ECOSTEL

3D Printing Materials

Plastics

Material	Processes	Properties	Metric	Use Case
ABS	FDM / CNC / Injection Molding / Vacuum Casting	Durable, impact resistant	33 MPa tensile strength	Consumer housings, prototypes
ASA	FDM / Injection Molding / CNC	UV and weather resistant	27 MPa tensile strength	Exterior automotive parts
PLA	FDM / Thermoforming	Rigid, easy-print polymer	28.1 MPa tensile strength	Concept models
PETG	FDM / CNC / Thermoforming / Injection Molding	Chemical resistant	45.8 MPa tensile strength	Mechanical enclosures
Polycarbonate (PC)	FDM / CNC / Injection Molding / Thermoforming	High impact resistance	60 MPa tensile strength	Structural transparent components
PC+ABS	FDM / Injection Molding	Toughness-flexibility balance	36 MPa tensile strength	Electronics enclosures
Nylon 6	CNC / SLS / Injection Molding	Wear resistant	67.6 MPa tensile strength	Gears, bearings
Nylon 11	MJF / SLS / Injection Molding	Flexible and durable	52 MPa tensile strength	Snap-fit assemblies
Nylon 12	CNC / FDM / MJF / SLS / Injection Molding	Dimensialy stable	69.3 MPa tensile strength	Production-grade parts
Nylon 12 Glass Filled	SLS / Injection Molding	High stiffness	36 MPa tensile strength	Industrial structures
TPU	FDM / Injection Molding / Compression Molding	Flexible elastomer	Flexible hardness	Shock absorption

Ultem 1010	FDM / CNC	High thermal resistance	77 MPa tensile strength	Aerospace tooling
Ultem 9085	FDM / CNC / Injection Molding	Flame resistant	81 MPa tensile strength	Aircraft interiors
PEEK	CNC / Injection Molding / FDM	Extreme thermal stability	Aerospace-grade polymer	Aerospace and medical implants
PEKK	CNC / FDM / Compression Molding	High mechanical strength	High-performance polymer	Defense structures
Carbon Fiber Reinforced Polymer	CNC / Compression Molding / Autoclave Layup	Lightweight + rigid	Composite material	Aerospace structures
Onyx (PA6 + Carbon Fiber)	FDM / CNC Finishing	Carbon-fiber reinforced	Composite nylon	Robotics fixtures
Flexible Resin	SLA / DLP / Vacuum Casting	Soft photopolymer	Flexible resin system	Flexible prototypes
Tough Resin	SLA / Vacuum Casting	Impact resistant	Engineering resin	Functional prototypes
High Temp Resin	SLA / Vacuum Casting	Heat resistant	Thermal-grade resin	Mold tooling
VeroClear	PolyJet	Transparent rigid resin	Optical clarity	Fluid visualization
Accura 60	SLA / Vacuum Casting	High stiffness resin	58 MPa tensile strength	Engineering models
Somos Perform	SLA	Ceramic-like thermal resistance	68 MPa tensile strength	Thermal testing
Biomed Clear	SLA / Injection Molding	Biocompatible transparent resin	Medical-grade polymer	Surgical visualization

Metals

Stainless Steel

Material	Processes	Core Properties	Metric	Primary Use Case

316L	CNC / DMLS / SLM / Welding	Marine and chemical corrosion resistance	485 MPa tensile strength	Medical and marine applications
17-4 PH	CNC / DMLS / Heat Treatment	High strength and hardness	1310 MPa tensile strength	Aerospace tooling
Tool Steel H13	CNC / DMLS / EDM / Heat Treatment	Thermal fatigue resistant	1990 MPa tensile strength	Injection molds and die tooling
Titanium Ti6Al4V	CNC / DMLS / EBM / Forging	High strength-to-weight ratio	950 MPa tensile strength	Aerospace structures
Inconel 718	CNC / DMLS / SLM / Welding	Extreme thermal resistance	1240 MPa tensile strength	Turbines and jet engines

Copper

Material Category	Compatible Manufacturing Processes	Core Properties	Metric	Material Family	Primary Industrial Use
EOS Cu	CNC / DMLS / SLM	High-purity copper with strong electrical and thermal conductivity	190 MPa tensile strength	Pure Copper	Heat exchangers, electronics
EOS CuCP	CNC / DMLS / SLM	Commercially pure copper (>99.95%) with excellent conductivity	235 MPa tensile strength	Pure Copper	Electrical motors, inductors
CuCrZr (Copper Chromium Zirconium)	CNC / DMLS / SLM / VELO3D	High conductivity with improved mechanical strength and thermal stability	450 MPa tensile strength	High-Strength Copper Alloy	Rocket engines, cooling systems, aerospace
GRCop-42	DMLS / VELO3D	High-strength copper alloy with oxidation resistance at	High-temperature copper alloy	Aerospace Copper Alloy	Rocket engine combustion chambers

