IEMAI®

High-Performance 3D Printing Materials


PEEK


CF-PEEK


GF-PEEK


PEKK

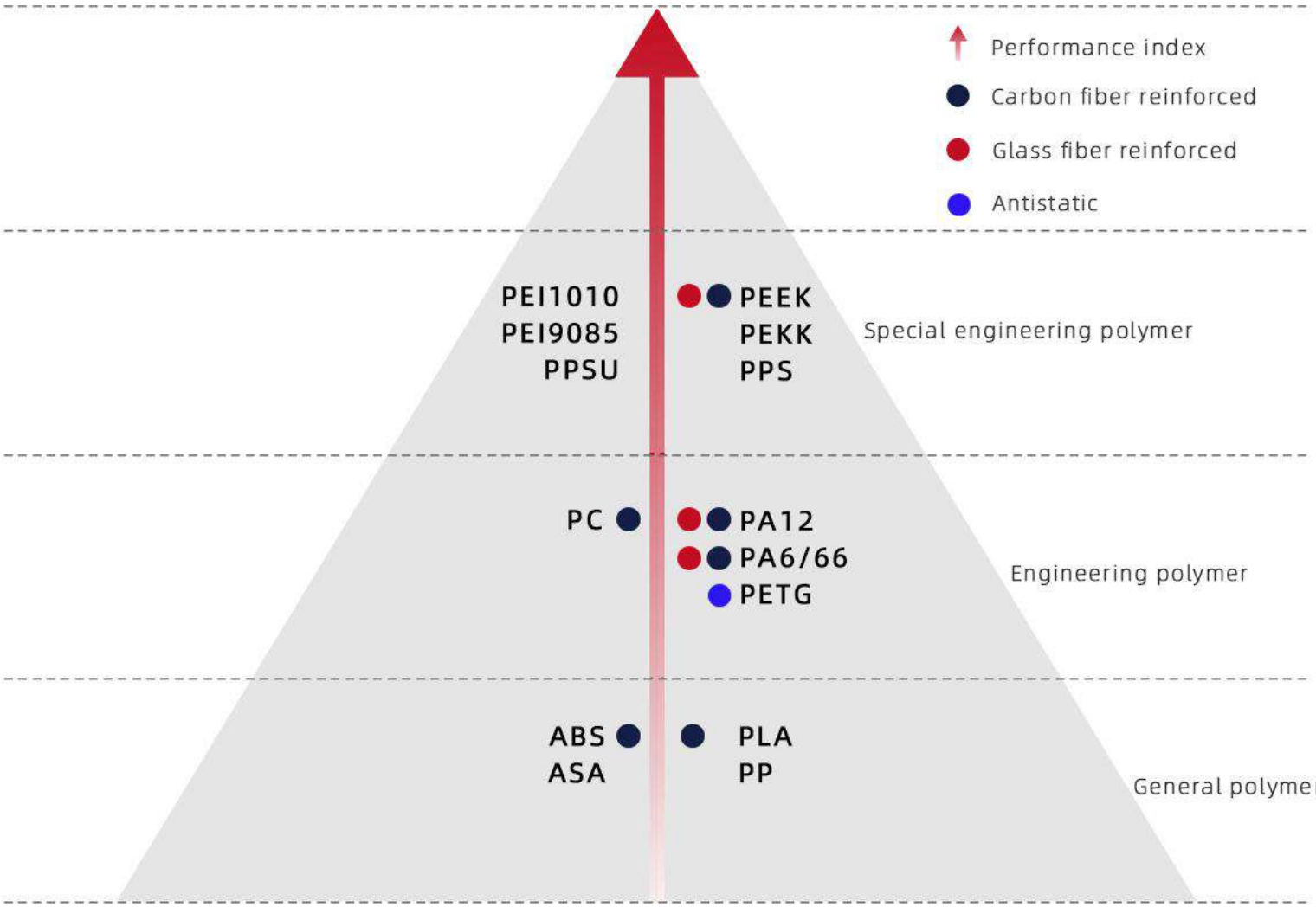

PEI9085


PEI1010


PPSU

Dongguan Imai Intelligent Technology Co.,Ltd

IEMAI 3D Printing Materials Pyramid



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High Performance Polymer

PEEK		Semi crystalline polymer, high strength, chemical corrosion resistance, it can be used at 260C° for a long time, Widely used in aerospace, petrochemical, medical, automotive and scientific research industries.
PEKK		Semi crystalline polymer, high strength, chemical corrosion resistance, uniform crystallinity and high dimensional stability, widely used in aerospace, petrochemical, automotive and scientific research industries.
ULTEM™ 9085		Composite FST aviation protection standard, V0 level flame retardant, ideal for aerospace and military 3D printing materials.
ULTEM™ 1010		High temperature resistance, high strength, V0 grade flame retardant, suitable for aerospace, automotive, medical and scientific research and other fields.
PPSU		High temperature resistance, chemical corrosion resistance, electrical insulation, biocompatibility, widely used in electronic appliances, equipment manufacturing and medical devices and other industries.
PPS		High temperature resistance, chemical corrosion resistance, V0 grade flame retardant, good mechanical properties, widely used in electronic appliances, equipment manufacturing and automotive industries.

