Celanese
The chemistry inside innovation™

FORTRON® 0214 - PPS

Description

High viscosity, for extrusion
0214 is an unfilled grade exhibiting good melt strength. This grade demonstrates excellent heat and chemical resistance. It can be extruded to produce multi-filaments. Due to the excellent balance of flow and melt strength, this product is occasionally used for injection molding parts. Available standard in powder (0214B1), pellet (0214P1) and crystallized pellet (0214C1) form.

Physical properties	Value	Unit	Test Standard
Density	**84.3**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**1.2**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**1.5**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**0.02**	%	Sim. to ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**551144**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**13100**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**3**	%	ISO 527-1, -2
Flexural modulus, 23°C	**544000**	psi	ISO 178
Flexural stress at break	**18100**	psi	ISO 178
Izod impact notched, 23°C	**1.66**	ft-lb/in²	ISO 180/1A
Izod impact unnotched, 23°C	**21.4**	ft-lb/in²	ISO 180/1U
Compressive stress at 6% strain	**17400**	psi	ISO 604
Rockwell hardness (M-Scale)	**95**	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	**536**	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	**194**	°F	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	**230**	°F	ISO 75-1, -2
DTUL at 8.0 MPa	**203**	°F	ISO 75-1, -2
Coeff. of linear therm expansion, parallel	**0.289**	E-4/°F	ISO 11359-2
Coeff. of linear therm expansion, normal	**0.294**	E-4/°F	ISO 11359-2

Electrical properties	Value	Unit	Test Standard
Dielectric constant (Dk), 1kHz	**3.2**	-	IEC 60250
Volume resistivity, 23°C	**1E9**	Ohm*m	IEC 62631-3-1
Electric strength, 23°C (AC)	**457**	kV/in	IEC 60243-1
Comparative tracking index	**PLC 4**	-	UL 746

Rheological calculation properties	Value	Unit	Test Standard
Density of melt	**71.8**	lb/ft³	Internal
Spec. heat capacity melt	**1830**	J/(kg K)	Internal

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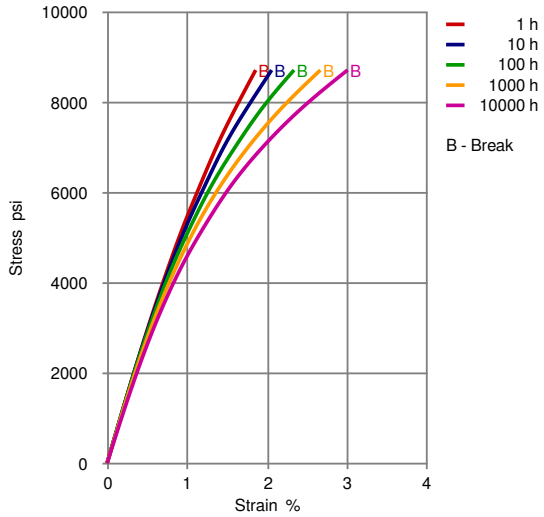
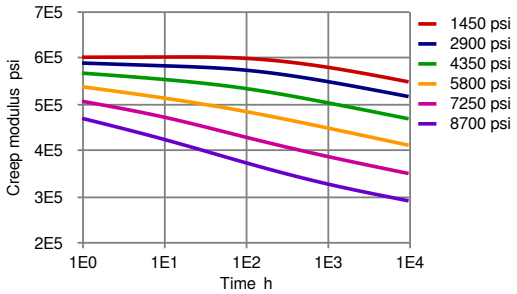
Diagrams

CAMPUS Stress-strain (isochronous) 73.4 °F



CAMPUS Creep modulus-time 73.4 °F



Typical injection moulding processing conditions

Pre Drying	Value	Unit
Necessary low maximum residual moisture content	**0.02**	%
Drying time	**3 - 4**	h
Drying temperature	**230 - 248**	°F

Temperature	Value	Unit
Hopper temperature	**68 - 86**	°F
Feeding zone temperature	**140 - 176**	°F
Zone1 temperature	**554 - 572**	°F
Zone2 temperature	**572 - 590**	°F
Zone3 temperature	**590 - 608**	°F
Zone4 temperature	**590 - 608**	°F
Nozzle temperature	**572 - 590**	°F
Melt temperature	**590 - 626**	°F
Mold temperature	**284 - 320**	°F
Hot runner temperature	**590 - 608**	°F

Pressure	Value	Unit
Back pressure max.	**30**	bar

Speed	Value
Injection speed	**fast**

Screw Speed	Value	Unit
Screw speed diameter, 25mm	**120**	RPM
Screw speed diameter, 40mm	**75**	RPM
Screw speed diameter, 55mm	**50**	RPM

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Other text information

Pre-drying

FORTRON should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< - 30° C. The time between drying and processing should be as short as possible.

Longer pre-drying times/storage

For subsequent storage the material should be stored dry in the dryer until processed (<= 60 h).

Injection molding

On injection molding machines with 15-25 D long three-section screws, are usual in the trade, the unreinforced FORTRON is processable. A shut-off nozzle is recommended.

Melt temperature 310-320 degC
Mold wall temperature at least 140 degC

A medium injection rate is normally preferred. All mold cavities must be effectively vented.

Injection Molding Preprocessing

In spite of the minimum moisture absorption a drying of FORTRON is necessary. Predrying in a dehumidified air dryer at 120 degC/3-4 hours is recommended.

Characteristics

Special Characteristics	Chemical resistant, Flame retardant, Heat resistant
Product Categories	Unfilled
Processing	Extrusion, Film extrusion, Injection molding, Other extrusion
Delivery Form	Pellets, Powder