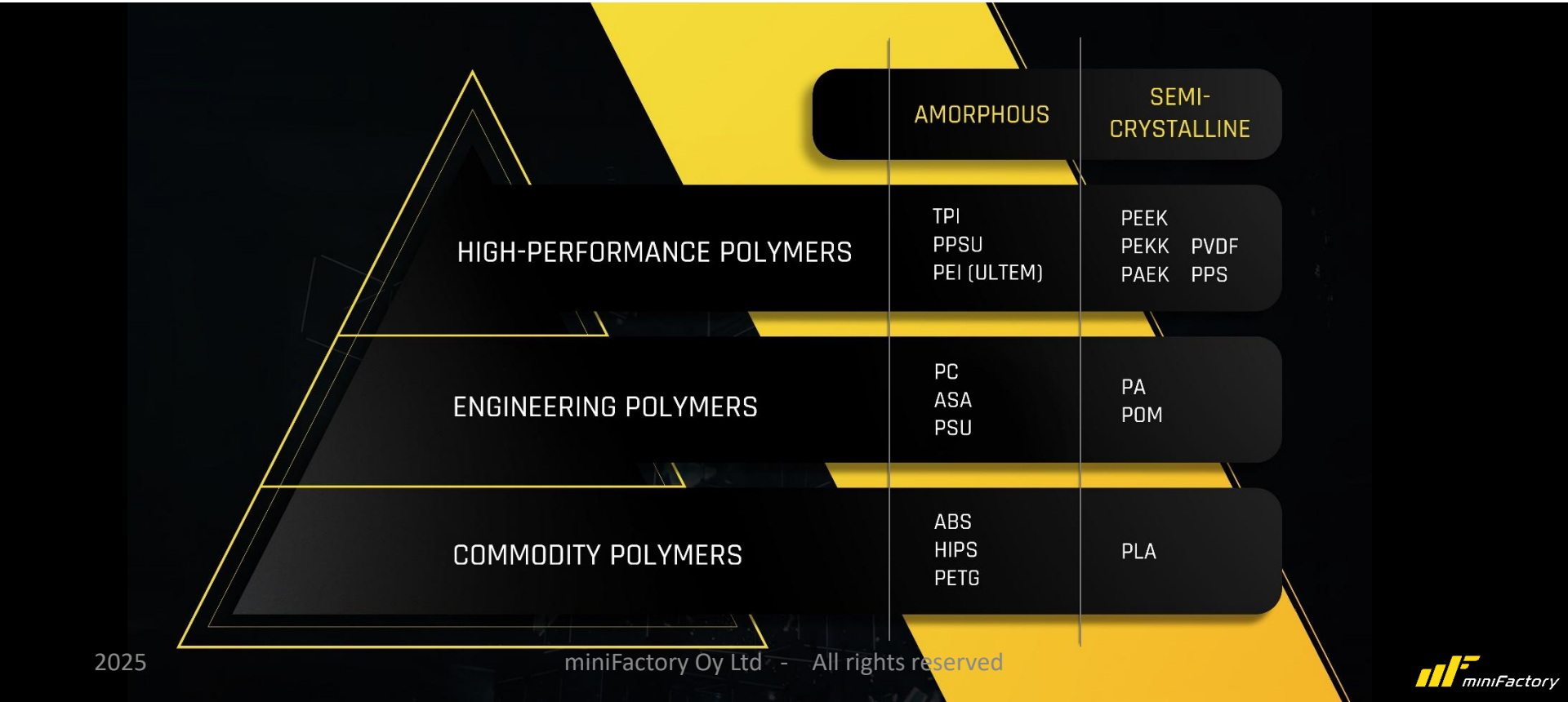
miniFactory

YOUR TRUSTED PARTNER IN ADDITIVE MANUFACTURING

MATERIALS & APPLICATIONS

WIDE RANGE OF POLYMERS



BENEFITS OF **HIGH-PERFORMANCE** POLYMERS

New solutions are needed for many applications where metal is not the optimal solution

MATERIALS **APPROVED** BY THE INDUSTRIES

With miniFactory you have access for the widest material range on the market without any additional licenses or fees.

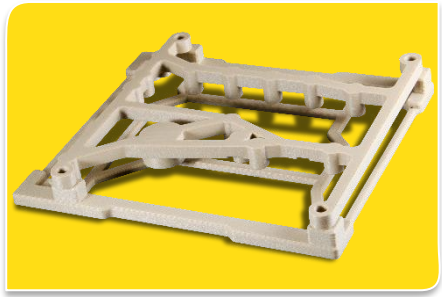
From commodity and engineering polymers all the way up to the most demanding high-performance polymers and composites.
Material range is many times wider than in “closed systems” or in the systems with lower chamber temperature.

