

# Pellethane® TPU 8663 Series

**Type:** Medical grade aromatic polyether thermoplastic polyurethane

**Features:** Excellent mechanical properties and chemical resistance; USP Class VI tested

**Process:** Extrusion, Injection Molding or Solution Processing

Products & Properties	Test Method	8663-85A	8663-95A	8663-55D
<b>Physical</b>				
Specific Gravity	ASTM D792	1.12	1.14	1.16
Durometer Hardness, Shore (+/-4)	ASTM D2240	85A	90A	51D
Tensile Modulus 50% Elongation, MPa (psi) 100% Elongation, MPa (psi) 300% Elongation, MPa (psi) 400% Elongation, MPa (psi)	ASTM D412	4.8 (700) 5.9 (860) 11.7 (1700) 22.1 (3200)	7.7 (1125) 9.2 (1330) 20.3 (2950) 37.2 (5400)	11.9 (1730) 17.2 (2500) 44.1 (6400) -
Ultimate Tensile Strength, MPa (psi)	ASTM D412	48.3 (7000)	53.8 (7800)	55.8 (8100)
Ultimate Elongation, %	ASTM D412	550	500	350
Tensile Set @ 200% Elongation, %	ASTM D412	14	24	25
Tear Strength, Die "C", KN/m (pli)	ASTM D624	85.9 (490)	110 (630)	128 (730)
Compression Set 22 hours at 23°C (73°F), % 22 hours at 70°C (158°F), %	ASTM D395	26 67	21 65	16 54
Taber Abrasion Resistance 1000g, 1000 cycles; H-18 wheel, (mg)	ASTM D3389	18	22	36
Flexural Modulus, MPa (psi)	ASTM D790	21.3 (3100)	33.8 (4900)	73.8 (10700)
<b>Thermal</b>				
Vicat Softening Temperature, °C (°F)	ASTM D1525	90 (194)	116 (241)	163 (325)
Glass Transition Temperature, °C (°F)	ASTM D3418	-47 (-52.6)	-41 (-41.8)	-22 (-7.6)
<b>Rheological</b>				
Melt Index, g/10 min	ASTM D1238	15 - 30 190°C/8700g	25 - 45 210°C/3800g	8 - 18 224°C/2160g

**Note:** These test results are based on small samples of Pellethane® polyurethanes and do not necessarily represent average results from larger test samples. This information should not be used for establishing engineering or manufacturing guidelines.

### Handling Conditions:

Properties of all thermoplastic polyurethane products in the molten state are adversely affected by moisture. For the best results, **always dry the material** at least two hours at 82°C (180°F) for shore A resins to 104°C (220°F) for shore D resins, or overnight at 65°C (150°F) in a machine mounted dehumidifying dryer (a desiccant dryer delivering air at 1 liter/sec/kg at -40°C dew point (1 cfm/lb at -40°F dew point). A dehumidifying dryer hopper or one shot loader is also recommended.

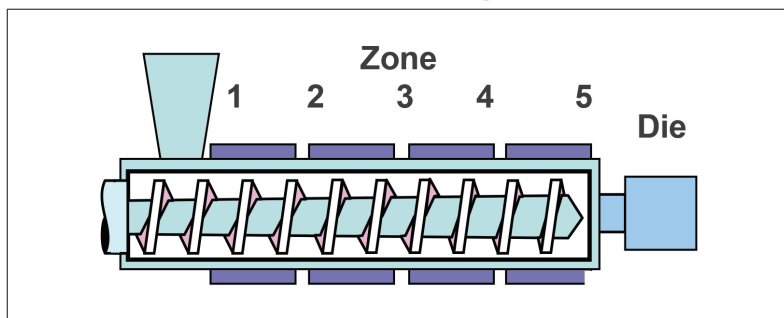
Depending on the applied processing technique, the **maximum moisture level should be 0.02%**.

Melt temperature should never exceed 500°F (270°C).

### Processing Conditions:

Pellethane® 8663 TPU's can be processed on any conventional extruder or molder.

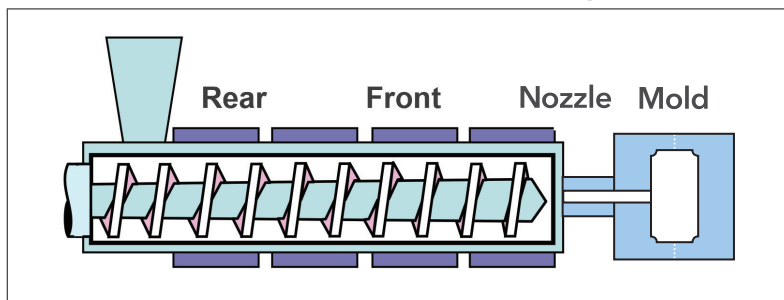
### Recommended Starting Extrusion Temperature Profile:



	8663-85A	8663-95A	8663-55D
	°F/°C	°F/°C	°F/°C
<b>Zone 1</b>	360 / 182	365 / 185	370 / 188
<b>Zone 2</b>	375 / 191	380 / 193	380 / 193
<b>Zone 3</b>	385 / 196	390 / 199	390 / 199
<b>Zone 4</b>	390 / 199	400 / 204	400 / 204
<b>Adapter 5</b>	390 / 199	405 / 207	410 / 210
<b>Die</b>	390 / 199	405 / 207	410 / 210
<b>Melt</b>	405 / 207	420 / 215	425 / 218

Screen Pack Recommendation: 100/250/100

### Recommended Starting Injection Molding Temperature Profile:



	8663-85A	8663-95A	8663-55D
	°F/°C	°F/°C	°F/°C
<b>Rear</b>	360 / 182	365 / 185	370 / 188
<b>Front</b>	380 / 193	385 / 196	390 / 199
<b>Nozzle</b>	390 / 199	400 / 205	410 / 210
<b>Mold</b>	70 / 21	80 / 27	90 / 32
<b>Screw Speed</b>	Low-Mid	Low-Mid	Low-Mid

Please refer to Lubrizol's LifeSciences [processing guide\(s\)](#) for more information.