

## SYMMTAMIDE SERIES MATERIALS

**SYMMTAMIDE Series Materials** are high performance engineering thermoplastics. Chemically, **Symmamide** is a Poly (Amide-Imide). The combination of aromatic group and imide linkages are responsible for the polymer's exceptional thermal stability. The amide groups impart flexibility and compliance resulting in a molded product with exceptional toughness.

### Applications/Grades

**Symmamide T-203:** Symmamide T-203 offers the best impact resistance and elongation of the Symmamide family. The product is most suitable for electrical applications such as connectors, switches, relays, and insulators.

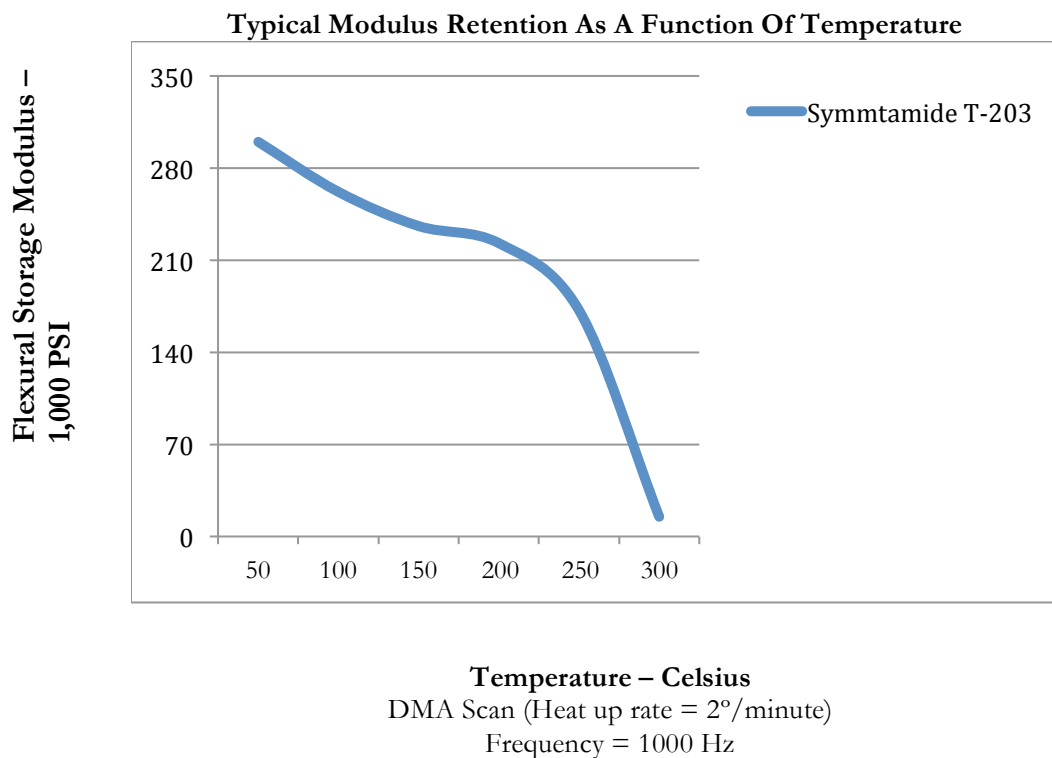
**Symmamide T-201:** 12% graphite-powder, 3% PTFE. Designed for bearing use, this compound provides good wear resistance, a low coefficient of friction, and high compressive strength. Typical applications for T-201 include: thrust washers, high-speed bushings, wear-pads, piston rings, and low torque valve seats.

**Symmamide T-247:** Compression molded graphite and PTFE lubricated Poly(Amide-Imide) Polymer. For reciprocating motion bearings subjected to high loads at low speeds, T-247 offers the best wear resistance of the Symmamide line in compressor and valve components. These applications include piston rings, mechanical seals, and rod packings.

**Symmamide T-240-220:** 20% graphite powder, 3% PTFE. Designed for high-speed wear and friction applications similar to those of T-201, but with better wear performance in wear resistance.

**Symmamide T-230:** 30% glass fiber reinforced, 1% PTFE. Designed for a metal replacement, this compound provides high stiffness and retention of properties at elevated temperatures. Typical applications include housings, brackets, compressor poppet valves, plates, pump impellers, rotors, and housings. The material is also excellent for electrical and thermal insulators.

Corrosion resistance charts will be sent upon request. If your application demands other fillers or reinforcements different than those listed as standard, Symmtek can provide custom molded compounds to meet your specific needs.





**Summary Of Typical Properties  
– Symmtamide Series Material –**

	Properties	Units	Test Method	T-203	T-201	T-247	T-240-220	T-230
<b>Physical</b>	Specific Gravity		ASTM D-792	1.4	1.45	1.46	1.47	1.62
	Water Absorption							
	24 hours		ASTM D-570	0.5%	0.30%	0.30%	0.35%	0.30%
	48 hours		ASTM D-570	n/a	1.5%	n/a	n/a	4.5%
<b>Mechanical</b>	Tensile Strength @ 75°F	psi	ASTM D-638	18,500	10,900	13,800	13,100	15,500
	Tensile Modulus	psi	ASTM D-638	n/a	430,000	580,000	650,000	600,000
	Tensile Elongation	%	ASTM D-638	7.5%	3.0%	5.0%	3.0%	2.8%
	Flexural Strength	psi	ASTM D-790	24,900	22,500	24,500	23,000	21,200
	Flexural Modulus	psi	ASTM D-790	730,000	670,000	678,000	670,000	900,000
	Izod Impact Strength Notched	ft*lb/in	ASTM D-256	2.2	0.6	1.1	1.2	1.0
	Compressive Strength	psi	ASTM D-695	32,500	16,800	16,800	23,000	27,800
	Hardness Shore D		ASTM-D-785	90	90	90	90	92
Rockwell R		ASTM-D-785	85	106	65	106	90	
<b>Thermal</b>	HDT (F) @ 264psi	F°	ASTM D-648A	530	530	530	535	535
	Coefficient of Linear Expansion	10 <sup>-5</sup> in/in*F°	ASTM C- 518	2.2	2.0	2.0	2	1.3
	Continuous Use Temperature	F°	ASTM D-696	500	500	500	500	500
<b>Electrical</b>	Dielectric Strength	V/ml	D-149	580	n/a	n/a	n/a	550
	Dissipation Factor	10 <sup>-6</sup> Hz	D-149	0.003	0.037	n/a	n/a	0.003
	Dielectric Constant	10 <sup>-6</sup> Hz	D-149	3.2	6	n/a	n/a	3.2
	Surface Resisitivity	ohm <sup>2</sup>	EOS/ESD S11.11	n/a	10 <sup>13</sup>	10 <sup>13</sup>	n/a	n/a

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