ENGINEERING MATERIALS

Produce parts utilizing a broad spectrum of established engineering polymers.

CARBON FIBER MATERIALS

Build strong and lightweight parts by choosing carbon fiber reinforced polymers to the metal replacement applications.



PEEK/PEKK/PAEK MATERIALS

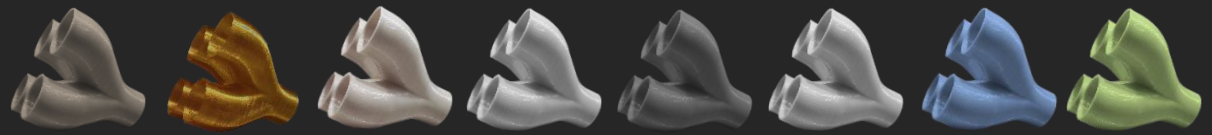
Make valuable PEEK parts in-house with all materials of the PAEK Polymer family.

VALIDATED MATERIALS

Making parts for aerospace or motorsports?
Are you looking for a material compatible for EN45455 or UL94 V-0?

POLYMER **COMPARASION**

1 = Low
3 = Good
5 = Superb



	PEEK / PEKK	TPI	ULTEM 9085	PVDF	PA 6/66 CF	PC	ABS	PLA
Heat resistance	250°C	240°C	175°C	150°C	150°C	135°C	80°C	50°C
Flame resistance	UL94-V0	UL94-V0	UL94-V0	UL94-V0	-	-	-	-
Chemical resistance	5	3	3	5	2	1	1	-
Electrical Insulation properties	5	4	3	5	-	3	4	2
Wearing resistance	5	3	3	4	3	2	1	1
CF/GF reinforced grade available	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes
Tensile strength	100 MPa	80 MPa	85 MPa	50 MPa	90 MPa	65 Mpa	35 Mpa	40 Mpa
Cost	€€€€€	€€€€	€€€	€€€	€€	€€	€	€

PEEK-CF

PEEK (Polyetheretherketone) is a semi-crystalline thermoplastic with excellent mechanical and chemical resistance properties.

KEY ADVANTAGES

- Heat resistance up to 260°C
- High strength and toughness
- Great abrasion and wear resistance
- Excellent hydrolysis resistance
- Low smoke and toxic gas emissions

MATERIAL APPLICATIONS

- Bearing retainers
- Gears
- Bushings
- Oil and gas processing equipment
- Seals
- Aircraft hardware and fasteners

PEEK / PEKK

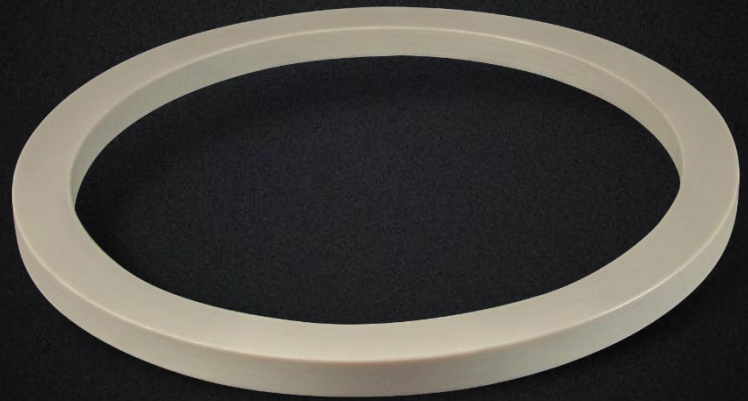
PEEK (Polyetheretherketone) and PEKK (Polyetherketoneketone) are semi-crystalline thermoplastics with excellent mechanical and chemical resistance properties.

