

Ultrason® P 3010 NAT

PPSU

BASF

Medium viscosity, unreinforced injection-molding and extrusion grade with superior toughness and chemical resistance (stress crack resistance), resistance against superheated steam.

Abbreviated designation according to ISO 1043-1: PPSU

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	34 / *	cm ³ /10min	ISO 1133
Temperature	360 / *	°C	-
Load	10 / *	kg	-
Molding shrinkage, parallel	0.9 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.0 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	- / 2250	MPa	ISO 527
Yield stress	- / 74	MPa	ISO 527
Yield strain	- / 7.8	%	ISO 527
Impact Strength (Charpy), +23°C	- / no break	kJ/m ²	ISO 179/1eU
Impact Strength (Charpy), -30°C	- / no break	kJ/m ²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	- / 70	kJ/m ²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	- / 50	kJ/m ²	ISO 179/1eA

Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Glass Transition Temperature (10°C/min)	220 / *	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	197 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	212 / *	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	55 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	V-0 / *	class	UL 94
Thickness tested	1.5 / *	mm	-
UL recognition	yes / *	-	-
Burning Behav. at thickness h	V-0 / *	class	UL 94
Thickness tested	3.0 / *	mm	-
UL recognition	yes / *	-	-
Oxygen index	43.4 / *	%	ISO 4589-1/-2

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	- / 3.8	-	IEC 62631-2-1
Relative permittivity, 1MHz	- / 3.7	-	IEC 62631-2-1
Dissipation Factor, 100Hz	- / 17	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	- / 89	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	- / 44	kV/mm	IEC 60243-1
Comparative tracking index	- / 150	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	1.2 / *	%	Sim. to ISO 62
Humidity absorption	0.6 / *	%	Sim. to ISO 62
Density	1280 / -	kg/m ³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	71 / *	cm ³ /g	ISO 307, 1157, 1628

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	370	°C	ISO 294
Injection Molding, mold temperature	160	°C	ISO 294

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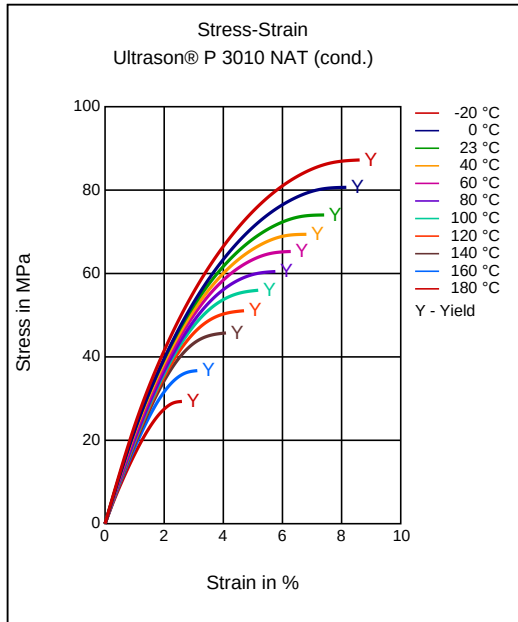
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Processing Recommendation Injection Molding

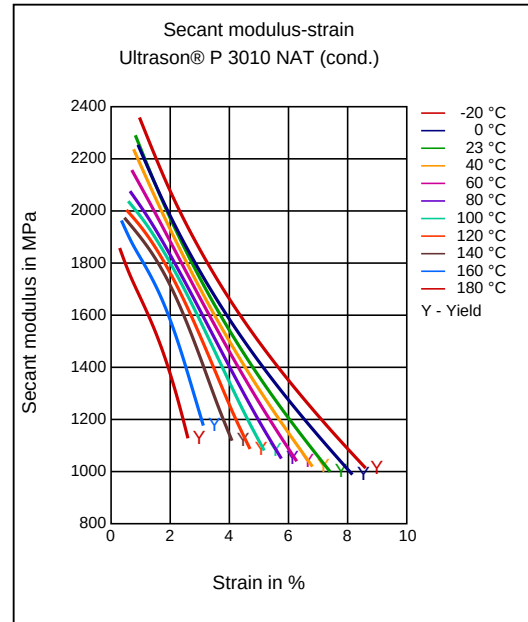
	Value	Unit	Test Standard
Pre-drying - Temperature	140	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.02	%	-
Melt temperature	350 - 390	°C	-
Mold temperature	140 - 180	°C	-

