

Ultraform® H 4320 PRO

Polyoxymethylene



Product Description

Ultraform H 4320 PRO is an unfilled injection molding POM grade, which supports customers in product development for the medical technology market. This grade complied with US Pharmacopoeia: Biological Reactivity Tests, USP Plastic Class VI (USP VI), ISO 10993-5: Biological Evaluation of Medical Devices Part 5: Test for Cytotoxicity, DMF: A Drug Master File (DMF) has been registered at FDA for Ultraform® PRO and Food Contact: Ultraform® PRO is in compliance with multiple regional food contact regulations, especially for Europe and United States.

Applications

This material can be used for functional parts in devices such as insulin pens or powder inhalers as well as for plug in connectors or medical device handles.

PHYSICAL	ISO Test Method	Property Value
Density, g/cm ³	1183	1.39
Moisture, %	62	
(50% RH)		0.2
(Saturation)		0.8
RHEOLOGICAL	ISO Test Method	Property Value
Melt Volume Rate (- C/- Kg), cc/10min.	1133	2.2
MECHANICAL	ISO Test Method	Property Value
Tensile Modulus, MPa	527	
23C		2,600
Tensile stress at yield, MPa	527	
23C		63
Tensile strain at yield, %	527	
23C		10
Ball Indentation, MPa	2039-1	125
Tensile Creep Modulus (1000h), MPa	899	1,300
IMPACT	ISO Test Method	Property Value
Charpy Notched, kJ/m ²	179	
-30C		5.5
23C		6
Charpy Unnotched, kJ/m ²	179	
-30C		180
23C		250
THERMAL	ISO Test Method	Property Value
Melting Point, C	3146	166
HDT A, C	75	95
Coef. of Linear Thermal Expansion, Parallel, mm/mm C		1.2 X10-4
ELECTRICAL	ISO Test Method	Property Value
Comparative Tracking Index	IEC 60112	600
Volume Resistivity (Ohm-m)	IEC 60093	1E13
Surface Resistivity (Ohm)	IEC 60093	1E13

Dielectric Constant (1 MHz)	IEC 60250	3.8
Dissipation Factor (1 MHz), E-4	IEC 60250	50

Processing Guidelines

Material Handling

Max. Water content: 0.15%

Product is supplied in polyethylene bags and drying prior to molding is not required. However, after relatively long storage or when handling material from previously opened containers, preliminary drying is recommended in order to remove any moisture which has been absorbed. If drying is required, a dehumidifying or desiccant dryer operating at 80 - 110C (176 - 230F) is recommended. Drying time is dependent on moisture level, however 2-4 hours is generally sufficient. Further information concerning safe handling procedures can be obtained from the Safety Data Sheet. Alternatively, please contact your BASF representative.

Typical Profile

Melt Temperature 190-230C (375-446F)

Mold Temperature 60-120C (140-248F)

Injection and Packing Pressure 35-70 bar (500-1000psi)

Mold Temperatures

A mold temperature of 80-90C (176-194F) is recommended, however temperatures of as low as 45C (113F) and as high as 105C (221F) can be used where applicable.

Pressures

Injection speed must be optimized. A filling rate which is too high results in anisotropic mechanical properties, while a filling rate which is too low yields parts with poor surface finish. The tool must be vented to avoid burn marks and prevent mold deposits. Injection pressure controls the filling of the part and should be applied for 90% of ram travel. Packing pressure affects the final part and can be used effectively in controlling sink marks and shrinkage. It should be applied and maintained until the gate area is completely frozen off.

Back pressure can be utilized to provide uniform melt consistency and reduce trapped air and gas.

Fill Rate

Injection speed must be optimized. A filling rate which is too high results in anisotropic mechanical properties, while a filling rate which is too low yields parts with poor surface finish. The tool must be vented to avoid burn marks and prevent mold deposits.

Note

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