KEY ADVANTAGES

- Heat resistance up to 250°C
- Low thermal conductivity
- Great abrasion and wear resistance
- Excellent chemical resistance
- Low smoke and toxic gas emissions

MATERIAL APPLICATIONS

- Bearing retainers
- Gears
- Bushings
- Oil and gas processing equipment
- Seals
- Fluid applications



PEEK-GF

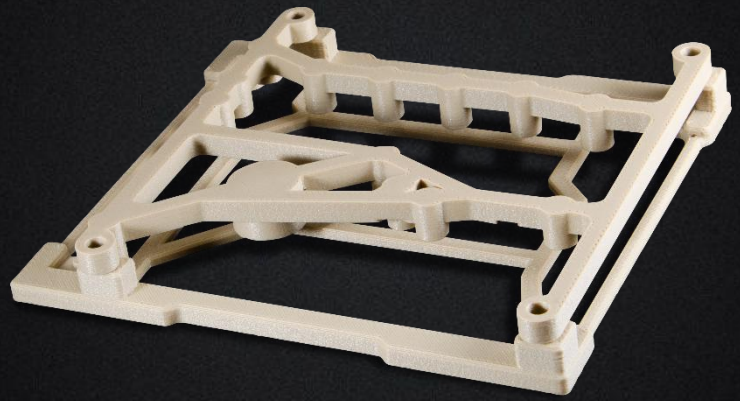
PEEK (Polyetheretherketone) is a semi-crystalline thermoplastic with excellent mechanical and chemical resistance properties.

KEY ADVANTAGES

- Heat resistance up to 280°C
- Low thermal conductivity
- Great abrasion and wear resistance
- Excellent chemical resistance
- Low smoke and toxic gas emissions

MATERIAL APPLICATIONS

- Bearing retainers
- Gears
- Bushings
- Oil and gas processing equipment
- Seals
- Fluid applications



TPI

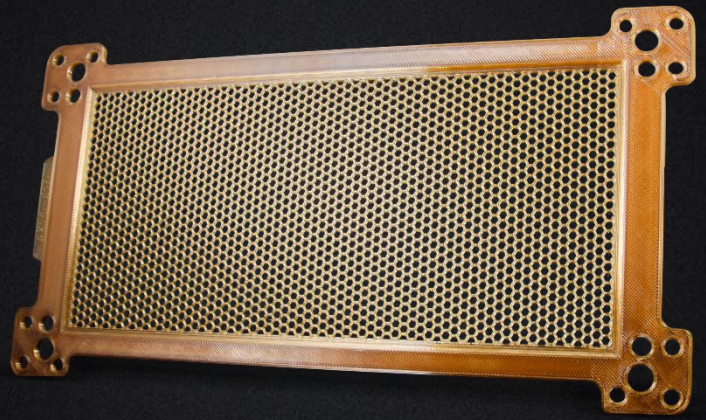
TPI (Thermoplastic polyimide) offers extreme resistance to heat and provides high electrical insulation properties even in the most demanding environments.

KEY ADVANTAGES

- Heat resistance up to 240°C
- High dielectric strength
- Inherent flame resistance (UL94 V-0) with thin wall FR capability at 0,75mm
- Halogen free
- Excellent creep resistance

MATERIAL APPLICATIONS

- Electrical insulation parts
- Connectors
- High-temperature assemblies
- Molding applications
- Semiconductor applications



ULTEM1010 / PEI1010

PEI 1010 (Polyetherimide) is used in applications that require high heat resistance, high strength or excellent electrical insulation properties.

KEY ADVANTAGES

- Heat resistance up to 210°C
- Excellent electrical insulation properties
- Good chemical resistance
- Inherent flame resistance (UL94 V-0)
- FDA grade available

MATERIAL APPLICATIONS

- Electrical insulation parts
- Electrical switches and controls
- Thermoforming molds
- Composite Lay-Up tooling
- Custom tools for metal and plastic
- FDA applications

ULTEM9085 / PEI9085

PEI 9085 (Polyetherimide) filament is based on a polyetherimide blend for use in the aerospace market. It is ideal for the aerospace, marine and railway.

KEY ADVANTAGES

- Heat resistance up to 170°C
- Certified for aircraft components
- FST compliant with an OSU rating of 55/55
- Inherent flame resistance (UL94 V-0)
- Fire Protection of Railway Vehicles (EN45545-2)

MATERIAL APPLICATIONS

- Interior components
- Ventilation system components
- Cable ducts
- Latches
- Throttle bodies
- Thermostat housings

PEKK-A

PEKK-A (PolyEtherKetoneKetone) offers extremely low outgassing, high mechanical properties and exceptional resistance to extreme environments.

