

Vacuum Forming Material Selection Guide

This vacuum forming material **selection guide** is part of our free help with **[vacuum forming](#)**. It lists most common vacuum forming materials, their basic properties in standard grade, some advice on costs & typical uses for formings made from each material type.

Material Types, Abbreviations & Density	Description, Details & Typical Applications	Comments / Options
Acrylic	High quality, hard, medium - high strength but brittle, good clarity, high cost	Various colours & clear grades in 1½ - 6 mm thickness
PMMA	Baths, Domes, Light Diffusers, Roof Lights Sanitary Ware and Signs	Can be hand worked or cellulose / enamel painted
Acrylonitrile Butadiene Styrene	Hard, rigid, very good impact strength & weather resistance, medium cost	Limited colours & clear, various textures & finishes, plus fire retardant and UV stabilised grades. Easy to obtain in 1 - 6 mm thickness
ABS, 1.08 g/cm ³	Electrical Enclosures, Luggage, Sanitary & Vehicle Parts	Easy to cut, paint or print on
Polycarbonate	Hard, rigid, very good impact strength & clarity, self extinguishing, high cost	Various colours & clear, plus textured & UV stabilised grades, 1 - 6 mm thickness
PC	Aircraft trim, Light diffusers, Machine Guards, Riot Shields, Signs, Skylights and Visors	Easy to machine, screen print, drill, tap & ultrasonically weld
Polyethyleneterephthalate Glycol	FDA approved, good - high impact strength, optically very good, can be sterilised & resilient to wide range of acid oils and alcohols, but not with highly alkaline solutions, high cost	Clear only, easy to obtain in 0.8 - 6 mm thickness
PETG, 1.27 g/cm ³ NOT COMPATIBLE WITH 911	Dairy & Medical Parts, Point of Sale.	Easy to cut, machine or paint NOT COMPATIBLE WITH 911 Machine
Polyethylene - High Density	Flexible, v.good impact strength, low cost	Black or white only, easy to obtain in 1 - 5 mm thickness
HDPE, 0.96 g/cm ³	Caravan Parts, Enclosures, Housings & Vehicle Parts	Needs specialist inks, can't be painted
Polypropylene	Flexible, v.good impact strength, low cost	Black or natural only, easy to obtain in 0.75 - 6 mm thickness Filled & additive grades available
PP, 0.91 g/cm ³	Chemical Tanks, Enclosures, Food Containers, Luggage, Medical Applications and Toys.	Cannot be spray painted
Polystyrene - High Impact	Wide range of options, high impact strength, low cost	10+ colours, various textures, flocked, conductive & UV stable grades. Easy to obtain in 0.25 - 6 mm thickness
HIPS, 1.06 g/cm ³	Displays, disposable items, models, packaging, presentation & toys	Screen ink sprayable, cellulose paint needs etching primer
Polyvinyl Chloride	Medium - high strength, good transparency in thinner gauges, good fire retardant & chemical properties. Highly resistant to solvents, low cost	Clear, black or white, easy to obtain 0.25 - 0.75 mm thickness Thicker grades with good rigidity & impact strength available - most suited for outdoor industrial use
PVC, 1.37 g/cm ³	Car Trims, Machine Guards & Packaging	Needs specialist inks, can't be painted