

# Pellethane® 2363 Series TPU

**Type:** Medical grade polyether-based aromatic Thermoplastic Polyurethanes (TPUs).

**Features:** This series exhibits excellent hydrolytic stability across a range of durometers and provides good mechanical and chemical resistance properties. Lubrizol maintains a Master File (MAF) with the United States Food and Drug Administration (FDA) for this product series.

**Process:** Extrusion and Injection Molding; Grades with an “E” designation indicate the product is formulated for extrusion processes.

Property	Test Method	Units	Pellethane® Product							
			2363-80AE	2363-80A	2363-90AE	2363-90A	2363-55DE	2363-55D	2363-65D	2363-75D
<b>Physical</b>										
Shore Hardness*†	ASTM D2240	Shore	83A	80A	90A	90A	55D	55D	64D	75D
Specific Gravity	ASTM D792	-	1.11	1.12	1.14	1.14	1.16	1.16	1.17	1.19
<b>Mechanical</b>										
Tensile Modulus† 50% Elongation	ASTM D412	psi	630	600	1000	1200	1700	2000	2300	4500
		MPa	4.4	4.1	6.9	8.3	11.7	13.8	15.9	31.0
Tensile Modulus† 100% Elongation	ASTM D412	psi	870	850	1400	1600	2200	2600	3000	4900
		MPa	6.0	5.9	9.6	11.0	15.2	17.9	20.7	33.8
Tensile Modulus† 300% Elongation	ASTM D412	psi	1500	1700	2800	3200	4200	5000	5500	-
		MPa	10.3	11.7	19.3	22.1	29.0	34.5	37.9	-
Ultimate Elongation†	ASTM D412	%	670	560	550	450	460	380	380	350
Ultimate Tensile Strength†	ASTM D412	psi	4500	5700	5500	6300	6200	6500	6800	6800
		MPa	31.0	39.3	37.9	43.4	42.7	44.8	46.9	46.9
Tensile Set @ 200% Elongation†	ASTM D412	%	8	8	12	12	17	20	23	70

Property	Test Method	Units	Pellethane® Product							
			2363-80AE	2363-80A	2363-90AE	2363-90A	2363-55DE	2363-55D	2363-65D	2363-75D
<b>Mechanical</b>										
Tear Strength	ASTM D624 Die C	PLI	480	470	620	630	800	830	900	1300
		KN/m	84	82	109	110	140	145	158	228
Compression Set 22hrs @23°C	ASTM D395 Method B	%	25	20	25	20	25	25	-	-
Compression Set 22hrs @70°C	ASTM D395 Method B	%	75	65	75	65	75	75	-	-
Taber Abrasion Wt Loss	ASTM D1044 1000g wt H-22	mg	25	30	30	30	55	55	60	65
Flexural Modulus	ASTM D790	psi	3500	3400	6000	6800	10,000	13,000	19,000	220,000
		MPa	24.1	23.4	41.4	46.9	68.9	89.6	131.0	1516.8
<b>Thermal</b>										
Vicat Softening Point	ASTM D1525 2°C/min, 9,8N	°F	165	185	194	230	221	284	240	131
		°C	74	85	90	110	105	140	116	55
Glass Transition Temperature, Tg	DSC ASTM D3418 Second Heat	°F	-27	-18	-13	3	32	32	68	104
		°C	-33	-28	-25	-16	0	0	20	40
<b>Typical Processing Conditions<sup>††</sup></b>										
Drying Temperature	-	°F	180 - 200	180 - 200	190 - 220	190 - 220	190 - 220	190 - 220	210 - 230	210 - 230
		°C	82 - 93	82 - 93	88 - 104	88 - 104	88 - 104	88 - 104	99 - 110	99 - 110
Drying Air Dew Point	-	°F	-40	-40	-40	-40	-40	-40	-40	-40
		°C	-40	-40	-40	-40	-40	-40	-40	-40
Extrusion Melt Temperature	-	°F	370 - 400	320 - 410	380 - 410	360 - 430	380 - 410	350 - 430	400 - 430	400 - 430
		°C	188 - 204	160 - 210	193 - 210	182 - 221	193 - 210	177 - 221	204 - 221	204 - 221

Property	Test Method	Units	Pellethane® Product							
			2363-80AE	2363-80A	2363-90AE	2363-90A	2363-55DE	2363-55D	2363-65D	2363-75D
<b>Typical Processing Conditions<sup>††</sup></b>										
Injection Molding Melt Temperature	-	°F	370 - 400	380 - 410	380 - 410	400 - 430	390 - 420	410 - 440	410 - 440	410 - 440
	-	°C	188 - 204	193 - 210	193 - 210	204 - 221	199 - 216	210 - 227	210 - 227	210 - 227
Injection Mold Temperature	-	°F	60 - 140	60 - 140	60 - 140	60 - 140	60 - 140	60 - 140	60 - 140	60 - 140
	-	°C	15 - 60	15 - 60	15 - 60	15 - 60	15 - 60	15 - 60	15 - 60	15 - 60
Mold Shrinkage	ASTM D955	%	0.1 - 0.6	0.1 - 0.8	0.4 - 0.8	0.3 - 0.6	0.6 - 0.8	0.4 - 1.0	0.7 - 0.9	0.3 - 0.8

<sup>†</sup>Immediate durometer.

<sup>†</sup>Samples injection molded, annealed 16 hours at 115°C prior to testing.

<sup>††</sup> Typical starting process conditions. Actual process conditions depend on processing equipment and end use. User should consider mold safe conditions when utilizing provided mold shrinkage information.

This technical data sheet provides typical expected values based on internal Lubrizol testing of limited sample size. **This technical data sheet does not constitute product specifications.** This information should not be used to establish engineering or manufacturing guidelines, and users should confirm values with their own testing.

**Handling and Processing Considerations:** Properties of all thermoplastic polyurethane products in the molten state are adversely affected by moisture. For best results, always dry the material at the above recommended drying temperatures 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%. Never exceed 500°F (260°C) melt temperature.

Pellethane® 2363 Series TPU can be processed on conventional molding or extrusion equipment. Please refer to Lubrizol's [processing guide\(s\)](#) for more information regarding proper drying, equipment, and process design.

Further guidance is available on the [LLS Health Resource Hub](#) or by contacting our [technical solutions team](#).