

# Selecting the Right Material for 3D Printing

## Plastic

Attributes	SLA	SLS	MJF	Carbon DLS	PJ
<b>Transparency</b>	<ul style="list-style-type: none"> <li>▶ PC-Like Translucent/Clear (Accura 60)*</li> <li>▶ ABS-Like Translucent/Clear (WaterShed XC 11122)*</li> <li>▶ PP-Like Translucent White (Somos 9120)</li> <li>▶ PC-Like Advanced High Temp (Accura 5530) – no thermal cure application</li> </ul> <small>*requires custom finishing for functional clarity</small>				▶ Digital Clear**
<b>Gray</b>	<ul style="list-style-type: none"> <li>▶ ABS-Like Gray (Accura Xtreme Gray)</li> <li>▶ MicroFine Gray™</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA12 Mineral-Filled (PA620-MF)***</li> <li>▶ PA12 40% Glass-Filled (PA614-GS)***</li> </ul> <small>***very light gray</small>			
<b>Black</b>	<ul style="list-style-type: none"> <li>▶ ABS-Like Black (RenShape SL7820)</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 11 Black</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 12 Black</li> <li>▶ PA 12 40% Glass-Filled Black</li> </ul>	<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	▶ Digital Black
<b>Off-White</b>	<ul style="list-style-type: none"> <li>▶ ABS-Like White (Accura Xtreme White 200)</li> <li>▶ Ceramic-Like Advanced HighTemp (PerFORM)</li> <li>▶ PP-Like Translucent White (Somos 9120)</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA12 White</li> <li>▶ Polypropylene Natural</li> <li>▶ TPU-70A</li> </ul>			▶ Digital White
<b>Metal Plated Base Material</b>	<ul style="list-style-type: none"> <li>▶ Ceramic-Like Advanced HighTemp (PerFORM)</li> </ul>				
<b>Micro Resolution (Ultra Fine Feature Detail)</b>	<ul style="list-style-type: none"> <li>▶ MicroFine Green™</li> <li>▶ MicroFine Gray™</li> </ul>				
<b>Strength</b>	<ul style="list-style-type: none"> <li>▶ PC-Like Translucent/Clear (Accura 60)</li> <li>▶ Ceramic-Like Advanced HighTemp (PerFORM)</li> </ul>				
<b>Impact Resistance/Durability</b>		<ul style="list-style-type: none"> <li>▶ PA 11 Black (PA 850)</li> <li>▶ PA 12 White (PA 650)</li> <li>▶ PA 12 40% Glass-Filled (PA614-GS)</li> <li>▶ PA 12 Mineral-Filled (PA620-MF)</li> <li>▶ TPU 70-A</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 12 Black</li> <li>▶ PA 12 40% Glass-Filled Black</li> </ul>	<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	
<b>Stiffness</b>	<ul style="list-style-type: none"> <li>▶ Ceramic-Like Advanced HighTemp (PerFORM)</li> <li>▶ PC-Like Advanced High Temp (Accura 5530)</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 12 Mineral-Filled (PA620-MF)</li> <li>▶ PA 12 40% Glass-Filled (PA 614-GS)</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 12 40% Glass-Filled Black</li> </ul>		
<b>Flexibility</b>	<ul style="list-style-type: none"> <li>▶ PP-Like Translucent White (Somos 9120)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Polypropylene Natural</li> <li>▶ TPU 70-A</li> <li>▶ PA 11 Black (PA 850)</li> </ul>		<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	▶ Digital Clear, White, Black
<b>Temperature Resistance</b>	<ul style="list-style-type: none"> <li>▶ Ceramic-Like Advanced HighTemp (PerFORM)</li> <li>▶ PC-Like Advanced High Temp (Accura 5530)</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 11 Black (PA 850)</li> <li>▶ PA 12 Mineral-Filled (PA620-MF)</li> </ul>			
<b>Water Resistance</b>	<ul style="list-style-type: none"> <li>▶ ABS-Like Translucent/Clear (WaterShed XC 11122)</li> <li>▶ PC-Like Advanced High Temp (Accura 5530)</li> </ul>			<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	
<b>Chemical Resistance</b>		<ul style="list-style-type: none"> <li>▶ Polypropylene Natural</li> </ul>		<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	
<b>UV Resistance</b>				<ul style="list-style-type: none"> <li>▶ FPU 50</li> <li>▶ RPU 70</li> </ul>	
<b>UL Flammability Rating</b>		<ul style="list-style-type: none"> <li>▶ PA 11 Black</li> </ul>	<ul style="list-style-type: none"> <li>▶ PA 12 Black</li> <li>▶ PA 12 40% Glass-Filled Black</li> </ul>	<ul style="list-style-type: none"> <li>▶ RPU 70</li> </ul>	

## Metal

Attributes	DMLS	MP
<b>Strength</b>	<ul style="list-style-type: none"> <li>▶ Stainless Steels 17-4 PH and 316L</li> <li>▶ Inconel 718</li> <li>▶ Titanium (Ti6Al4V)</li> <li>▶ Cobalt Chrome (Co28Cr6Mo)</li> </ul>	
<b>Lightweight</b>	<ul style="list-style-type: none"> <li>▶ Aluminum (AlSi10Mg)</li> <li>▶ Titanium (Ti6Al4V)</li> </ul>	▶ Metal Plating
<b>Temperature Resistance</b>	<ul style="list-style-type: none"> <li>▶ Inconel 718</li> <li>▶ Titanium (Ti6Al4V)</li> </ul>	
<b>Corrosion Resistance</b>	<ul style="list-style-type: none"> <li>▶ Stainless Steels 17-4 PH and 316L</li> <li>▶ Inconel 718</li> <li>▶ Titanium (Ti6Al4V)</li> </ul>	
<b>Electrical/Thermal Conductivity</b>	<ul style="list-style-type: none"> <li>▶ Aluminum (AlSi10Mg)</li> <li>▶ Copper (CuNi2SiCr)</li> </ul>	▶ Metal Plating (surface conductivity)
<b>Strength-to-Weight</b>	<ul style="list-style-type: none"> <li>▶ Aluminum (AlSi10Mg)</li> </ul>	

### MATERIALS KEY

#### Plastic



▶ SLA  
Stereolithography



▶ SLS  
Selective Laser Sintering



▶ MJF  
Multi Jet Fusion



▶ Carbon DLS  
Carbon Digital Light Synthesis



▶ PJ  
PolyJet

#### Metal



▶ DMLS  
Direct Metal Laser Sintering



▶ MP  
Metal Plating