



3D-BG

Customer's Guide to Materials & Applications

Overview

At 3D-BG.com, we strive to create quality products that function well and look great. **Material** is the one thing to consider for your project.



What Material is right for you?

Understanding the properties of popular 3D printing materials helps you choose the right filament for the right project. Below is a comparison of PLA, ASA, PETG, and ABS, including typical applications and best-use tips for each type of material.

Applications & Features

★ Quick breakdown of applications & features for each material.

Material	Best Uses
PLA	<ul style="list-style-type: none"> • Prototypes • Decorative objects • Toys • Low-wear household items
SA	<ul style="list-style-type: none"> • Outdoor enclosures • Automotive parts • Signage • UV-resistant components
PETG	<ul style="list-style-type: none"> • Mechanical parts • Food containers (check for food-safe certification) • Transparent models • Snap-fit and flexible parts
ABS	<ul style="list-style-type: none"> • Enclosures • Functional parts • Structural components • High-temperature environments

Material	Key Features
PLA	<ul style="list-style-type: none"> • Easy to print with • Low warping • Environmentally friendly (biodegradable under industrial conditions) • Not UV- or heat-resistant
ASA	<ul style="list-style-type: none"> • Excellent UV and weather resistance • Strong and impact-resistant • Similar strength to ABS but more stable outdoors
PETG	<ul style="list-style-type: none"> • Durable and slightly flexible • UV-resistant • Resistant to water and chemicals • Less brittle than PLA
ABS	<ul style="list-style-type: none"> • Strong and impact-resistant • High thermal resistance • Bonds well with acetone (for smoothing or welding parts)

Material	Not Recommended For
PLA	<ul style="list-style-type: none"> Outdoor use Mechanical or load-bearing parts
PETG	<ul style="list-style-type: none"> Ultra-fine detail prints

Properties Chart

★ Quick breakdown of material properties.

Property	PLA	ASA	PETG	ABS
UV Resistance	Poor	Excellent	Good	Poor
Heat Resistance	Low (~50°C)	High (~100°C)	Medium (~80°C)	High (~100°C)
Flexibility	Low	Medium	Medium	Low-Medium
Strength	Medium	High	High	High
Outdoor Use	No	Yes	Sometimes	No