









PolyJet Technology

MATERIAL SPECIFICATIONS

PolyJet 3D Printers use photopolymers, which are capable of simulating properties ranging from rubber-like to transparent – even high toughness and heat resistance.

Digital Materials expand the possibilities by blending two or more base resins to create thousands of material combinations. Achieve full color capabilities, translucencies, Shore A values and other properties for maximum product realism.

Material	Highlights
 <p>Digital Materials</p>	<ul style="list-style-type: none"> • Wide range of flexibility, from Shore A 27 to Shore A 95 • Rigid materials ranging from simulated standard plastics to the toughness and temperature resistance of Digital ABS Plus • Vibrant colors in rigid or flexible materials, with over 500,000 color options on the Stratasys J750 • Available on PolyJet multi-jetting 3D printers
 <p>Digital ABS Plus</p>	<ul style="list-style-type: none"> • Simulates ABS plastics by combining strength with high temperature resistance • Digital ABS Plus offers enhanced dimensional stability for thin-walled parts • Ideal for functional prototypes, snap-fit parts for high or low temperature usage, electrical parts, castings, mobile telephone casings and engine parts and covers
 <p>High Temperature</p>	<ul style="list-style-type: none"> • Exceptional dimensional stability for thermal functional testing • Combine with PolyJet rubber-like materials to produce varying Shore A values, gray shades and high temperature parts with overmolding • Ideal for form, fit and thermal functional testing, high-definition models requiring excellent surface quality, exhibition models that endure strong lighting conditions, taps, pipes and household appliances, hot air and hot water testing
 <p>Transparent</p>	<ul style="list-style-type: none"> • Print clear and tinted parts and prototypes with VeroClear and RGD720 • Combine with color materials for stunning transparent shades • Ideal for form and fit testing of see-through parts, like glass, consumer products, eyewear, light covers and cases, visualization of liquid flow, medical applications, artistic and exhibition modeling
 <p>Rigid Opaque</p>	<ul style="list-style-type: none"> • Brilliant color options for unprecedented design freedom • Combine with rubber-like materials for overmolding, soft touch handles and more • Ideal for fit and form testing, moving and assembled parts, sales, marketing and exhibition models, assembly of electronic components and silicone molding
 <p>Simulated Polypropylene</p>	<ul style="list-style-type: none"> • Simulates the appearance and functionality of polypropylene • Ideal for prototyping containers and packaging, flexible snap-fit applications and living hinges, toys, battery cases, laboratory equipment, loudspeakers and automotive components
 <p>Rubber-like</p>	<ul style="list-style-type: none"> • Offers various levels of elastomer characteristics • Combine with rigid materials for a variety of Shore A values, from Shore A 27 to Shore A 95 • Ideal for rubber surrounds and overmolding, soft-touch coatings and nonslip surfaces, knobs, grips, pulls, handles, gaskets, seals, hoses, footwear, and exhibition and communication models
 <p>Biocompatible</p>	<ul style="list-style-type: none"> • Features high dimensional stability and colorless transparency • Has five medical approvals including cytotoxicity, genotoxicity, delayed type hypersensitivity, irritation and USP plastic class VI • Ideal for applications requiring prolonged skin contact of more than 30 days and short-term mucosal-membrane contact of up to 24 hours

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Materials	Digital ABS Plus	High Temperature	Transparent		Rigid (Vero Family)	
	Digital ABS Plus, Green, made of RGD515 Plus & RGD535 Digital ABS Plus, Ivory, made of RGD515 Plus & RGD531	RGD525	RGD720	VeroClear RGD810	Vero PureWhite™ RGD837, VeroGray RGD850, VeroBlackPlus RGD875, VeroWhitePlus RGD835, VeroYellow RGD836, VeroCyan RGD841, VeroMagenta RGD851, VeroMagentaV, VeroYellowV	VeroBlue RGD840
Tensile Strength	55-60 MPa (8,000-8,700 psi)	70-80 MPa (10,000-11,500 psi)	50-65 MPa (7,250-9,450 psi)	50-65 MPa (7,250-9,450 psi)	50-65 MPa (7,250-9,450 psi)	50-60 MPa (7,250-8,700 psi)
Elongation at Break	25-40%	10-15%	15-25%	10-25%	10-25%	15-25%
Modulus of Elasticity	2,600-3,000 MPa (375,000-435,000 psi)	3,200-3,500 MPa (465,000-510,000 psi)	2,000-3,000 MPa (290,000-435,000 psi)	2,000-3,000 MPa (290,000-435,000 psi)	2,000-3,000 MPa (290,000-435,000 psi)	2,000-3,000 MPa (290,000-435,000 psi)
Flexural Strength	65-75 MPa (9,500-11,000 psi)	110-130 MPa (16,000-19,000 psi)	80-110 MPa (12,000-16,000 psi)	75-110 MPa (11,000-16,000 psi)	75-110 MPa (11,000-16,000 psi)	60-70 MPa (8,700-10,200 psi)
Flexural Modulus	1,700-2,200 MPa (245,000-320,000 psi)	3,100-3,500 MPa (450,000-510,000 psi)	2,700-3,300 MPa (390,000-480,000 psi)	2,200-3,200 MPa (320,000-465,000 psi)	2,200-3,200 MPa (320,000-465,000 psi)	1,900-2,500 MPa (265,000-365,000 psi)
HDT, °C @ 1.82 MPa	51-55 °C (124-131 °F)	55-57 °C (131-135 °F)	45-50 °C (113-122 °F)	45-50 °C (113-122 °F)	45-50 °C (113-122 °F)	45-50 °C (113-122 °F)
Izod Notched Impact	90-110 J/m (1.69-2.06 ft lb/in)	14-16 J/m (0.262-0.300 ft lb/inch)	20-30 J/m (0.375-0.562 ft lb/inch)	20-30 J/m (0.375-0.562 ft lb/inch)	20-30 J/m (0.375-0.562 ft lb/inch)	20-30 J/m (0.375-0.562 ft lb/inch)
Water Absorption	—	1.2-1.4%	1.5-2.2%	1.1-1.5%	1.1-1.5%	1.5-2.2%
Tg	47-53 °C (117-127 °F)	62-65 °C (144-149 °F)	48-50 °C (118-122 °F)	52-54 °C (126-129 °F)	52-54 °C (126-129 °F)	48-50 °C (118-122 °F)
Shore Hardness	85-87 Scale D	87-88 Scale D	83-86 Scale D	83-86 Scale D	83-86 Scale D	83-86 Scale D
Rockwell Hardness	67-69 Scale M	78-83 Scale M	73-76 Scale M	73-76 Scale M	73-76 Scale M	73-76 Scale M
Polymerized Density	1.17-1.18 g/cm³	1.17-1.18 g/cm³	1.18-1.19 g/cm³	1.18-1.19 g/cm³	1.17-1.18 g/cm³	1.18-1.19 g/cm³
Ash content	—	0.38-0.42%	0.01-0.02%	0.02-0.06%	0.23-0.26% (VeroGray, VeroWhitePlus), 0.01-0.02% (VeroBlackPlus, VeroMagentaV, VeroYellowV)	0.21-0.22%

