

# PLASTIC-CRAFT

# Polyurethane

Cast / Thermoset Polyurethane Elastomer (PU / PUR)

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Bridges the gap between rubber and plastic — combining the elasticity of rubber with the load-bearing capacity and abrasion resistance of hard plastic. Outstanding tear strength, shock absorption, and wear life make it the top choice for demanding industrial applications.

### STOCK AVAILABILITY

Plastic-Craft maintains extensive inventory across a wide range of standard and specialty sizes in sheets, rods, tubes, and custom profiles. Most orders ship from stock — contact us for immediate availability.

### KEY HIGHLIGHTS

- 3–5× wear life vs rubber
- Outstanding abrasion resistance
- Wide hardness range (60A–75D)
- High load-bearing capacity
- Excellent shock absorption
- Oil & solvent resistant

✓ Replaces rubber, metal & plastic in severe wear applications

### COMMON APPLICATIONS

- Bumpers & dock fenders
- Rollers & wheels
- Wear pads & liners
- Seals, gaskets & O-rings
- Die springs & couplings
- Conveyor scrapers
- Shock mounts & isolators

### DUROMETERS AVAILABLE

- 60A (soft / flexible)
- 80A (medium / general)
- 90A (firm / standard)
- 95A (hard / industrial)
- 60D (rigid / structural)
- 75D (very rigid / max wear)

### MATERIAL PROPERTIES — TYPICAL VALUES (90A DUROMETER)

| PROPERTY                          | ASTM      | TYPICAL VALUE          | UNITS             |
|-----------------------------------|-----------|------------------------|-------------------|
| PHYSICAL                          |           |                        |                   |
| Specific Gravity                  | D792      | 1.15                   | —                 |
| Water Absorption, 24h             | D570      | 0.30                   | %                 |
| Hardness, Shore A                 | D2240     | 90                     | Shore A           |
| MECHANICAL                        |           |                        |                   |
| Tensile Strength, Ultimate        | D412      | 6,500                  | psi (45 MPa)      |
| Elongation at Break               | D412      | 450                    | %                 |
| Tear Strength, Die C              | D624      | 600                    | lb/in (105 kN/m)  |
| Compressive Strength (10%)        | D575      | 900                    | psi (6.2 MPa)     |
| Compressive Set (24h @ 158°F)     | D395      | 25                     | %                 |
| Resilience (Rebound)              | D2632     | 45                     | %                 |
| Flexural Modulus                  | D790      | 10,000                 | psi (69 MPa)      |
| FRICTION / WEAR                   |           |                        |                   |
| Coefficient of Friction (Dynamic) | D1894     | 0.55                   | vs Steel          |
| Abrasion Resistance (Taber)       | D1044     | 5 – 15                 | mg/1000 cycles    |
| DIN Abrasion                      | DIN 53516 | 20 – 40                | mm³               |
| THERMAL                           |           |                        |                   |
| Max Continuous Service            | —         | 200                    | °F (93°C)         |
| Low Temperature Flexibility       | D746      | –30                    | °F (–34°C)        |
| CTE (Linear)                      | D696      | 8.0 × 10 <sup>–5</sup> | in/in/°F          |
| Thermal Conductivity              | C177      | 1.2                    | BTU·in/hr·ft²·°F  |
| ELECTRICAL                        |           |                        |                   |
| Volume Resistivity                | D257      | > 10 <sup>12</sup>     | ohm·cm            |
| Dielectric Strength               | D149      | 400                    | V/mil (16 kV/mm)  |
| FLAMMABILITY                      |           |                        |                   |
| UL Flammability Rating            | UL 94     | HB                     | —                 |
| DURABILITY                        |           |                        |                   |
| Ozone Resistance                  | D1149     | Excellent              | —                 |
| Weathering / UV                   | G154      | Good                   | Ester types excel |

**PROCESSING / FABRICATION NOTES:** Machinable with sharp tooling at low speeds | Cast-to-size custom shapes available | Bondable with polyurethane adhesives | Can be ground to precision tolerances | Ester-based: better abrasion & tear | Ether-based: better hydrolysis resistance

**CHEMICAL RESISTANCE:** Good — resistant to oils, greases, fuels, aliphatic hydrocarbons, dilute acids & bases, and most solvents. **AVOID:** hot water >150°F (ester types), strong acids & bases, ketones, esters, and chlorinated solvents. Ether-based grades preferred for wet environments.

Typical values; not to be used as specifications. Actual values may vary by grade, manufacturer, and processing conditions. Contact Plastic-Craft for grade-specific data.