KEY ADVANTAGES

- Heat resistance up to 150°C
- Extremely low outgassing
- Inherent flame resistance (UL94 V-0)
- Fire Protection of Railway Vehicles (EN45545-2)
- Low FST (Flame, Smoke, Toxicity)
- Comparable to Stratasys ANTERO800NA material

MATERIAL APPLICATIONS

- Railway interior parts
- Space grade parts
- Trays and packaging
- EMI/RFI shielding
- Technical insulation parts
- Ducting

ESD-ABS

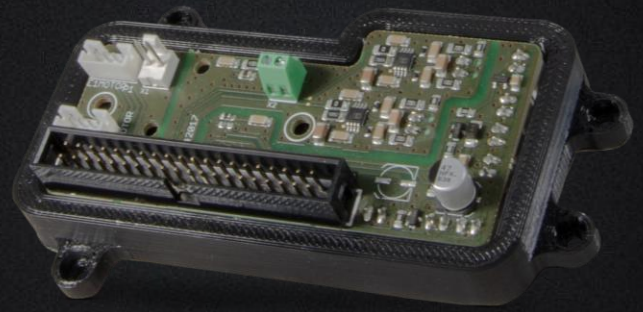
ESD-ABS (Electrostatic Dissipative Acrylonitrile butadiene styrene) is an engineering thermoplastic with static dissipative properties.

KEY ADVANTAGES

- Heat resistance up to 90°C
- 10^7 to 10^9ohm surface resistivity on 3DP sample
- Consistent surface resistivity and low particulate contamination
- Good impact resistance
- Cost-efficient

MATERIAL APPLICATIONS

- ESD-safe parts
- Low-volume production parts
- Functional prototypes
- ESD-safe jigs/fixtures
- Electronics industry parts



ESD-PEKK

ESD-PEKK (Electrostatic Dissipative PolyEtherKetoneKetone) is an aerospace grade thermoplastic with static dissipative properties.

KEY ADVANTAGES

- Heat resistance up to 150°C
- 10^7 to 10^9ohm surface resistivity on 3DP sample
- Consistent surface resistivity and low particulate contamination
- Low outgassing - ideal for space related applications
- Excellent resistance to a broad range of chemicals

MATERIAL APPLICATIONS

- ESD-safe parts
- Low-volume production parts
- Functional prototypes
- ESD-safe jigs/fixtures
- Aerospace / space vehicle components
- Electronics industry parts

PPSU

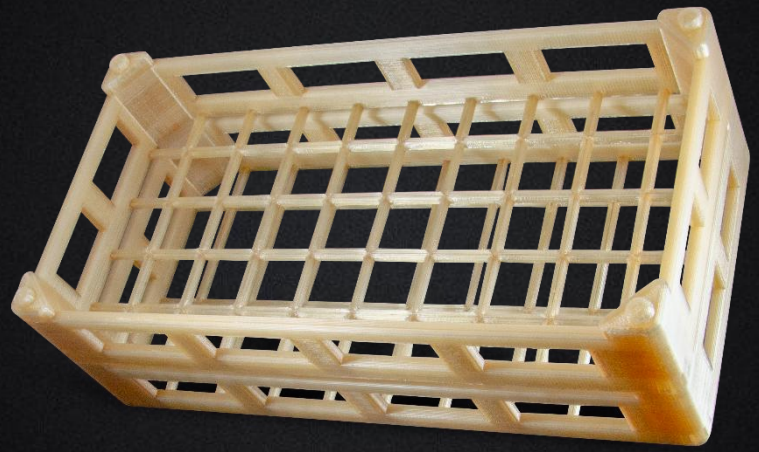
PPSU (Polyphenylsulfone) is known for its excellent resistance to chemicals and heat. This makes it optimal choice for medical devices requiring repeated sterilization.

KEY ADVANTAGES

- Heat resistance up to 220°C
- Excellent chemical and thermal resistance
- Sterilization capable – incl. EtO gas, radiation, steam autoclaving, plasma etc.
- Excellent hydrolysis resistance
- Exceptional toughness and durability

MATERIAL APPLICATIONS

- Sterilization trays and cases
- Surgical instrument handles
- Clean-room compatibility parts
- Hot water fittings
- Plumbing manifolds
- Low-volume injection molds



PPS-CF

PPS (Polyphenylene Sulfide) is a high-performance polymer that exhibits exceptional chemical resistance along with high thermal and mechanical properties.

KEY ADVANTAGES

- Heat resistance up to 250°C (Annealed)
- Excellent chemical resistance, insoluble in ANY known solvent under 200°C
- Inherently flame resistant and self-extinguishing
- Long-term hydrolytic stability for very low moisture absorption
- Exceptional strength and modulus even at elevated temperatures

MATERIAL APPLICATIONS

- High performance functional parts
- Chemical processing parts
- Electrical insulations parts

PVDF-C

PVDF (Polyvinylidene Fluoride) is a semi-crystalline fluoropolymer with excellent abrasion resistance and outstanding weatherability.

