

PARTNER HIGHLIGHT



*Polymax TPE, USA*

**Polymax TPE** specializes in the development of premium thermoplastic elastomer materials for North American manufacturers across a diverse range of industries. The Polymax TPE team is unique in their passion for adding value for customers by creating the perfect solution for each project.



*Nantong Polymax, China*

In less than 10 years, sister company **Nantong Polymax Elastomer Technology, Co., Ltd** has built a profitable, growing business with global reach in the highly competitive thermoplastics industry. Nantong Polymax has become one of the top three TPE manufacturers in China and has been designated the TPE Research and Development Center for Jiangsu Province.

In 2013 the founders of Nantong Polymax expanded their presence in the global TPE market with the opening of a new **U.S. based company, Polymax TPE**, a full-service facility near Chicago, IL designed to provide manufacturing, research and development, technical sales and support for the North American market.

**EXTENSIVE CAPABILITIES**

In addition to research and development expertise, the **Polymax TPE** team has an extensive range of capabilities in materials and manufacturing, and the know-how to leverage these assets for success.

The company develops TPE materials for use in injection molding, extrusion and blow-molding processes. Within the product portfolio there are materials that provide excellent bonding performance to other substrates including PE, PP, ABS, PC/ABS, Co-Polyester, Nylon and Propionate.

**Polymax TPE** grades provide hardness characteristics from **0-99 Shore A** and can be formulated to meet a variety of specific physical and aesthetic requirements in flexibility, grip ability, feel, color, opacity, and taste or odor neutrality. The range includes materials which often exceed industry standards in high heat stability, abrasion resistance, tear strength, melt strength and foaming ability as well as low extractable levels required by the food contact and medical industries.



*\*High temperature, abrasion resistance, low compression set, and silicone free compounds are also available.*



**PRODUCT PERFORMANCE CHARACTERISTIC CHART**

Series	Hardness	Extrusion	Injection Molding	Transparent Grade	Bondable Substrate	Applications
P (P3, P2, P1)	8A-99A	✓	✓		PP, PE	Overmolding onto PP, or Standing alone Consumer, Industrial, Packaging, Electronics, Healthcare, Automotive
C	0A-95A	✓	✓	✓	PP	Clear & ultra soft grades Consumer, Packaging, Electronics, Healthcare
S	30A-75A		✓		PS, PP0	Overmolding onto Polystyrene Consumer, Electronics
N	50A-65A		✓		PA 6	Overmolding onto Nylon Consumer, Electronics
F	60A-97A	✓	✓		**	Flame retardant grades – Halogenated or Halogen-Free Electronics, Wire & Cable, and Industrial
D	30A-90A	✓		✓	PP, PE	Extrusion Grades Cap and closer, Films, Window Seals, Wire and Cables
A	10A-85A		✓	✓	ABS, PC PC/ABS, PETG, PBT, TPU	Overmolding onto ABS, ABS/PC, PC Consumer, Industrial, Electronics, Automotive
Coating	40A-80A	✓			pp	Fabric Coating Consumer



**Polymax TPE** products are also available under the **maxELAST®** brand, a registered trademark of **Polymax Thermoplastic Elastomers, LLC**

