



THERMOPLASTIC POLYURETHANE (TPU)

TPU is a versatile material (plastic elastomer) across hardness, look and feel. It can be softened to a rubber-like flexibility or hardened for rigid uses, such as protective electronic cases. Color and texture can all be tailored through the production process to suit the needs of a wide range of industries and applications.

Benefits

Abrasion resistant, High durability, Suitable for challenging applications in most industries, Hydrolytically stable, Resistant to microbial attack, Tough and Resilient, Good abrasion and tear resistance, Resilience to oils, greases and many solvents, Wide temperature operating range, Variety of manufacturing processing/assembly methods and technologies: (Heat Seal, RF and Ultrasonic Welding, Pressure-forming, Vacuum-forming, Thermo-forming, laminations, embossed and painted), Color and Additive Customization Options.



POLYETHER BASE: Greater resistance to hydrolysis, greater degree of resilience, and lower temperature ex. More resistant to fungus, micro-organism attack, and dilute acids and alkalis.

POLYESTER BASE: Better cut, tear, and chunking resistance. More abrasion resistant and have higher heat, oxidation, and oil resistance than the polyether based urethanes.

	Polyurethane (Ether Based)	Polyurethane (Ether Based)	Polyurethane (Ether Based)	Polyurethane (Ether Based)	Polyurethane (Ester Based)	Polyurethane (Ester Based)
Shore Value for Hardness (ASTM D-2240)	85A	90A	50D	55D	90A	50D
Specific Gravity (ASTM D-792)	1.12	1.13	1.16	1.16	1.21	1.23
Ultimate (Psi) Tensile Strength (ASTM D-412)	5200	5400	8700	8400	8000	7350
Ultimate Elongation (%) (ASTM D-412)	530	460	410	410	450	510
Tear Strength Die "C" (PLI) (ASTM D-624)	630	730	810	810	600	930
Taber Abrasion Resistance (ASTM D-1044)	30mg	45mg	2.0 mg / 1000 cycles (CS-17) ASTM D-3389	3.5 mg / 1000 cycles (CS-17) ASTM D-3389	2.6 mg / 1000 cycles (CS-17) ASTM D-1044	2.5 mg / 1000 cycles (CS-17) ASTM D-1044
Vicat Softening Temperature (°C) (ASTM D-1044)	100	120	129	129	92	131
Glass Transition Temperature (DSC), °C	-38	-35	-33	-36	-3	-22

Notes:

- The values shown above are typical values and should not be construed as specifications.
- Users of extruded sheet should confirm performance results on their own using commercially produced samples.
- The information stated is accurate to the best of our knowledge, but is presented without any guarantees and/or assumption of any liability as a result of the information contained herein.

Our facility is experienced in designing, developing and manufacturing an extensive range of TPU-based products.

If you have questions regarding a particular material that is not on this list, please contact our sales team at nikeihm.sales@nike.com.