

PHYSICAL PROPERTIES OF PLASTICS

Property	Test Method ASTM	Natural Extruded Nylon	MD Extruded Nylon	Cast Nylon	Molded Teflon®	Extruded Acetal	Molded UHMWPE	
Specific Gravity	D792	1.14-1.15	1.14-1.18	1.15-1.17	2.1-2.3	1.41-1.42	0.94	
Tensile Strength 73°F, psi	D638	9,000-12,000	10,000-14,000	11,000-14,000	1,500-5,000	8,800-12,000	4,000-5,500	
Tensile Modulus of Elasticity, 73°F	D638	250,000-400,000	450,000-600,000	350,000-450,000	50,000-90,000	410,000-520,000	80,000-100,000	
Elongation, 73°F	D638	20-200	5-150	10-60	75-350	12-75	200-450	
Flexural Strength, 73°F, psi	D790	12,500-14,000	16,000-19,000	16,000-17,500	No Break	13,000-15,500	—	
Flexural Modulus of Elasticity, 73°F, psi	D790	175,000-410,000	400,000-500,000	—	90,000-110,000	375,000-550,000	75,000	
Shear Strength, 73°F, psi	D790	9,600	9,500-10,000	10,500-11,500	—	7,700-9,500	3,500	
Compressive Strength, 10% Def., psi	D695	12,000	12,000-13,000	—	—	16,000-18,000	—	
Compressive Modulus of Elasticity, 73°F, psi	D695	—	—	—	95,000-115,000	—	—	
Coefficient of Friction (Dry vs. Steel) Dynamic		.17-.43	.15-.35	.16-.25	.04-.10	.15-.35	.09-.12	
Hardness,	Rockwell, 73°F	D785	R110-120	R110-125	R112-120	R10-20	R119-122	R64
	Durometer, 73°F	D676	D80-85	D80-90	—	D55-70	2.3	—
Tensile Impact, 73°F, ft lb/in ²	D1822	90-180	50-180	80-130	30-200	40-90	1,000	
Coefficient of Linear Thermal Expansion, in/in/°F	D696	5.5x10 ⁻⁵	3.5x10 ⁻⁵	5.0x10 ⁻⁵	5.5-7.5x10 ⁻⁵	4.2-4.7x10 ⁻⁵	7.2x10 ⁻⁵	
Deformation Under Load (122°F 2,000 psi), %	D621	1.0-3.0	0.5-2.5	0.5-1.0	3-7	0.3-1.0	6-8 (6hrs.)	
Deflection Temperature	264 psi, °F	D648	200-450	200-470	200-425	100-140	230-255	—
	66 psi, °F	D648	400-460	400-490	400-425	—	316-338	158-174
Melting Point, °F	D789	482-500	482-500	430±10	621±9	329-347	266	
Continuous Service Temperature in Air (Maximum), °F		180-200	180-200	200-225	500	180	160/180	
Dielectric Strength Short Time, Volts/mil	D149	300-400	300-400	500-600	500-650	380-500	450-500	
Volume Resistivity, OHM-CM	D257	4.5x10 ¹³	2.5x10 ¹³	—	>10 ¹⁷	1x10 ¹⁴ -10 ¹⁵	10 ¹⁸	
Dielectric Constant,	60 Hz	D150	4.1	—	3.7	2.0-2.1	3.7	2.3
	10 ³ Hz	D150	4.0	—	3.7	2.0-2.1	3.7	—
	10 ⁶ Hz	D150	3.4	—	3.7	2.0-2.1	3.7	—
Water Absorption Immersion	24 Hours, %	D570	0.6-1.5	0.5-1.4	0.6-1.2	0.00-0.05	0.12-0.25	<.01
	Saturation, %	D570	7-9	6-8	5.5-6.5	—	0.80-0.90	—
Acids,	Weak, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
	Strong, 73°F		Unacceptable	Unacceptable	Unacceptable	Acceptable	Unacceptable	Limited
Alkalies,	Weak, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
	Strong, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Unacceptable	Acceptable
Hydrocarbons, Aromatic, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Limited	
Hydrocarbons, Aliphatic, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
Ketones, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
Ethers, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
Esters, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
Alcohols, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	
Inorganic Salt Solutions, 73°F		Acceptable	Acceptable	Acceptable	Acceptable	—	Acceptable	
Continuous Sunlight, 73°F		Limited	Limited	Limited	Acceptable	—	Unacceptable	

NOTE: Property data shown are typical average values and will vary on specific production lots and by size and configuration of product. Therefore, they should be used only as a guide to primary selection for application of a given material, and never for purchase specifications. Further technical information is available for specific application requirements. All values shown are based on bone dry specimens. Where no value is listed, sufficient details are not available to present a useable figure.