

## TECAMID® (Nylon)

Nylon was the first engineering resin. It has been used in applications ranging from electronic, marine, and automotive industries to fibers used to

make carpet.

Nylon has outstanding wear resistance and low frictional properties. It has very good temperature, chemical,

and impact properties.

However, nylon's one weakness is a propensity to absorb moisture and thus have poor dimensional stability.

---

- **TECAMID® 6/6**

Type 6/6 general purpose standard grade nylon. Extruded in natural and black. (Weather Resistant Black Grade is also available as a custom.)

---

- **TECAMID® 6/12**

Type 6/12 nylon. This nylon has lower moisture absorption rates than nylon 6/6, hence superior dimensional stability.

---

- **TECAMID® ST**

Type 6/6 nylon. Super Tough nylon. Increased impact resistance and toughness over Tecamid® 6/6.

---

- **TECAMID® HS**

Type 6/6 nylon. Heat Stabilized nylon. Increased ability to withstand the negative effects of heat exposure and increased overall service temperature over Tecamid® 6/6.

---

*TECAMID® has an excellent balance of properties which make it an ideal material for metal replacement in applications such as automotive parts, industrial valves, railway tie insulators, and other industry uses whose design requirements include high strength, toughness, and weight reduction.*

# TYPICAL PROPERTY VALUES

	PROPERTIES	ASTM Test Method	Units	TECAMID® 6/6	TECAMID® 6/12	TECAMID® ST	TECAMID® HS
<b>PHYSICAL</b>	Density	D792	lbs/in <sup>3</sup>	0.0412	0.0383	0.0390	0.0412
	Specific Gravity	D792	g/cc	1.14	1.06	1.08	1.14
	Water Absorption @ 24 hours, 73°F	D570	%	1.2	0.25	1.2	-
	@ Saturation, 73°F	D570	%	8.5	3.0	6.7	-
<b>MECHANICAL</b>	Tensile Strength @ Yield, 73°F	D638	psi	12,000	8,000	7,200	10,000
	Tensile Modulus	D639	psi	350,000	300,000	245,000	350,000
	Elongation @ Break, 73°F	D638	%	25	20	60	25
	Flexural Strength 73°F	D790	psi	15,500	-	9,000	-
	Flexural Modulus, 73°F	D790	psi	440,000	275,000	230,000	440,000
	Compressive Strength	D695	psi	5,000	2,400	-	-
	Izod Impact Strength, 73°F	D256	ft-lbs/in	1.1	0.9	17.0	1.2
	Rockwell Hardness, 73°F	D785	M or R Scale	M90/R-120	R-114	R-112	-
	Shore Hardness	-	D Scale	-	-	-	-
	Wear Factor Against Steel, 40 psi, 50 fpm	D3702	$\frac{\text{in}^3}{\text{hr}} \times \frac{1}{\text{PV}}$	$200 \times 10^{-10}$	$190 \times 10^{-10}$	$200 \times 10^{-10}$	-
	Static Coefficient of Friction	D3702	-	-	0.31	-	-
Dynamic Coefficient of Friction, 40 psi, 50 fpm	D3702	-	0.26	-	0.28	-	
<b>THERMAL</b>	Heat Deflection Temperature @ 66 psi	D648	°F	455	-	270	392
	@ 264 PSI	D648	°F	194	142	147	194
	Coefficient of Linear Thermal Expansion	D696	in/in/°F	$4.5 \times 10^{-5}$	$5 \times 10^{-4}$	$6.7 \times 10^{-4}$	-
	Maximum Servicing Temperature, Intermittent	-	°F	300	-	-	-
	Long Term	UL746B	°F	185	-	-	-
	Specific Heat	-	BTU/lb-°F	0.4	0.45	-	-
	Thermal Conductivity	-	-	-	1.53	-	-
	Vicat Softening Point	-	°F	-	-	-	-
	Melting Point	D2133	°F	491	422	505	504
	Flammability	UL94	(mm)	V-2 (3.0)	HB (0.86)	HB (0.81)	HB (0.75)
<b>ELECTRICAL</b>	Surface Resistivity	D257	ohm/square	-	-	-	-
	Volume Resistivity	D257	ohm-cm	$10^{15}$	$10^{15}$	-	-
	Dielectric Strength	D149	V/mil	-	-	-	-
	Dielectric Constant, @ 60 Hz, 70°F, 50% RH	D150	-	4	4	-	-
	@ 1 MHz	D150	-	3.6	3.5	-	-
	@ 20 GHz	D150	-	-	-	-	-
	@ 30 GHz	D150	-	-	-	-	-
	Dissipation Factor @ 60 Hz, 70°	D150	-	0.01	0.02	-	-

This information is only to assist and advise you on current technical knowledge and is given without obligation or liability. All trade and patent rights should be observed. All rights reserved. Data obtained from extruded shapes material. TECAMID® - Ensinger Industries, Inc.

#### MATERIAL AVAILABILITY - Custom ordered - minimums apply

**Rods:** Diameters: 3/16" to 4-3/4", 10' length  
Length 5" and greater, 5' length

**Plates:** 1/4" to 2" thickness inclusive are 2' x 4'  
3-3/4" to 2" thickness inclusive are 1' x 2'

#### Primary Specification (Resin) (Typical)

**TECAMID® 6/6** ASTM-D-4066 PA0114    **TECAMID® ST** ASTM-D-4066 PA0162  
**TECAMID® 6/12** ASTM-D-4066 PA0613    **TECAMID® HS** ASTM-D-4066 PA124B54380

#### Shapes Specification (Typical)

ASTM-D-5989 S-PA0111    ASTM-D-5989 S-PA0000  
ASTM-D-5989 S-PA0511    ASTM-D-5989 S-PA0131

**Profiles, tubes, and special sizes are custom-produced on request.**



DISTRIBUTED BY

#### HEADQUARTERS

365 Meadowlands Boulevard  
Washington, Pennsylvania 15301

**Telephone:** 800-243-3221 Sales  
800-869-4029 Technical

**Fax:** 724-746-9209

e-mail: sales@ensinger-ind.com