		elevated temperatures			

Aluminium

Material Category	Compatible Manufacturing Processes	Core Properties	Metric	Primary Product Applications
Alloy AlSi10Mg	3D Printing – SLM	Lightweight, thermally conductive	460 MPa tensile strength	Aerospace and lightweight structures
Aluminum 5058	3D Printing – SLM	Corrosion resistant aluminum alloy	290 MPa tensile strength	Marine and structural applications
Aluminum 6061	3D Printing – SLM / CNC Machining / Casting / Laser Cut / Metal Extrusion / Metal Injection Molding / Sheet Metal / Stamping / Welding	Lightweight, machinable, structural	310 MPa tensile strength	Aerospace brackets, enclosures
Aluminum A205	3D Printing – SLM	High-strength aerospace aluminum	510 MPa tensile strength	Aerospace and defense systems
Aluminum F357	3D Printing – VELO3D	High fatigue resistance	450 MPa tensile strength	Lightweight aerospace components
Alloy 718	3D Printing – VELO3D / CNC Machining / Welding	Extreme heat and corrosion resistance	1240 MPa tensile strength	Turbines and aerospace systems
Alloy IN625	3D Printing – SLM	Corrosion and oxidation resistant	930 MPa tensile strength	Aerospace and energy systems
Alloy IN718	3D Printing – SLM	High thermal fatigue resistance	1240 MPa tensile strength	Jet engine and turbine systems

Alumina	**3D Printing – NPJ / CNC Machining / Die Casting / Metal Injection Molding / Sheet Metal / Welding**	**High hardness ceramic material**	**300 MPa flexural strength**	**Industrial wear-resistant components**
Biomed Clear	**3D Printing – SLA / Tubing**	**Transparent biocompatible resin**	**Medical-grade photopolymer**	**Medical and surgical products**
Carbon Fiber	**3D Printing – FDM / Tubing**	**Lightweight high-stiffness composite**	**600–800 MPa tensile strength**	**Robotics and drone frames**
Cobalt 509	**3D Printing – SLM**	**Heat and wear resistant alloy**	**1000 MPa tensile strength**	**Aerospace and turbine components**
Cobalt CoCrMo	**3D Printing – SLM**	**Biocompatible cobalt-chrome alloy**	**655 MPa yield strength**	**Orthopedic and dental implants**
EMS007	**3D Printing – FDM / FDM Desktop Metal / FDM Markforged**	**Industrial composite engineering material**	**High structural rigidity**	**Functional industrial tooling**
Fiberglass	**3D Printing – FDM Markforged / Die Cutting / Hot Compression Molding / Out of Autoclave Prepreg / Prepreg Autoclave / Wet Compression / Wet Layup**	**Lightweight reinforced composite**	**345 MPa tensile strength**	**Automotive and aerospace composite systems**
Hastelloy X	**3D Printing – VELO3D**	**High-temperature nickel superalloy**	**760 MPa tensile strength**	**Aerospace combustion systems**
Inocel	**3D Printing – VELO3D**	**Heat-resistant nickel alloy**	**1100 MPa tensile strength**	**Aerospace engine structures**
Metal Plated Polymers	**3D Printing – MJF / SLS / CNC Machining**	**Metallic coated engineering polymer**	**Hybrid structural finish**	**Consumer and industrial housings**
Nickel 625	**3D Printing –**	**Corrosion-**	**930 MPa tensile**	**Turbines and**

	SLM	resistant nickel alloy	strength	marine systems
Niobium	3D Printing – SLM	Heat-resistant refractory metal	275 MPa tensile strength	Aerospace and superconducting systems
Onyx Nylon & Carbon	3D Printing – FDM Markforged	Carbon-fiber reinforced nylon	High stiffness composite	Industrial fixtures and robotics
Rizium Full Color	3D Printing – FDM / Tubing	Full-color engineering polymer	Biocompatible thermoplastic	Medical visualization products
Rizium White	3D Printing – FDM / Tubing	Biocompatible engineering polymer	Medical-grade thermoplastic	Healthcare and surgical models
Somos 9000	3D Printing – SLA	Durable engineering resin	52 MPa tensile strength	Functional SLA prototypes
Top31B	3D Printing – SLA	Industrial photopolymer resin	High-detail resin system	Precision prototypes
Tungsten	3D Printing – SLM / CNC Machining	Extremely dense refractory metal	980 MPa tensile strength	Radiation shielding and tooling
Tungsten Carbide	3D Printing – SLM / CNC Machining / Hot Compression Molding / Metal Injection Molding / Wire EDM	Ultra-hard wear-resistant material	2200 HV hardness	Industrial cutting tools
Zirconia	3D Printing – NPJ	High-strength engineering ceramic	1200 MPa flexural strength	Dental and medical systems