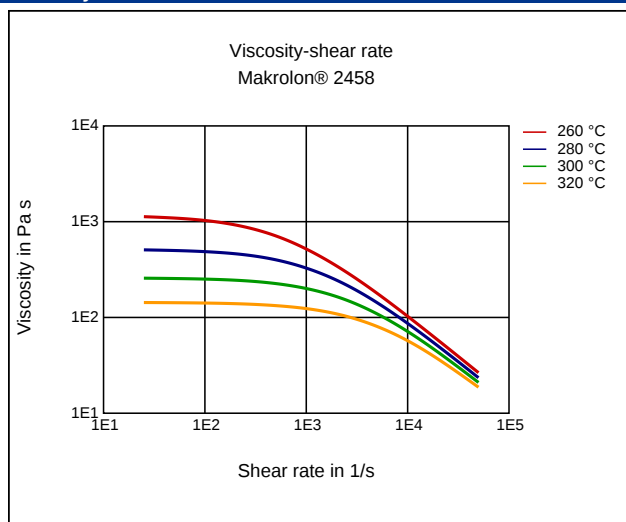
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Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	280	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	120	°C	-
Pre-drying - Time	2 - 3	h	-
Processing humidity	≤0.02	%	-
Melt temperature	280 - 320	°C	-
Mold temperature	80 - 100	°C	-

