

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.

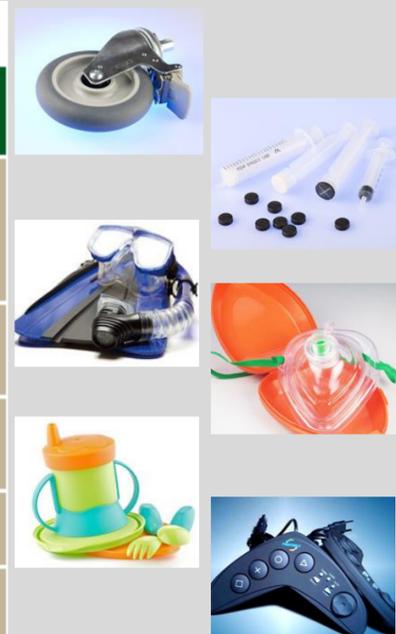
Polymax TPE grades provide hardness characteristics from **0-99 Shore A** and can be formulated to meet a variety of specific physical and aesthetic requirements in flexibility, grip ability, feel, color, opacity, and taste or odor neutrality. The range includes materials which often exceed industry 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.

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 |



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



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 160°C | -70°C to 130°C | -70°C to 160°C | -70°C to 160°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 |

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

Typical Applications

- Consumer
- Electronics
- Healthcare



For More Information:

**General Polymers
Thermoplastic Materials**

2901 Auburn Rd. Ste 700
Auburn Hills, MI 48326

Local: 248-812-1858

FAX: 586-838-1194

info@gp-materials.com

800-920-8033

GP-Materials.com