PRODUCT SERIES	Standard Grade TPEs			Specialty TPEs				Overmolding TPEs		
	P1	P2	P3	C	D	F	Coating	A	N	S
FEATURES	Economy Grades Indoor Applications Disposable Articles	All Purpose Grades Easy Processing Colorable	Heat Resistance UV Resistance Abrasion Resistance	Ultra-transparent Ultra-soft	Extrusion Grades Low Compression Set High Tear Strength Low Extractable	Flame Retardant Halogen-free Available	Fabric Coating	Bonds to ABS, PC, PC/ABS, PETG, TPU	Bonds to Nylon PA6	Bonds to HIPS, GPPS, SMMA
APPLICATIONS	Sporting Goods Housewares Hand Tools Floor Mats	Personal Care Sports & Leisure Toys Handles & Grips Pet Products	Medical Devices Personal Care Automotive Consume Electronic Wearable Devices	Footwear Sporting Goods Caps & Closures Tubing & Gaskets Safety Equipment	Weather Seals Cap & Closure Hose & Tubing Floor & Cargo Liner Films	Cables & Cords Electrical Insulation Connectors Fiber Optics Grommets	Textiles Gloves Footwear	Consumer Electronics Power Tools Housewares Appliances	Power Tools Kitchenware Furniture Handles Sports Equipment	Housewares Office Supplies Personal Care
PROCESSING										
Injection Molding	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extrusion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PERFORMANCE										
Hardness Range	30A to 88A	22A to 87A	8A to 99A	0A to 95A	15A to 90A	50A to 97A	55A to 75A	10A to 85A	50A to 65A	30A to 75A
Bondable Substrates	PP	PP	PP, PE	PP	PP	PP	Fabrics	ABS, PC, PC/ABS, PETG, TPU	Nylon (PA6)	HIPS, GPPS, SMMA
Density (g/cm3)	0.90 to 1.20	0.90 to 1.20	0.87 to 1.20	0.87 to 0.92	0.90 to 1.18	1.10 to 1.18	0.90 to 1.15	0.90 to 1.22	0.93 to 1.1	0.90 to 1.15
Mold Shrinkage	1.0 to 2.2%	0.8 to 2.5%	0.8 to 3.0%	0.8 to 3.0%	1.2 to 3.5%	0.8 to 2.7%	--	0.5 to 2.7%	0.7 to 2.3%	0.6 to 1.8%
Application Temperature Range	-70°C to 80°C	-60°C to 100°C	-70°C to 180°C	-70°C to 130°C	-70°C to 180°C	-70°C to 180°C	-50°C to 80°C	-50°C to 110°C	-70°C to 120°C	-50°C to 100°C
Compression Set @ Room Temperature	Low - High	Low - High	Low - High	Low - High	Low - High	Low - High	--	Low - High	Low - High	Low - High
Compression Set @ 70°C	Med - High	Med - High	Low - High	Med - High	Low - Med.	Med - High	--	Med - High	Med - High	Med - High
Abrasion Resistant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Weather Resistant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coefficient of Friction	Low - High	Low - High	Low - High	Med - High	Low - High	Low - High	Low - High	Low - High	Low - High	Low - High
VISUAL										
Clear/Transparency	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Translucent	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Opaque	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OTHER										
Foamable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sterilizable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oil-free	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low Taste and Odor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FDA, EU, GB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RoHS, REACH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: ✓ indicates that the product series includes some grades that meet the performance parameters.

## maxELAST® N SERIES – OVERMOLDING TO NYLON

In recent years, the range of materials used in overmolding has expanded significantly to include more TPE classes (e.g., TPU, TPV, SEBS) and a broader range of substrates (ABS, PC, and nylon). While the broader substrates for overmolding expands opportunities for soft-touch design, it also adds new levels of complexity and challenges in adhesion. Nylons or polyamides (PA) are one of those challenging materials. Polymax TPE has developed a specific line in various durometers for use with nylon overmold applications.

Grade	Hardness Shore A	Density (g/cm3)	Tensile Strength (MPa)	Elongation (%)	100% Modulus (MPa)	300% Modulus (MPa)
N8855	55	0.99	4.81	584	1.61	3.01
N8860	60	0.99	2.86	657	1.7	2.22
N8950	50	1	3.04	793	1.3	1.93
N8955	55	1	4.57	457	1.57	3.7
N8960	57	0.99	3.64	675	1.65	2.27
N8960T	57	0.93	7.12	559	1.81	3.93

### Typical Applications

- Consumer
- Electronics
- Healthcare



### Characteristics

- ✓ Bonds to a wide array of polyamide substrates
- ✓ Non-slip grip
- ✓ Excellent aesthetics and enhanced ergonomics
- ✓ Good weather and heat resistance
- ✓ Exceptional colorability
- ✓ Easy processing for insert molding or two-shot molding



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