

Vacuum Forming Material Specification

To help you select **vacuum forming** plastics for your needs, the most common vacuum forming materials available & their specs are listed below, all of which we can vacuum form for you. Also see vacuum forming **material selection guide**

General vacuum forming material specs - when in sheet form				
ABS = Acrylonitrile Butadiene Styrene ABS FR = ABS Fire Retardent HDPE = High Density Polyethylene HIPS = High Impact Polystyrene HDPE Cond. = HDPE Conductive HIPS Cond. = HIPS Conductive PP = Polypropylene PVC = Polyvinyl Chloride CHIPS = HIPS Clear HIPS UVS = HIPS Ultra Violet Stable				
Specs	ABS	ABS FR	HDPE	HIPS
Density (specific gravity)	1.08 g/cm ³	1.24 g/cm ³	0.96 g/cm ³	1.06 g/cm ³
Izod notched impact strength @ 23°C	400 - 420 j/m	160 - 200 j/m	16 kj/m ²	15.0 kj/m ²
Izod notched impact strength @ -20°C	230 - 280 j/m	60 - 70 j/m	DNS	DNS
Vicat softening temperature	97 - 101°C	88 - 92°C	125°C	97°C
Heat deflection temperature	80 - 84°C	76 - 80°C	90°C	75 - 78°C
Tensile strength	30 - 40 MPa	40 - 45 MPa	23 N/mm ²	20 MPa
Flexural modulus	2.0 - 2.2 GPa	2.0 - 2.5 GPa	DNS	1.7 - 1.8 GPa
Flammability rating	HB	UL94 V0	HB	HB
Forming Temperature	140 - 190°C	140 - 190°C	145 - 160°C	120 - 140°C
Melt flow index	6.0 g/10min	22.0 g/10min	0.4 - 1.0 g/10min	4.5 g/10min
Mould shrinkage (linear)	0.4 - 0.7%	0.5 - 0.7%	2.0 - 3.5%	0.4 - 0.7%
specs	HDPE Cond.	HIPS Cond.	PP	PVC
Density (specific gravity)	1.04 g/cm ³	1.13 g/cm ³	0.91 g/cm ³	1.37 g/cm ³
Izod notched impact strength @ 23°C	27 kj/m ²	10 kj/m ²	40 kj/m ²	DNS
Izod notched impact strength @ -20°C	13 kj/m ²	2 kj/m ²	DNS	DNS
Vicat softening temperature	127°C	93°C	70°C	70 - 76°C
Heat deflection temperature	56°C	81°C	80°C	67°C
Tensile strength	29 MPa	20 MPa	29 - 31 N/mm	51 - 55 N/mm ²
Flexural modulus	820 MPa	2100 MPa	25-27 N/mm ²	DNS
Flammability rating	HB	HB	HB	Class 1
Forming Temperature	DNS	DNS	155 - 175°C	110 - 190°C
Melt flow index	6 g/10 min-1	DNS	0.3 - 1.0 g/10min	DNS
Mould shrinkage (linear)	1.4 - 1.6%	DNS	1.5 - 2.0%	0.4 - 0.7%
Volume resistivity	≤ 10 ³	≤ 10 ³	NA	NA
Surface resistivity	≤ 10 ⁴	≤ 10 ⁴	NA	NA
Hardness shore A/D	98 / 65	99 / 73	DNS	DNS
specs	CHIPS	HIPS UVS	KEY & NOTES	
Density (specific gravity)	1.03 g/cm ³	1.02 g/cm ³	These material specs should be used as a guide . DNS = Data Not Supplied by material supplier	
Izod notched impact strength	2.3 j/m	120 j/m		
Vicat softening temperature	90°C	97°C		
Heat deflection temperature	71°C	DNS		
Tensile strength	26.4 MPa	23 MPa		
Flexural strength	63 MPa	32 MPa		
Falling dart impact strength	DNS	50.5 j		
Flammability rating	DNS	DNS		