Diagrams

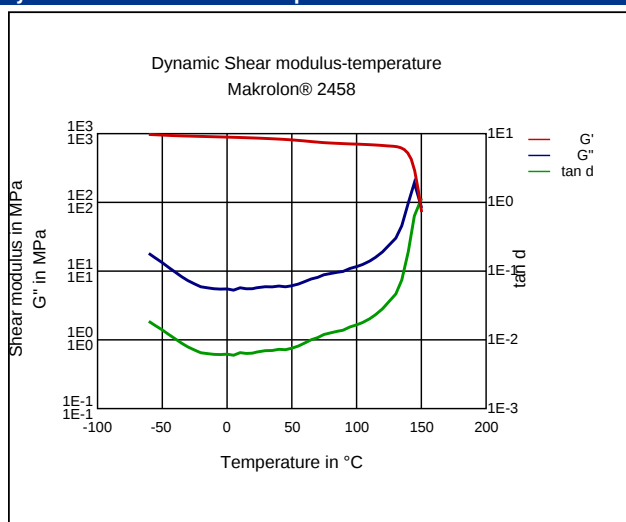
Viscosity-shear rate



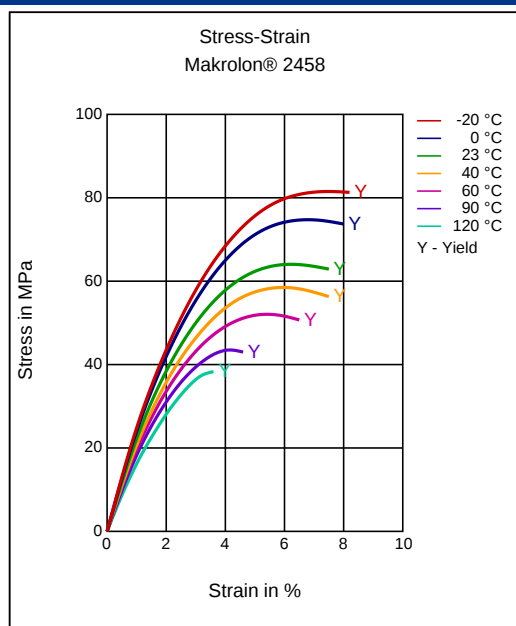
Shearstress-shear rate



Dynamic Shear modulus-temperature



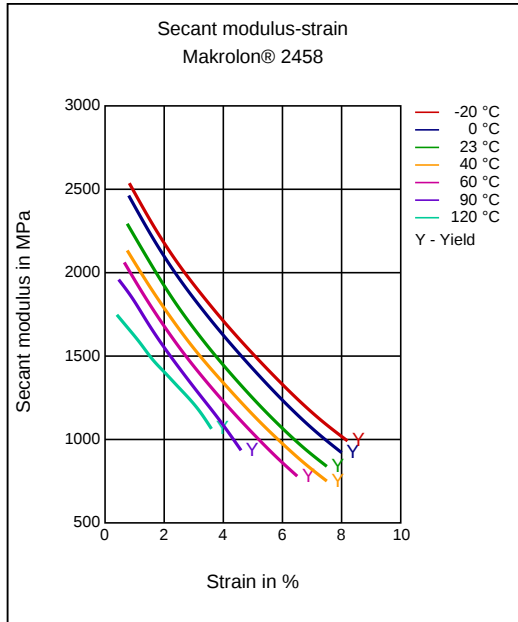
Stress-strain



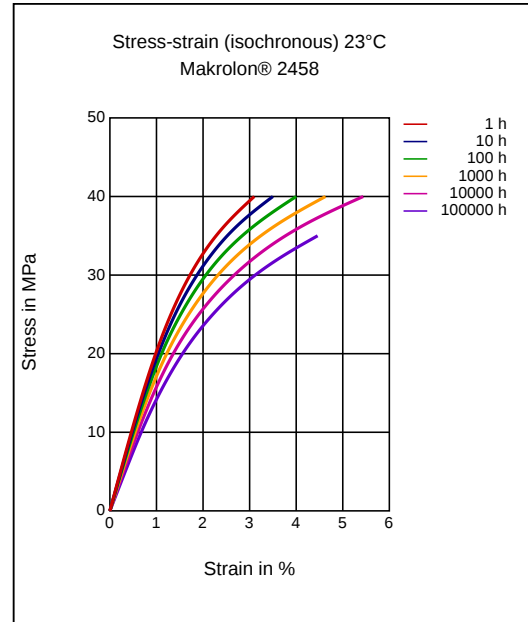
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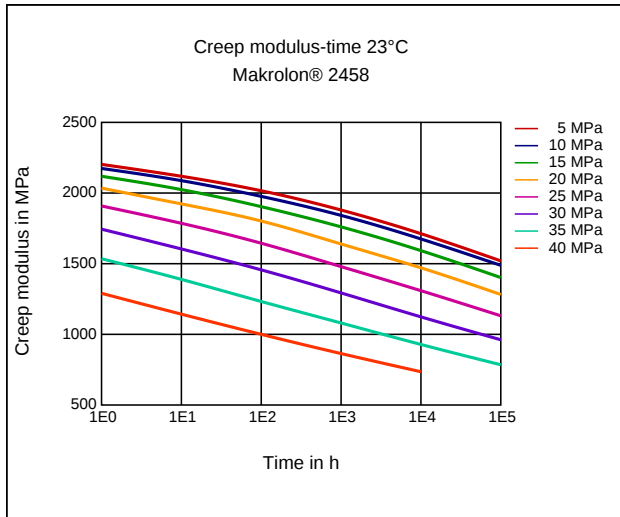
Secant modulus-strain



