

ENDLESS OPTIONS. THERMOPLASTIC EXPERTISE.

Universal Plastics sources the highest quality materials from our extensive network of leading suppliers within the industry who provide us with the right sheet for every custom thermoforming application. We have extensive experience using a variety of plastic materials with unique properties and characteristics. For more information on materials used and to discuss what may work best for your needs, [contact us](#).

Selecting a Material:

There are several factors that go into the selection of the best material for your application. Each plastic resin has physical characteristics that make it suitable for specific applications. Universal Plastics' design and engineering team can recommend a material based on these factors:

- **Rigidity:** Does the part need to be stiff or have some flexibility?
- **Appearance:** How important is appearance compared to strength, weight, durability and use?
- **Cost:** Do you need the least expensive part or are other qualities important?
- **Finish Options:** Will the part be painted, or can a material be used that has the desired color and surface so that no painting is required? Will text or graphics be printed on the part?
- **Conductivity:** Should the part have non-conductive properties, as most materials are, or should a conductive coating be used?
- **Compatibility:** What other material does the part come into contact with?
- **Weight:** Different materials have different densities. Is weight a factor over strength, appearance or other qualities?

Universal Plastics can form thermoplastic materials up to 0.5" thick.

Commonly Used Materials:

Name	Chemical Name	Description/Properties
ABS	Acrylonitrile Butadiene Styrene	Very commonly used Available in a variety of colors and textures Good resistance to impact Available in flame retardant grades (UL94-V0)
Acrylic	Polymethyl Methacrylate, Plexiglass	Clear material Available in a variety of colors Easy to fabricate Resistant to abrasion Impact resistant grades available
HDPE	High Density Polyethylene	Impact resistant Chemical resistant Resistant to cold temperatures Less dimensionally stable than other materials
HIPS	High Impact Polystyrene	Available in many colors Low cost Easy to form More brittle than ABS
KYDEX	PMMA/PVC blend	Good for general purposes Available in a variety of colors and textures Impact resistant Chemical resistant Highly cosmetic Available in flame retardant grades (UL94-V0)
PC	Polycarbonate	Clear material Very good impact strength Resistant to high temperatures

Name	Chemical Name	Description/Properties
PEI	Polyetherimide, Ultem	Natural amber-colored material Autoclavable Very resistant to high temperatures
PETG	Polyethylene Terephthalate Glycol	Clear material Forms well Impact resistant
PP	Polypropylene	Similar to HDPE Chemical resistant Rigid & impact resistant Good at higher temperatures Dimensionally not as stable as other materials
PVC	Polyvinyl Chloride	Limited availability Rigid & impact resistant Available in flame retardant grades (UL94-V0)
TPO	Thermoplastic Polyolefin	Available in a high gloss finish Excellent impact resistance Good for outdoor products Difficult to form, especially deep draw shapes

Other specialty materials are available, for help choosing the best thermoplastic material for your application, just [contact us](#)