

## Nylon, Cast

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</b> (psi)	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</b> (psi)	485-550,000	230,000	375,000-475,000	240-330,000	375-440,000	485-550,000
D695	<b>Compressive strength</b> (psi)						
	At 10% offset	15,500-18,000	10,000	12,000-14,000	—	22,000-25,000	—
D695	<b>Compressive modulus</b> (psi)	300-350,000	224,000	275,000-375,000	—	250,000-275,000	300-310,000
D790	<b>Flexural strength</b> (psi)	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</b> (psi)	420-500,000	238,000	375,000-475,000	285-385,000	330-350,000	420-440,000
D712	<b>Shear strength</b> (psi)	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</b> (ft-lb/in)	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</b> (°F)	450 +/- 10	351	450 +/- 10	410 +/- 10	450 +/- 10	450 +/- 10
D696	<b>Coefficient of linear thermal expansion</b> (in/in-°F)	5.0×10 <sup>-5</sup>	5.50×10 <sup>-5</sup>	3.50×10 <sup>-5</sup>	4-4.5×10 <sup>-5</sup>	4.5×10 <sup>-5</sup>	4.5×10 <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.</b> (°F)						
	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.</b> (°F)	230	250	230	210	230	250
—	<b>Intermittent service temp.</b> (°F)	330	300	330	300	330	330
—	<b>Coefficient of friction dynamic</b> (1)	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</b> , Short time (V/mil)	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	—

ISO 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
ISO1183	<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
ISO527	<b>Tensile strength (MPa)</b>	82.74-93.08	54.47	65.50-75.84	59.98-79.29	66.88-74.46	82.74-93.08
ISO527	<b>Tensile elongation (%)</b>	20-45	>50	45-55	25-80	25-35	20-30
ISO527	<b>Tensile modulus (MPa)</b>	3343-3792	1586	2585-3275	1654-2275	2585-3033	3343-3792
ASTM D695	<b>Compressive strength (bar)</b> At 10% offset	1070-1200	690	830-960	—	1500-1700	—
ASTM D695	<b>Compressive modulus (bar)</b>	24,000	15,000	18,000	—	17,000	21,000
ISO178	<b>Flexural strength (MPa)</b>	106.87-120.66	62.05	96.53-110.32	103.42-137.90	82.74-89.63	103.42-110.32
ISO178	<b>Flexural modulus (MPa)</b>	2895-3447	1640	2585-3275	1965-2654	2275-2413	2895-3033
ISO537	<b>Shear strength (MPa)</b>	68.95-76.00	42.06	55.16-62.05	52.40-62.10	68.95-75.84	68.95-75.84
ISO180	<b>Notched izod impact strength (J/m)</b>	37-48	161	75-96	48-75	44-49	37-48
ISO2039	<b>Hardness, Rockwell R</b>	115-125	108	110-115	100-115	110-115	110-115
ISO868	<b>Hardness, Shore D</b>	78-83	76	74-78	75-81	76-78	76-78
ISO3146	<b>Melting point (°C)</b>	232 +/- 5	177	232 +/- 5	210 +/- 5	232 +/- 5	232 +/- 5
ISO11359	<b>Coefficient of linear thermal expansion (10<sup>-4</sup> m/m °C)</b>	0.90	0.99	0.63	0.80	0.81	0.81
ASTM D621	<b>Deformation under load (%)</b>	0.5-2.5	—	0.78	dependent on grade	1.0-3.5	0.5-1.0
ISO75	<b>Deflection temp. (°C)</b> At 1.80 MPa	166-204	51	166-204	166-204	166-204	166-204
	At 0.45 MPa	204-221	175	204-221	204-221	204-221	204-221
—	<b>Continuous service temp. (°C)</b>	110	121	110	100	110	121
—	<b>Intermittent service temp. (°C)</b>	166	150	166	150	166	150
ISO62	<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
IEC243	<b>Dielectric strength, Short time (kV/mm)</b>	19.7-23.6	—	19.7-23.6	19.7-23.6	19.7-23.6	—
IEC250	<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	—