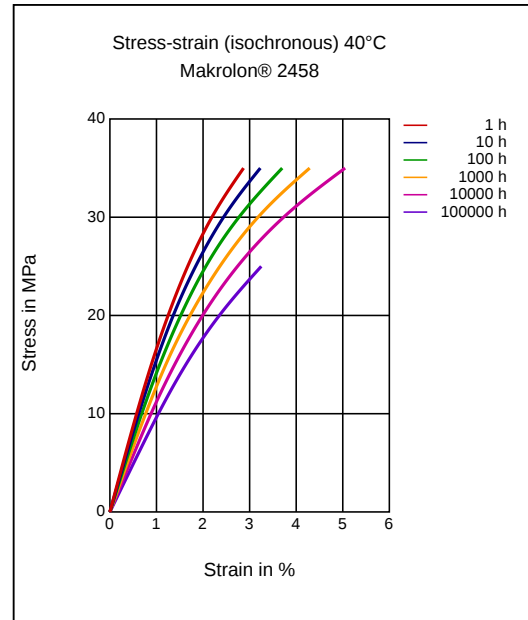
Stress-strain (isochronous) 23 °C



Creep modulus-time 23 °C



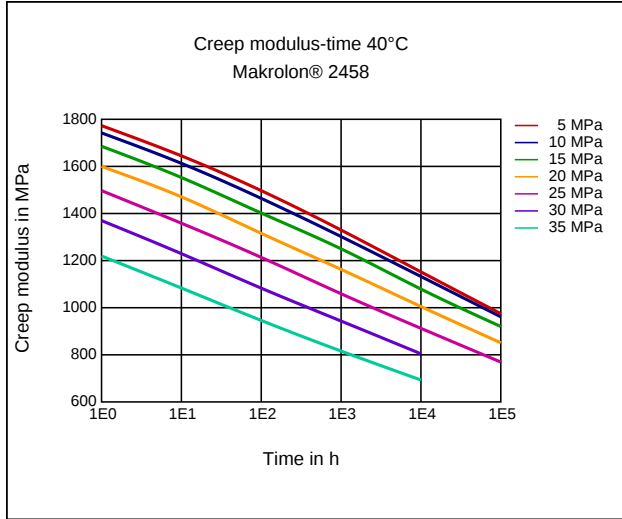
Stress-strain (isochronous) 40 °C



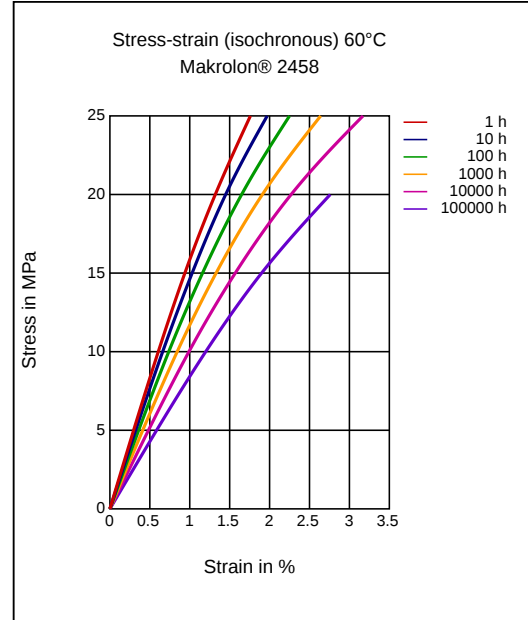
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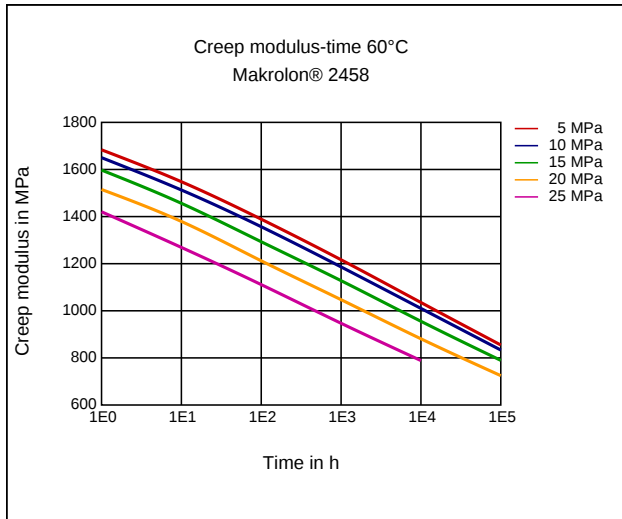
Creep modulus-time 40°C



