

**TYPICAL PROPERTIES OF NYLONS (DRY, AS MOLDED)**

ASTM or UL Test	Property	TYPE			
		6/6	6	6/12	11
PHYSICAL					
D792	<b>Specific gravity</b>	1.14	1.13	1.06	1.04
D792	<b>Specific volume</b> (in <sup>3</sup> /lb)	24.2	24.5	25.9	26.6
D570	<b>Water absorption</b> , 24 h, 1/8-in thk (%)	1.2	1.6	0.25	0.4
MECHANICAL					
D638	<b>Tensile strength</b> (psi)	12,000	11,800	8,800	8,500
D638	<b>Elongation</b> (%)	60	150	150	120
D638	<b>Tensile modulus</b> (10 <sup>5</sup> psi)	4.2	3.8	2.9	1.8
D790	<b>Flexural modulus</b> (10 <sup>5</sup> psi)	4.1	4.0	2.9	1.5
D256	<b>Impact strength</b> , Izod (ft-lb/in of notch)	1.0	1.0	1.0	3.3
D785	<b>Hardness</b> , Rockwell R	121	119	114	—
THERMAL					
C177	<b>Thermal conductivity</b> (Btu-in/hr-ft <sup>2</sup> -°F)	1.7	1.7	1.5	—
D696	<b>Coefficient of thermal expansion</b> (10 <sup>-5</sup> in/in-°F)	4.0	4.5	5.0	5.1
D648	<b>Deflection temperature</b> (°F)				
	At 264 psi	194	152	194	118
	At 66 psi	455	365	356	154
UL 94	<b>Flammability rating</b> , 1/8 in	V-2	V-2	V-2	—
ELECTRICAL					
D149	<b>Dielectric strength</b> (V/mil)				
	Short time, 1/8-in thk	600	400	400	425
D150	<b>Dielectric constant</b>				
	At 1 kHz	3.9	3.7	4.0	3.3
D150	<b>Dissipation factor</b>				
	At 1 kHz	0.02	0.02	0.02	0.03
D257	<b>Volume resistivity</b> (ohm-cm)				
	At 73°F, 50% RH	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>	2×10 <sup>13</sup>
D495	<b>Arc resistance</b> (s)	116	—	121	—

\*0.040-in thick specimen.

ASTM TEST	PROPERTY	CAST 6 NYLON	CAST 12 NYLON	CAST 6 NYLON WITH OIL IMPREGNATION	CAST NYLON 612	CAST 6 NYLON WITH PLASTICIZER	HEAT STABILIZED CAST NYLON
D792	<b>Specific gravity</b>	1.15-1.17	1.03	1.14-1.15	1.10-1.13	1.14-1.16	1.15-1.17
D638	<b>Tensile strength (psi)</b>	12,000-13,500	7,900	9,500-11,000	8,700-11,500	9,700-10,800	12,000-13,500
D638	<b>Tensile elongation (%)</b>	20-45	>50	45-55	25-80	25-35	20-30
D638	<b>Tensile modulus (psi)</b>	485-550,000	230,000	375,000-475,000	240-330,000	375-440,000	485-550,000
D695	<b>Compressive strength (psi)</b>						
	At 10% offset	15,500-18,000	10,000	12,000-14,000	—	22,000-25,000	—
D695	<b>Compressive modulus (psi)</b>	300-350,000	224,000	275,000-375,000	—	250,000-275,000	300-310,000
D790	<b>Flexural strength (psi)</b>	15,500-17,500	9,000	14,000-16,000	15,000-20,000	12,000-13,000	15,000-16,000
D790	<b>Flexural modulus (psi)</b>	420-500,000	238,000	375,000-475,000	285-385,000	330-350,000	420-440,000
D712	<b>Shear strength (psi)</b>	10,000-11,000	6,100	8,000-9,000	7,600-9,000	10,000-11,000	10,000-11,000
D256	<b>Notched izod impact (ft-lb/in)</b>	0.7-0.9	3.02	1.4-1.8	0.9-1.4	0.82-0.91	0.7-0.9
D785	<b>Hardness, Rockwell R</b>	115-125	108	110-115	100-115	110-115	110-115
D2240	<b>Hardness, Shore D</b>	78-83	76	74-78	75-81	76-78	76-78
D789	<b>Melting point (°F)</b>	450 +/- 10	351	450 +/- 10	410 +/- 10	450 +/- 10	450 +/- 10
D696	<b>Coefficient of linear thermal expansion (in/in-°F)</b>	5.0x10 <sup>-5</sup>	5.50x10 <sup>-5</sup>	3.50x10 <sup>-5</sup>	4-4.5x10 <sup>-5</sup>	4.5x10 <sup>-5</sup>	4.5x10 <sup>-5</sup>
D621	<b>Deformation under load (%)</b>	0.5-2.5	—	0.78	dependent on grade	1.0-3.5	0.5-1.0
D648	<b>Deflection temp. (°F)</b>						
	At 264 psi	330-400	124	330-400	330-400	330-400	330-400
	At 66 psi	400-430	347	400-430	400-430	400-430	400-430
—	<b>Continuous service temp. (°F)</b>	230	250	230	210	230	250
—	<b>Intermittent service temp. (°F)</b>	330	300	330	300	330	330
—	<b>Coefficient of friction dynamic (1)</b>	0.22	0.2-0.3	0.12	N/A	N/A	0.22
D570	<b>Water absorption (%)</b>						
	24 h	0.5-0.6	0.12	0.5-0.6	0.5-0.6	0.5-0.6	0.5-0.6
	Saturation	5.0-6.0	.45 (480 hrs)	2.0-2.5	4.0-5.0	5.0-6.0	5.0-6.0
D149	<b>Dielectric strength, Short time (V/mil)</b>	500-600	—	500-600	500-600	500-600	—
D150	<b>Dielectric constant</b>						
	At 60 cycles	3.7	—	3.7	3.7	3.7	—
	At 1,000 cycles	3.7	—	3.7	3.7	3.7	—
	At 100,000 cycles	3.7	—	3.7	3.7	3.7	—