KEY ADVANTAGES

- Heat resistance up to 150°C
- Good resistance to acids and solvents
- Extremely high electrochemical stability
- Great abrasion and wear resistance
- Outstanding resistance to sunlight/UV exposure

MATERIAL APPLICATIONS

- Semiconductor applications
- Wear resistance applications
- Electrical insulations
- Food / Beverage processing
- Chemical process equipment
- UV resistance applications

PA-CF

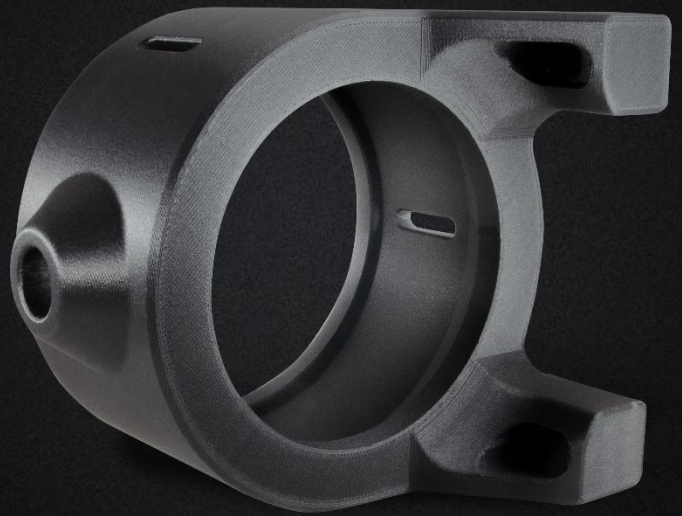
Carbon reinforced PA (Polyamide) is ideal for demanding racing and engineering structural applications that require robust performance at elevated temperatures.

KEY ADVANTAGES

- Heat resistance 150°C
- PA6/66 – up to 100% stronger than PA11/PA12
- Strong and durable
- High dimensional stability

MATERIAL APPLICATIONS

- Racing applications
- Protective and supporting sports gear
- High performance functional parts
- Manufacturing jigs and fixtures
- Light weight applications
- High-end engineering applications



PC-S

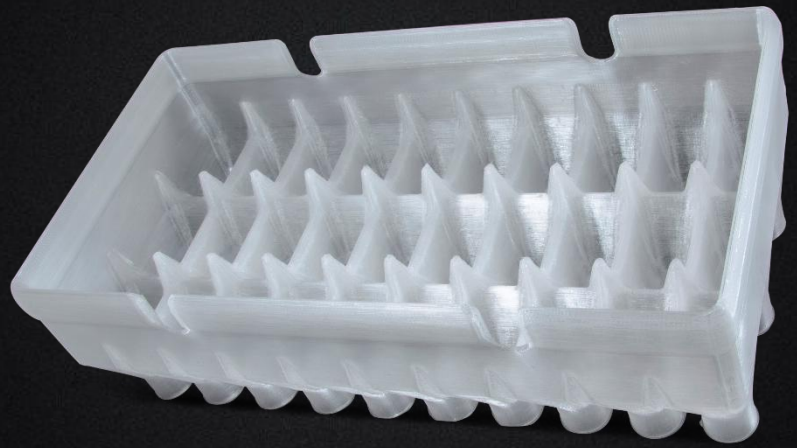
PC-S (Polycarbonate) offers high resistance to heat. It is well suited to a variety of applications such as the production of parts in the food industry.

KEY ADVANTAGES

- Temperature tolerance (from -100°C to +140°C)
- Sterilization capable
- Food contact certification EU10/2011, FDA 21 CFR
- Excellent impact resistance
- Low hydrolysis sensitivity

MATERIAL APPLICATIONS

- Processing line parts
- Dispensers
- Brackets
- Housing parts
- Jigs
- Grabbers



ABS

ABS (Acrylonitrile butadiene styrene) provides favorable mechanical properties such as impact resistance, toughness, and rigidity when compared with other common polymers

KEY ADVANTAGES

- Heat resistance 90°C
- Good impact resistance
- Good mechanical properties
- Cost-efficient

MATERIAL APPLICATIONS

- Enclosures
- Automotive parts
- Brackets
- Housing parts
- Jigs

IGLIDUR

IGLIDUR is made of high-performance polymers that are characterised by their special properties: their special composition makes them extremely wear-resistant, robust and self-lubricating

KEY ADVANTAGES

- Extreme wear resistant
- Excellent coefficient of friction
- Resistant to edge pressure
- Resistant to shocks and impacts
- Particularly resistant to dirt and dust

MATERIAL APPLICATIONS

- All wearing applications

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