

# Ultradur® S 4090 G4

## PBT (Polybutylene Terephthalate)

### Product Description

Ultradur S 4090 G4 is a 20% glass reinforced PBT+ASA blend. It produces moldings with good surface finish, is resistant to chemicals and stress cracking, and has low shrinkage and warpage.

### Applications

Applications include highly stressed equipment housings in the automotive, electrical and household sectors.

PHYSICAL	ISO Test Method	Property Value
Density, g/cm <sup>3</sup>	1183	1.39
Viscosity Number, cm <sup>3</sup> /g	1628	105
Mold Shrinkage, parallel, %	294-4	0.43
Mold Shrinkage, normal, %	294-4	0.74
Moisture, %	62	
(50% RH)		0.2
(Saturation)		0.4
MECHANICAL	ISO Test Method	Property Value
Tensile Modulus, MPa	527	
23°C		6,900
Tensile stress at break, MPa	527	
-40°C		160
23°C		100
80°C		68
120°C		42
150°C		32.2
Tensile strain at break, %	527	
-40°C		2.7
23°C		2.5
80°C		4.2
120°C		7.4
150°C		6.7
Flexural Modulus, MPa	178	
23°C		6,400
Tensile Creep Modulus (1000h), MPa	899	4,700
Tensile Creep Modulus (1h), MPa	899	5,300
IMPACT	ISO Test Method	Property Value
Izod Notched Impact, kJ/m <sup>2</sup>	180	
23°C		7
Charpy Notched, kJ/m <sup>2</sup>	179	
23°C		7
Charpy Unnotched, kJ/m <sup>2</sup>	179	
-30°C		43
23°C		55
THERMAL	ISO Test Method	Property Value
Melting Point, °C	3146	223
HDT A, °C	75	160
HDT B, °C	75	205
Coef. of Linear Thermal Expansion, Parallel, mm/mm °C		.4 X10 <sup>-4</sup>
ELECTRICAL	ISO Test Method	Property Value
Comparative Tracking Index	IEC 60112	450
Volume Resistivity (Ohm)	IEC 60093	>1E13
Surface Resistivity (Ohm-m)	IEC 60093	1E14
Dielectric Constant (100 Hz)	IEC 60250	3.7
Dielectric Constant (1 MHz)	IEC 60250	3.6
Dissipation Factor (100 Hz)	IEC 60250	30
Dissipation Factor (1 MHz)	IEC 60250	190
UL RATINGS	UL Test Method	Property Value
Flammability Rating, 0.71mm	UL94	HB
Relative Temperature Index, 0.71mm	UL746B	
Mechanical w/o Impact, °C		130
Mechanical w/ Impact, °C		90
Electrical, °C		130
Flammability Rating, 1.5mm	UL94	HB
Relative Temperature Index, 1.5mm	UL746B	
Mechanical w/o Impact, °C		130

Mechanical w/ Impact, °C		90
Electrical, °C		130
Flammability Rating, 3.0mm	UL94	HB
Relative Temperature Index, 3.0mm	UL746B	
Mechanical w/o Impact, °C		130
Mechanical w/ Impact, °C		90
Electrical, °C		130

## Processing Guidelines

### Material Handling

Max. Water content: 0.04%

To ensure optimum part performance, this product must be dried prior to molding and maintained at a moisture level of less than 0.04%. Dehumidifying or desiccant dryers operating at 100-120°C (212-248°F) for 4 hours drying time are recommended. Further information concerning safe handling procedures can be obtained from the Safety Data Sheet. Alternatively, please contact your BASF representative.

### Typical Profile

Melt Temperature 250-270°C (482-518°F)

Mold Temperature 60-100°C (140-212°F)

Injection and Packing Pressure 35-125 bar (500-1500 psi)

### Mold Temperatures

This product can be processed over mold temperatures of 60-100°C (140-212°F); however, for optimizing surface appearance, dimensional stability and part performance, mold surface temperatures of at least 80°C (176°F) are preferred.

### Pressures

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. A maximum of 10 bar (145 psi) is recommended due to the risk of excessive shear.

### Fill Rate

Fast fill rates are recommended to ensure uniform melt delivery to the cavity and prevent premature freezing. Surface appearance is directly affected by injection rate.

## Note

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