

Grilamid TR 55

Grilamid TR 55 is a uniquely versatile material. Based on Nylon 12, Grilamid TR 55 combines' excellent transparency with superior chemical resistance, strength, stiffness, toughness and outstanding processability.

Transparency at any processable wall thickness is achievable with Grilamid TR 55. The excellent transparency is maintained even after prolonged exposure to boiling water. Grilamid TR 55 is NSF Standard 61 Listed and also complies with the requirements of CFR 21 Part 177, Section 1500 for nylon 12T resins in direct contact with food.

Typical applications for Grilamid TR 55 are fuel, air or water filter bodies, faucet and shower handles, electrical/electronic components and automotive parts.

Processing

Grilamid TR55 is supplied ready for processing in free-flowing pellet form, pre-dried to 0.1%

moisture and packaged in multiwall, foil-lined, moisture-proof bags containing 25 kg net. For optimum processing and parts quality, the resin should be protected from exposure to a humid environment prior to processing. If hopper residence times are likely to exceed two hours, use of a hopper dryer operating at 176°F/80°C is recommended.

If the material is otherwise exposed to a humid environment for more than two hours, drying is recommended to ensure that the moisture content does not exceed 0.1% for processing. Use of a vacuum dryer operating at 230°F/110°C for 3-4 hours is strongly recommended. A desiccant dryer may also be used, but to avoid oxidation of the material and consequent discoloration, temperatures should be held below 176°F/80°C, with drying times between six and ten hours. For longer periods, overnight for example, desiccant drying is acceptable at temperatures not exceeding 158°F/ 70°C.

Processing Guidelines

Injection Molding

Zone Temperatures	°F	536-554-572
1-2-3	°C	280-290-300
Nozzle Temperatures	°F	480
	°C	250
Melt Temperatures	°F	572
	°C	290
Mold Temperatures	°F	200 min.
	°C	80 min.
Injection Speed		Medium
Injection Pressure		Medium

Extrusion

Barrel Temperatures	°F	464-500-500-500
	°C	240-260-260-260
Clamp Temperature	°F	500
	°C	262/600
Die Temperatures	°F	500-500-500
1-2-3	°C	260-260-260
Melt Temperature	°F	464-517
Range	°C	240-270

Cooling the feed zone at the hopper is recommended.

Preliminary Property Data: Grilamid TR 55

General Properties

Glass Transition Temperature	DSC	°F/°C	311/155
Specific Gravity	ASTM D792	---	1.06
Moisture Absorption	ASTM D570	%	
24 hr immersion			0.30
73°F/23°C/50%RH in air			1.50
73°F/23°C in water			3.50
Linear Mold Shrinkage (F/T)	EMS	%	0.70 / 0.40
Mold Shrinkage	ASTM D955	in/in	
Perpendicular			0.01
Parallel			0.011
Refractive Index	DIN 53491	-	1.535
Light Transmission	ASTM D1003	%	91
Haze	ASTM D1003	%	5.4

Thermal Properties

Heat Deflection Temperature	ASTM D648	°F/°C	
66 psi (455 Kpa)			310/155
264 psi (1820 Kpa)			300/150
Coefficient of Linear Thermal Expansion	DIN 53752	in/in °F cm/cm °C	3-5X10 ⁻⁶ 7-8X10 ⁻⁶
Thermal Conductivity @ 68°F/20°C	EMS	W/m°C	0.16
Heat Capacity @ 68°F/20°C	EMS	J/g °C	1.80
Maximum Usage Temperatures	EMS	°F/°C	
Long Term in Air			176/80
Short Term in Air			248/120

Mechanical Properties

			Dry-As-Molded	Conditioned
Tensile Strength	ASTM D638	psi (MPa)	11,800 (81)	11,000 (76)
Elongation at Yield/Break	ASTM D638	%	10/120	10/220
Flexural Modulus	ASTM D790	psi (MPa)	295,000 (2,036)	273,000 (1,882)
Flexural Strength	ASTM D790	psi (MPa)	14,300 (99)	14,100 (97)
Notched Izod Impact Strength	ASTM D256	ft-lb/in (J/m)	1.0 (50)	2.0 (100)
Hardness	Shore	D-scale	85	83

Electrical Properties

Volume resistivity	DIN 53481	- cm		10 ¹²
Dielectric strength	DIN 53481	kV/in (kV/mm)		787 (31)
Dielectric Constant @ 100HZ	IEC 250	-		3.00
Dielectric Factor @ 100HZ	IEC 150	-		0.0080
Comparative Tracking Resistance	DIN 53480	Volts	600+	600+

June 26, 2000

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