

Material Considerations

Acronym	Name	Cost (\$/lb)	Properties	Bonding	Examples
ABS	Acrylonitrile Butadiene Styrene	\$0.80	Great strength and impact resistance, high gloss surface finish, easily machined, stiff	Sonic welding and solvent bonding	Lego bricks
EVA	Ethylene Vinyl Acetate	\$1.00	Flexible	Can't be used for Sonic welding and solvent bonding	Battery door gaskets
HDPE	High Density Polyethylene	\$0.70	High rigidity, good impact resistance, light weight	Sonic welding	Plastic containers such as shampoo bottles
PS	Polystyrene	-	Hard glossy surface, brittle	Sonic welding and solvent bonding	Clear cosmetic containers
HIPS	High Impact Polystyrene	\$0.66	Similar to ABS, but not as strong, less shiny, and more brittle	Sonic welding and solvent bonding	PCB mounts
LDPE	Low Density Polyethylene	\$0.75	Flexible, similar to PP	Sonic welding	Water bottles
POM	Polyoxymethylene (acetal)	\$1.05	Great strength, stiffness, resistance to abrasion	-	Gears, motor drives
PP	Polypropylene	\$0.65	Flexible, high gloss surface finish, light weight	Sonic welding	Containers, flexible parts
PVC	Polyvinyl Chloride	\$0.98	Hardness varies from flexible to rigid, high strength	Glue or RF Welding	Rubber duckies
TPE	Thermoplastic Elastomer (santoprene)	\$2.89	Rubbery	Can 't be used for sonic welding and solvent bonding	Used for overmolding