

Material Information



ESD Resin

Introduction

Formlabs ESD Resin is a static-dissipative material engineered to protect sensitive electronics from unregulated static discharge while delivering the strength and durability required for demanding manufacturing environments.

Advantages

It reduces the risk of component failure from electrostatic discharge, supports long-term use in industrial settings, and enables the production of custom tools and fixtures that integrate seamlessly into existing workflows.

Disadvantages

It is not intended for parts requiring extreme flexibility or high elongation. Its specialized formulation may also result in a slightly higher material cost compared to standard engineering resins.

Tolerance

$\pm 200\mu\text{m}$ or 0.2%

Color

Black

Recommendation

Formlabs ESD Resin is best suited for manufacturing environments where static control is critical, such as electronics assembly, semiconductor handling, and aerospace component production. It is ideal for producing custom tooling, protective housings, and handling fixtures that must combine ESD safety with mechanical durability.

Material Specifications		
Property	Method	Post-Cured
Surface Resistivity	ANSI/ESD 11.11	10^5 - $10^8 \Omega/\text{sq}$
Volume Resistivity	ANSI/ESD 11.11	10^5 - $10^7 \Omega\text{-cm}$
Tensile Strength	ASTM D638-14	44.2MPa
Tensile Modulus	ASTM D638-14	1.937GPa
Elongation at Break	ASTM D638-14	12%
Flexural Strength	ASTM D790-17	61MPa
Flexural Modulus	ASTM D790-17	1.841GPa
Notched Izod	ASTM D256-10	26J/m
Unnotched Izod	ASTM D4812-11	277J/m
Heat Deflection Temp. (1.8MPa)	ASTM D648-18	54.2°C
Heat Deflection Temp. (0.45MPa)	ASTM D648-18	62.2°C
Density	ASTM D792	1.116g/cm ³
Hardness	ASTM D2240	90 Shore D

Attention

Prolonged exposure to solvents beyond recommended wash times can degrade surface quality and mechanical performance, and the dark finish may make visual inspection of fine internal features more difficult.

Applications

3DSPRO finds people using ESD Resin in the following industries and applications:

Electronics manufacturing:

Custom jigs, fixtures, and assembly aids for PCB handling, soldering, and inspection processes.

Component handling and storage:

Anti-static trays, bins, and carriers for sensitive chips, sensors, and circuit boards.

Automotive and aerospace tooling:

Static-safe assembly tools, positioning fixtures, and protective covers for electronic subsystems.

Industrial automation:

ESD-safe grippers, end-of-arm tooling, and sensor housings for robotic systems.

Prototyping and end-use parts:

Functional enclosures, test rigs, and housings for static-sensitive devices.