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Materials	Simulated Polypropylene		Biocompatible
	Durus White RGD430	Rigur RGD450	MED610
Tensile Strength	20-30 MPa (2,900-4,350 psi)	40-45 MPa (5,800-6,500 psi)	50-65 MPa (7,300-9,400 psi)
Elongation at Break	40-50%	20-35%	10-25%
Modulus of Elasticity	1,000-1,200 MPa (145,000-175,000 psi)	1,700-2,100 MPa (246,000-305,000 psi)	—
Flexural Strength	30-40 MPa (4,350-5,800 psi)	52-59 MPa (7,500-8,500 psi)	—
Flexural Modulus	1,200-1,600 MPa (175,000-230,000 psi)	1,500-1,700 MPa (217,000-246,000 psi)	—
HDT, °C @ 1.82 MPa	32-34 °C (90-93 °F)	45-50 °C (113-122 °F)	40-50 °C (113-122 °F)
Izod Notched Impact	40-50 J/m (0.749-0.937 ft lb/inch)	30-35 J/m (0.561-0.656 ft lb/inch)	—
Water Absorption	1.5-1.9%	—	—
Tg	35-37 °C (95-99 °F)	48-52 °C (118-126 °F)	—
Shore Hardness	74-78 Scale D	80-84 Scale D	83-86 Scale D
Rockwell Hardness	—	58-62 Scale M	—
Polymerized Density	1.15-1.17 g/cm ³	1.20-1.21 g/cm ³	—
Ash content	0.10-0.12%	0.3-0.4%	—

Materials	Rubber-like			
	TangoBlack FLX973	TangoGray FLX950	Agilus30 FLX985 & Agilus30 FLX935	TangoBlackPlus FLX980 & TangoPlus FLX930
Tensile Strength	1.8-2.4 MPa (115-350 psi)	3.0-5.0 MPa (435-725 psi)	2.4-3.1 MPa (348-450 psi)	0.8-1.5 MPa (115-220 psi)
Elongation at Break	45-55%	45-55%	220-240%	170-220%
Modulus of Elasticity	—	—	—	—
Flexural Strength	—	—	—	—
Flexural Modulus	—	—	—	—
HDT, °C @ 1.82 MPa	—	—	—	—
Izod Notched Impact	—	—	—	—
Water Absorption	—	—	—	—
Tg	—	—	—	—
Shore Hardness	60-62 Scale A	73-77 Scale A	30-35 Scale A	26-28 Scale A
Rockwell Hardness	—	—	—	—
Polymerized Density	1.14-1.15 g/cm ³	1.16-1.17 g/cm ³	1.14-1.15 g/cm ³	1.12-1.13 g/cm ³
Ash content	—	—	—	—

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Materials	VeroFlex		
MECHANICAL PROPERTIES	TEST METHOD	IMPERIAL	METRIC
Tensile Strength	D-6338-03	6237 – 9282 psi	43 – 64 MPa
Elongation at Break	D-638-05	8 – 20%	8 – 20%
Modulus of Elasticity	D-638-04	137,786 – 232,060 psi	950 – 1600 MPa
Flexural Strength	D-790-03	6962 – 12,763 psi	48 – 88 MPa
Flexural Modulus	D-790-04	232,061 – 333,587 psi	1600 – 2300 MPa
Shore Hardness	D-2240	75-85 Scale D	75-85 Scale D
HDT, @ 0.45 MPa	D-648-06	108 – 122 °F	42 – 50 °C
Izod Notched Impact	D-256-06	0.375 – 0.562 Lb/in	20 – 30 J/m

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