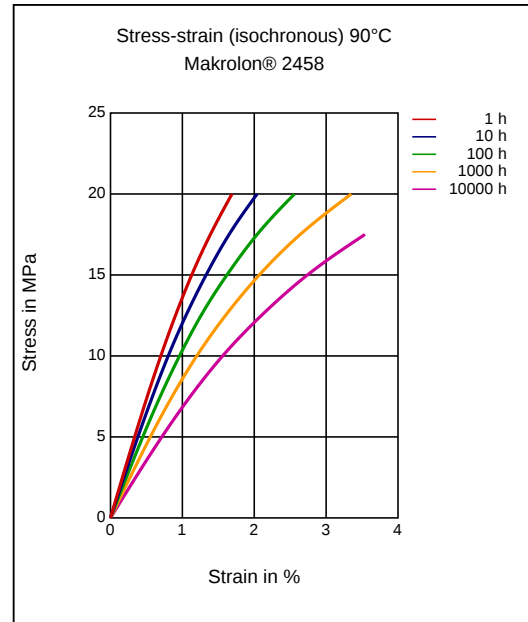
Stress-strain (isochronous) 60°C



Creep modulus-time 60°C



Stress-strain (isochronous) 90°C

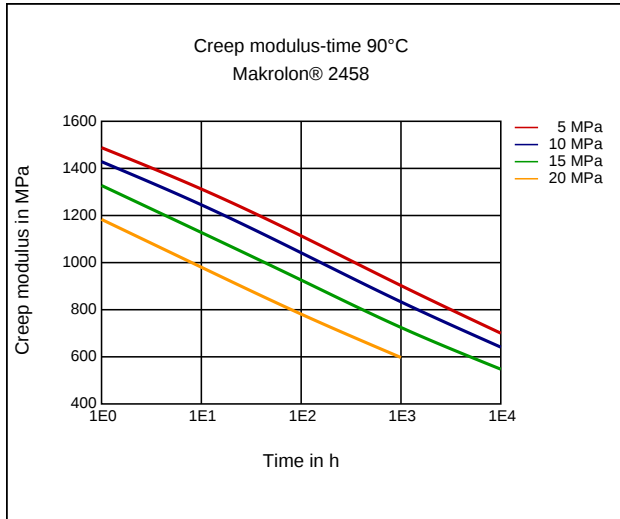


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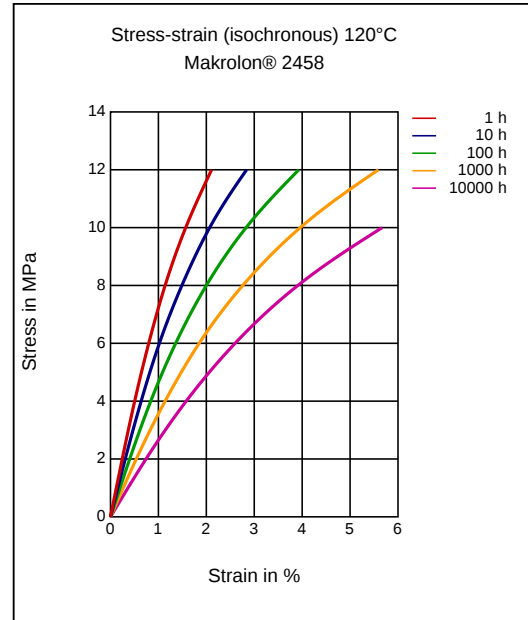
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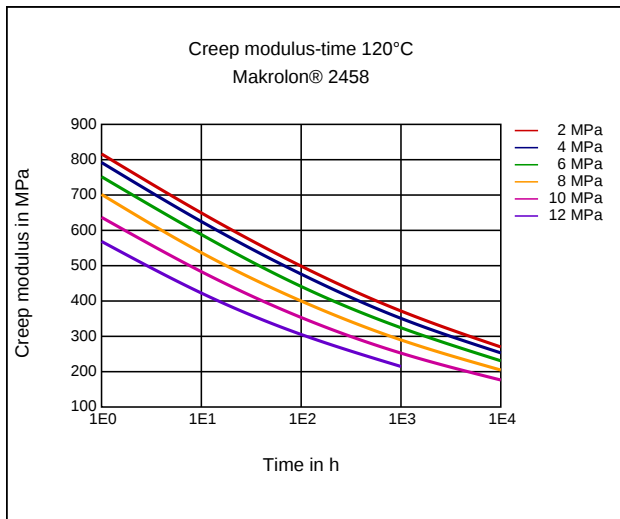
Creep modulus-time 90 °C



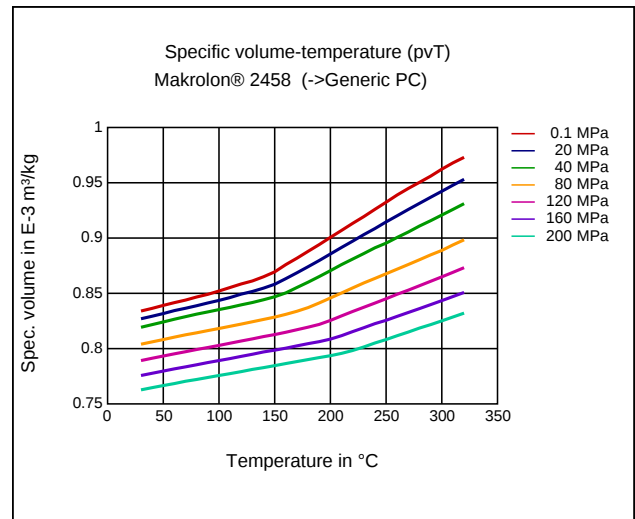
Stress-strain (isochronous) 120 °C



Creep modulus-time 120 °C



Specific volume-temperature (pvT)



Characteristics

Processing

Injection Molding

Delivery form

Pellets

Additives

Release agent

Special Characteristics

Transparent, Sterilizable, Ethylene Oxide (EtO) Sterilization, Steam sterilization, Gamma irradiation sterilization

Certifications

Medical, Biocompatibility ISO 10993, US Pharmacopeia Class VI Approved

Applications

Medical

Injection Molding

PREPROCESSING

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Max. Water content: 0.01 - 0.02 %

Drying temperature: 120 °C

Drying time:

Circulating air drying oven (50 % fresh air) 4-8 h

Fresh air dryer (high speed dryer) 2-4 h

Dry air dryer 2-3 h

PROCESSING

Melt temperature: 280-320 °C

Mold temperature: 80-100 °C

Use open nozzle.
