

# ENGINEERING GRADE MATERIALS. HIGH QUALITY SELECTION. CUSTOMIZED PARTS.

Universal Plastics sources the highest quality engineering grade materials from our extensive network of leading suppliers within the industry. A selection of the most commonly used injection molding materials are listed below.

**ABS (Acrylonitrile Butadiene Styrene):** Very common material. Good stiffness and impact strength. Available in a wide variety of colors and several textures. Available in UL94-V0 grades (Flame Retardant).

**ACE (Acetal):** A high strength, low friction engineering plastic that has excellent wear properties in both wet and dry environments. Easy to machine, acetal makes an outstanding choice for applications that require complex, tight tolerances.

**\*ACR (ACRYLIC) (PMMA – Polymethyl Methacrylate, Plexiglass):** Water clear and abrasion resistant material. Easily fabricated. Available in impact modified grades. Many colors available.

**ASA (Acrylonitrile styrene acrylate):** A thermoplastic developed as an alternative to acrylonitrile butadiene styrene (ABS), but with improved weather resistance.

**NYL (Nylon):** A synthetic thermoplastic polymer commonly used in injection molding applications. It's a versatile, durable, flexible material often used to as a more affordable alternative other materials like silk, rubber, and latex.

**PAS (PC ASA):** The acrylic-styrene-acrylate terpolymer (ASA) is an amorphous thermoplastic material that offers good resistance to both UV and moisture.

**PBT (Polybutylene terephthalate):** Resistant to solvents, shrinks very little during forming, is mechanically strong, heat-resistant and can be treated with flame retardants to make it noncombustible.

**\*PC (Polycarbonate):** Very high impact strength. Clear. High temperature resistance.

**PCA (POLYCARBONATE/ABS ALLOY):** Alloys process with the ease of ABS (RTP 600 Series) materials yet have a toughness similar to polycarbonate (RTP 300 Series) materials.

**PCAS (Polycarbonate & ASA):** An amorphous thermoplastic alloy of polycarbonate (PC) and ASA that provides enhanced heat resistance and enhanced mechanical properties.

**PCPB (PC/PBT):** Refers to paper- based packaging with a polymer coating for water resistance and structural integrity, generally, polyethylene (PE) or polylactic acid (PLA).

**PCPE (PC/PET):** Developed to offer improved chemical resistance to common medical cleaners and disinfectants. The main application for this material is in housings for medical devices.

**\*PEI (Polyetherimide):** Very high temperature grade material. Autoclavable. Natural amber color.

**PET (Polyethylene Terephthalate):** A clear, strong, and lightweight plastic that is widely used for packaging foods and beverages, especially convenience-sized soft drinks, juices and water.

**PMMA (Polymethyl Methacrylate):** Synthetic resin produced from the polymerization of methyl methacrylate. A transparent and rigid plastic often used as a substitute for glass in products.

**PMP (Polymethylpentene):** Very low density and transparent. It has low moisture absorption, and exceptional acoustical and electrical properties.

**\*PP (Polypropylene):** Excellent chemical resistance. Rigid, with very good impact strength. Good at higher temperatures. But dimensionally not as stable as other materials, similar to HDPE.

**PPA (Polyphthalamide):** A semi-crystalline, aromatic polyamide. Stronger, stiffer, less sensitive to moisture, and has higher thermal capabilities.

**PPEP (Polyphenylene Ether + PS):** A polymer of PPO and polystyrene that offers excellent heat resistance, dimensional stability and mechanical properties.

**PS (Polystyrene):** A hard, stiff, brilliantly transparent synthetic resin produced by the polymerization of styrene.

**PSU (Polysulfone):** A high temperature, amber colored, semi-transparent plastic material with good mechanical properties.

**TPE (Thermoplas Elastomer):** Low modulus, flexible materials that can be stretched repeatedly to at least twice their original length at room temperature with an ability to return to their approximate original length when stress is released.

**TPO (Thermoplastic Polyolefin):** Outstanding impact properties. Available with a high gloss finish. Good for outdoors applications. More difficult to form, especially deep draw shapes.

**TPV (Thermoplastic Vulcanizates):** Closest in elastomeric properties to EPDM thermoset rubber, combining the characteristics of vulcanized rubber with the processing properties of thermoplastics.

Other specialty materials are available, just [contact us](#).