Diagrams

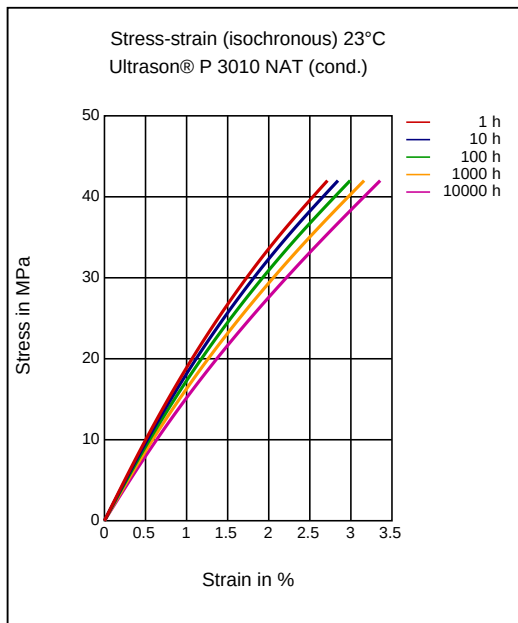
Stress-strain



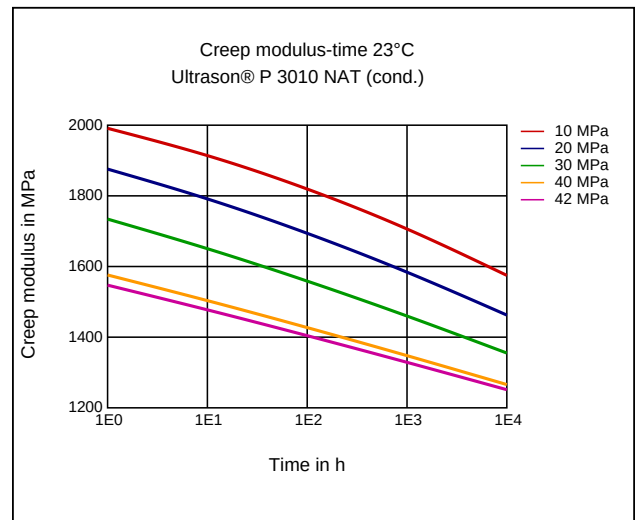
Secant modulus-strain



Stress-strain (isochronous) 23 °C



Creep modulus-time 23 °C

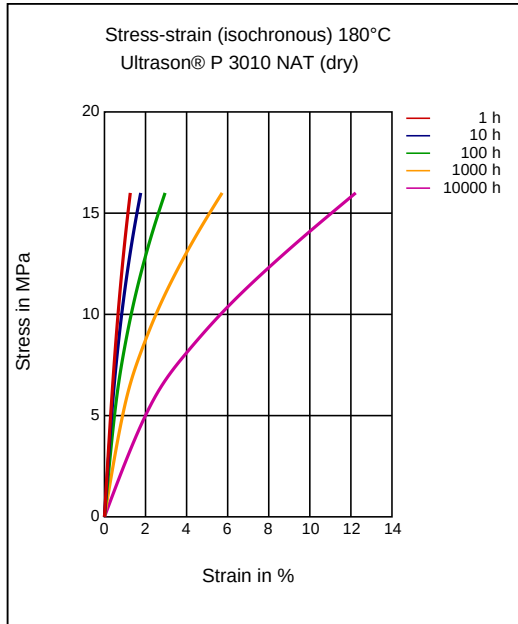


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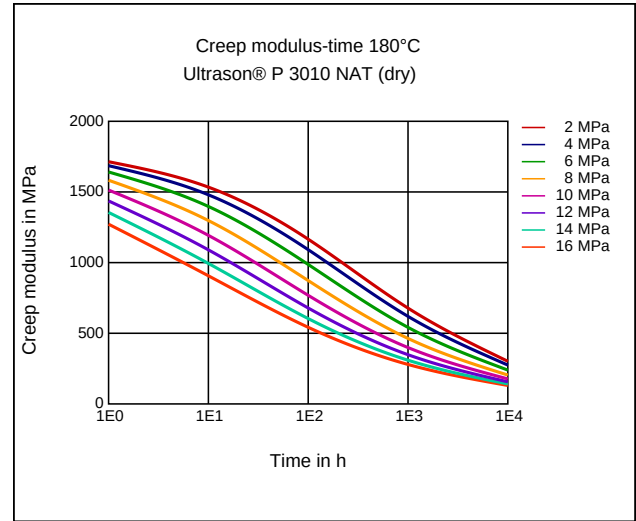
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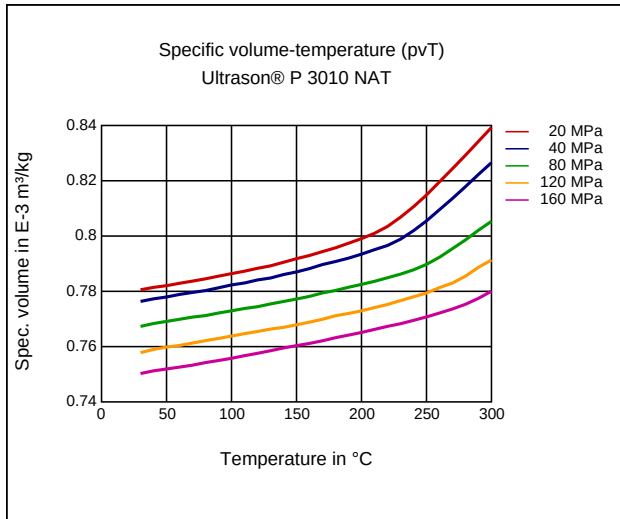
Stress-strain (isochronous) 180°C



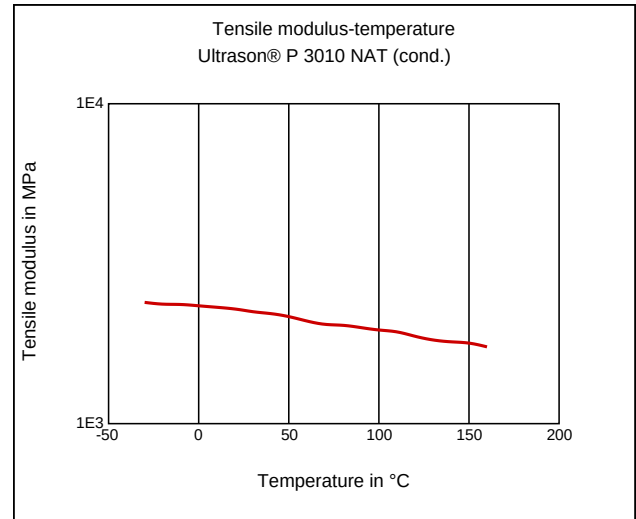
Creep modulus-time 180°C



Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Characteristics

Processing

Injection Molding, Film Extrusion, Profile Extrusion, Sheet Extrusion, Other Extrusion, Blow Molding, Thermoforming

Delivery form

Pellets, Natural Color

Special Characteristics

Flame retardant, Transparent, Sterilizable

Features

Melt Strength

Chemical Resistance

General Chemical Resistance

Certifications

Food approval

Applications

Medical

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Injection Molding

PREPROCESSING

Pre/Post-processing, max. allowed water content: .02 %

Pre/Post-processing, Pre-drying, Temperature: 140 °C

Pre/Post-processing, Pre-drying, Time: 4 h

PROCESSING

injection molding, Melt temperature, range: 350 - 390 °C

injection molding, Melt temperature, recommended: 370 °C

injection molding, Mold temperature, range: 140 - 180 °C

injection molding, Mold temperature, recommended: 160 °C

injection molding, Dwell time, thermoplastics: 10 min

Pretreatment

Drying temperature: 130 - 150 °C

Drying time: minimum 4h

recommended dryer: vacuum or dry air dryer

maximum moisture: 0,02 - 0,05%

Ultrason® can be injection molded by any type of machinery on the market, provided that the plasticizing unit and the mold temperature control system have been configured appropriately. The machinery manufacturer must be consulted if any doubts exist on the ability of various parts to withstand the high temperatures required (e.g. barrel, barrel head, bolted connections, etc.)

Long residence time in combination with high temperatures should be avoided e.g. by pump out material at regular intervals.

During extended interruptions, the barrel temperature should be lowered to about 250-280 °C.

It has been found out that heating to the requested processing temperature and shutting down or lowering the temperature is best carried out in two steps.

First, the barrel temperatures are set at the lower processing temperature range for the particular thermoplastic (340 - 350 °C). As soon as these temperatures have reached a steady state, the material in the barrel is pumped out. Second, the barrel temperature can be set to the required processing temperature or the heaters can be shut down.