Ultraform[®] N 2310 P Q600 Polyoxymethylene



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Product Description

Ultraform N 2310 P Q600 is a general-purpose injection molding POM grade containing special lubricant. Low frictional coefficient giving extremely low wear with otherwise unaltered mechanical properties.

Applications

Typical applications include spring elements, clips, gears and other applications requiring low friction and wear.

PHYSICAL	ISO Test Method	Property Value
Density, g/cm³	1183	1.40
Mold Shrinkage, parallel, %	294-4	2.1
Mold Shrinkage, normal, %	294-4	2.1
Moisture, %	62	-
(50% RH)	02	0.2
(Saturation)		0.8
RHEOLOGICAL	ISO Test Method	Property Value
Melt Volume Rate (190 °C/2.16 Kg), cc/10min.	1133	7.5
MECHANICAL	ISO Test Method	Property Value
Tensile Modulus, MPa	527	
23°C		2,600
Tensile stress at yield, MPa	527	,
23°C		61
Tensile strain at yield, %	527	
23°C		10
Nominal strain at break, %	527	
23°C		30
Tensile Creep Modulus (1000h), MPa	899	1,300
Tensile Creep Modulus (1h), MPa	899	1,900
IMPACT	ISO Test Method	Property Value
IMPACT	130 Test Metriou	rioporty value
Charpy Notched, kJ/m ²	179	rioporty value
		5.5
Charpy Notched, kJ/m ² 23°C		
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ²	179	5.5
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C	179	5.5 180
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C	179 179	5.5 180 200
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL	179 179 ISO Test Method	5.5 180 200 Property Value
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL Melting Point, °C	179 179	5.5 180 200
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL	179 179 ISO Test Method 3146	5.5 180 200 Property Value 166
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL Melting Point, °C HDT A, ° C HDT B, ° C	179 179 ISO Test Method 3146 75	5.5 180 200 Property Value 166 105
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL Melting Point, °C HDT A, ° C	179 179 ISO Test Method 3146 75	5.5 180 200 Property Value 166 105 95
Charpy Notched, kJ/m ² 23°C Charpy Unnotched, kJ/m ² -30°C 23°C THERMAL Melting Point, °C HDT A, ° C HDT B, ° C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C	179 179 ISO Test Method 3146 75 75	5.5 180 200 Property Value 166 105 95 1.1 X10-4
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, °C HDT B, ° C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL	179 179 ISO Test Method 3146 75 75 ISO Test Method	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, °C HDT B, °C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index	179 179 ISO Test Method 3146 75 75 ISO Test Method IEC 60112	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, °C HDT B, °C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index Volume Resistivity (Ohm)	179 179 180 Test Method 3146 75 75 ISO Test Method IEC 60112 IEC 60093	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600 1E12
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, °C HDT B, °C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index Volume Resistivity (Ohm) Surface Resistivity (Ohm-m)	179 179 180 Test Method 3146 75 75 ISO Test Method IEC 60112 IEC 60093 IEC 60093	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600 1E12 1E12
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, °C HDT B, °C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index Volume Resistivity (Ohm) Surface Resistivity (Ohm-m) Dielectric Constant (100 Hz)	179 179 179 ISO Test Method 3146 75 75 ISO Test Method IEC 60112 IEC 60093 IEC 60093 IEC 60093	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600 1E12 1E12 3.8
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, ° C HDT B, ° C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index Volume Resistivity (Ohm) Surface Resistivity (Ohm-m) Dielectric Constant (100 Hz) Dielectric Constant (1 MHz)	179 179 179 ISO Test Method 3146 75 75 ISO Test Method IEC 60112 IEC 60093 IEC 60093 IEC 60250 IEC 60250	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600 1E12 1E12 3.8 3.8
Charpy Notched, kJ/m² 23°C Charpy Unnotched, kJ/m² -30°C 23°C THERMAL Melting Point, °C HDT A, ° C HDT B, ° C Coef. of Linear Thermal Expansion, Parallel, mm/mm °C ELECTRICAL Comparative Tracking Index Volume Resistivity (Ohm) Surface Resistivity (Ohm-m) Dielectric Constant (100 Hz) Dissipation Factor (100 Hz)	179 179 179 ISO Test Method 3146 75 75 ISO Test Method IEC 60112 IEC 60093 IEC 60093 IEC 60093 IEC 60250 IEC 60250 IEC 60250	5.5 180 200 Property Value 166 105 95 1.1 X10-4 Property Value 600 1E12 1E12 3.8 3.8 3.8

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 - 110°C (176 - 230°F) 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 190-230°C (375-446°F) Mold Temperature 60-120°C (140-248°F) Injection and Packing Pressure 35-70 bar (500-1000psi)

Mold Temperatures

A mold temperature of 80-90°C (176-194°F) is recommended, however temperatures of as low as 45°C (113°F) and as high as 105°C (221°F) 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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