

Ultraform® S 1320 003 PRO AT

Polyoxymethylene (POM)



Product Description

Ultraform S 1320 003 PRO AT is an easy flowing, rapidly freezing injection molding POM grade with enhanced stiffness and heat distortion resistance. This grade was developed for the medical device market. This grade complies 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

Typical applications include functional parts in medical devices.

PHYSICAL	ISO Test Method	Property Value
Density, g/cm ³	1183	1.41
Mold Shrinkage, parallel, %	294-4	2.1
Mold Shrinkage, normal, %	294-4	2.1
Moisture, %	62	
(50% RH)		0.2
(Saturation)		0.9
RHEOLOGICAL	ISO Test Method	Property Value
Melt Volume Rate (190 C/2.16 Kg), cc/10min.	1133	11
MECHANICAL	ISO Test Method	Property Value
Tensile Modulus, MPa	527	
23C		3,000
Tensile stress at yield, MPa	527	
23C		67
Tensile strain at yield, %	527	
23C		10.5
Nominal strain at break, %	527	
23C		25
Tensile Creep Modulus (1000h), MPa	899	1,450
IMPACT	ISO Test Method	Property Value
Izod Notched Impact, kJ/m ²	180	
-30C		5
23C		5.5
Charpy Notched, kJ/m ²	179	
-30C		5.5
23C		6
Charpy Unnotched, kJ/m ²	179	
-30C		210
23C		230
THERMAL	ISO Test Method	Property Value
Melting Point, C	3146	170
HDT A, C	75	100

Coef. of Linear Thermal Expansion, Parallel,
 mm/mm C
1.1 X10⁻⁴

ELECTRICAL	ISO Test Method	Property Value
Comparative Tracking Index	IEC 60112	600
Volume Resistivity (Ohm-m)	IEC 60093	1E11
Surface Resistivity (Ohm)	IEC 60093	1E15
Dielectric Constant (1 MHz)	IEC 60250	3.7
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 60-120C (140-248F) is recommended, however temperatures of as low as 45C (113F) 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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