

Makerbot/Rostock Materials

**Default is PLA, may request ABS in Special Requirements*

OFFICIAL NAME:
MOLECULAR FORMULA:
DERIVED FROM:
ENVIRONMENTAL FRIENDLY:
DEGRADABLE:
MELTING POINT:
ROCKWELL HARDNESS:
SURFACE QUALITY:
COOL TIME:
HEAT RESISTANT:
SMELL:
MOISTURE ABSORPTION:
SOLUBILITY IN WATER:
DENSITY:
ELONGATION AT BREAK:
ACRYLIC BONDING:
GLASS TRANSITION:
TENSILE STRENGTH:
FLEXURAL STRENGTH:
COMPRESSIVE STRENGTH:
FLEXURAL MODULUS:
TENSILE MODULUS:
CRYSTALLINITY:
PRODUCTS:

ABS

Acrylonitrile butadiene styrene

$(C_8H_8 \cdot C_4H_6 \cdot C_3H_3N)_n$

Chemical compound: acrylonitrile, butadiene, and styrene

NO

NO

205°C

R105 to R110 (Harder)

Fine

Medium

105°C

Stronger plastic odour

Yes, approximately 3% to 5%

Insoluble

1.04 g/cm³

20%

Good

105°C

44.81 MPa (6,500 psi)

75.84 MPa (11,000 psi)

46.54 MPa (6,750 psi)

2.28 GPa (330,000 psi)

2.21 GPa (320 000 psi)

N/A

LEGO building bricks, computer mouse and etc

PLA

Polylactic acid or polylactide

$(C_3H_4O_2)_n$

Renewable resources: corn starch, tapioca roots, chips, starch, or sugarcane

YES

YES

175°C

R70 to R90

Good

Long

110°C

Slight sweet odour

Yes, minor

Insoluble (better)

1.23 to 1.25 g/cm³

3.8%

Very firmly

60°C to 65°C

57.8 MPa (8,383.18 psi)

55.3 MPa (8,020.58 psi)

N/A

2.3 GPa (333,586.79 psi)

3.3 GPa (478,624.53 psi)

~37°C

Cup, box, lid, cutlery, plastic bags and etc

Form 1 Materials

[Clear Resin](#)

[Tough Resin](#)

Dimension Elite Material

[ABSplus](#)

ZPrinter

Uses plaster, very fragile and shatters under stress.

Objet24 Material

VeroWhitePlus

RIGID OPAQUE MATERIALS					
VEROGRAY RGD850, VEROBBLACKPLUS RGD875, VEROWHITEPLUS RGD835, VEROYELLOW RGD836, VEROCYAN RGD841 , VEROMAGENTA RGD851					
	ASTM	UNITS	METRIC	UNITS	IMPERIAL
Tensile strength	D-638-03	MPa	50-65	psi	7250-9450
Elongation at break	D-638-05	%	10-25	%	10-25
Modulus of elasticity	D-638-04	MPa	2000-3000	psi	290,000-435,000
Flexural Strength	D-790-03	MPa	75-110	psi	11000-16000
Flexural Modulus	D-790-04	MPa	2200-3200	psi	320,000-465,000
HDT, °C @ 0.45MPa	D-648-06	°C	45-50	°F	113-122
HDT, °C @ 1.82MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	20-30	ft lb/inch	0.375-0.562
Water Absorption	D-570-98 24hr	%	1.1-1.5	%	1.1-1.5
Tg	DMA, E»	°C	52-54	°F	126-129
Shore Hardness (D)	Scale D	Scale D	83-86	Scale D	83-86
Rockwell Hardness	Scale M	Scale M	73-76	Scale M	73-76
Polymerized density	ASTM D792	g/cm3	1.17-1.18		
Ash content VeroGray, VeroWhitePlus	USP281	%	0.23-0.26	%	0.23-0.26
Ash content VeroBlackPlus	USP281	%	0.01-0.02	%	0.01-0.02