Composite Reinforcement Polymer

CF-PEEK		Carbon fiber reinforced PEEK, high dimensional stability and weight to strength ratio, can be used for metal replacement, widely used in aerospace, petrochemical and other extreme conditions industries.
GF-PEEK		Glass fiber reinforced PEEK, high dimensional stability and electrical insulation, can be used for metal replacement, widely used in aerospace, petrochemical and other extreme conditions of the industry.
GF-PA		Glass fiber reinforced NYLON, high dimensional stability and electrical insulation, can be used in conventional mechanical components, widely used in automotive, mechanical and electronic manufacturing industries.
CF-PA		Carbon fiber reinforced NYLON, high dimensional stability and weight to strength ratio, can be used for conventional mechanical components, widely used in automotive, mechanical and electronic manufacturing industries.
CF-ABS		Carbon fiber reinforced ABS, with high dimensional stability and weight to strength ratio, can be used for conventional mechanical components, widely used in automotive, mechanical and electronic manufacturing industries.
CF-PC		Carbon fiber reinforced PC, high dimensional stability and weight to strength ratio, can be used in conventional mechanical components, widely used in automotive, mechanical and electronic manufacturing industries.
ESD-PETG		PETG material with electrostatic safety (anti-static) function, surface resistivity can reach 10E6ω to 10E9 ω, widely used in electronic manufacturing industry.

General Engineering Polymer

PA		High mechanical strength, good toughness, high temperature resistance for industrial parts used in harsh environments.
PC		High strength, good durability, good printing fluidity, it is used in product models, scaffolds, mechanical parts and lamps.
ABS		Durable, high temperature resistant, good toughness, suitable for automobiles, household appliances, etc.
ASA		Excellent UV resistance and weather resistance suitable for gardening, building and other outdoor environment.
PETG		Good light transmittance, with certain mechanical properties, easy to print, suitable for fixture, automobile and lamps and other industries.
PP		High toughness, high wear resistance, food grade, suitable for food, packaging, medicine and functional prototype.
TPU		High wear resistance, high flexibility, elastic, suitable for shoe material, medical, sealing and other fields.
PLA		Biology basics polymer material, environmentally friendly, non-toxic, degradable, easy to print, suitable for medical, education and various scenarios of prototype manufacturing.

Support Polymer

HT-SP

High temperature support material dissolved in alkaline solution, it can be used for PEEK/PEKK/PEI/PPSU and its fiber reinforcement materials.

E-REMOVE

Easy tear type support materials, it can be used for the PA/PPS/PC/ABS/ASA/PETG/TPU and fiber reinforced materials.

HIPS

E-remove or soluble in limonene, used in PA/PC/ABS/PETG and fiber reinforced materials.

PVA+

Water-soluble support materials, can be used for the PA/PC/ABS/ASA/PETG/TPU/PLA and its fiber reinforced material.

Polymer Performance Comparison Table

Matrials	Tensile strength (Mpa) ISO 527	Elongation (%) ISO 527	Flexural Strength (Mpa) ISO 178	Flexural Modulus (Mpa) ISO 178	Notched impact strength (KJ/m2) ISO 179	HDT (C°) ISO 75 1.8Mpa	Tg (C°)	Support Material
PEEK	100	40	170	4200	6	152	143	HT-SP
PEKK	90	5	150	3000	5.2	139	160	HT-SP
PEI 9085	54	3	90	2050	12.7	158	186	HT-SP
PEI 1010	85	6	160	3300	5	190	215	HT-SP
PPSU	65	6.5	92	2152	13.8	212	220	HT-SP
PPS	50	5	83	2300	30	182	86	HT-SP
CF-PEEK	112	10	170	6338	92	300	147	HT-SP
GF-PEEK	105	2.5	130	7625	73	300	143	HT-SP
GF-PA	51	9	72	2720	43	157	70	PVA E-REMOVE
CF-PA	30	1.5	50	1904	16	140	74	PVA E-REMOVE
CF-ABS	48	3	78	5280	16	78	105	PVA E-REMOVE
CF-PC	72	2.5	92	5880	18	135	143	PVA E-REMOVE
ESD-PETG	30	5	55.8	1890	8.5	68	78	PVA E-REMOVE
PA	52	150	67	1600	0.5	155	67	PVA E-REMOVE
PC	60	12	94	2044	25	99	113	PVA E-REMOVE
ABS	46	2.5	69	2350	19	97	—	PVA E-REMOVE
ASA	43.8	6.7	73.4	3206	10.5	100	98	PVA E-REMOVE
PETG	53	4	171	2040	4.5	68	80	PVA E-REMOVE
PP	14	10	7.8	244	0.35	105	—	PVA E-REMOVE
TPU	—	330	—	—	—	—	—	PVA E-REMOVE
PLA	46.6	1.9	85	3283	2.68	58	61	PVA E-REMOVE

Updated on November 11, 2022