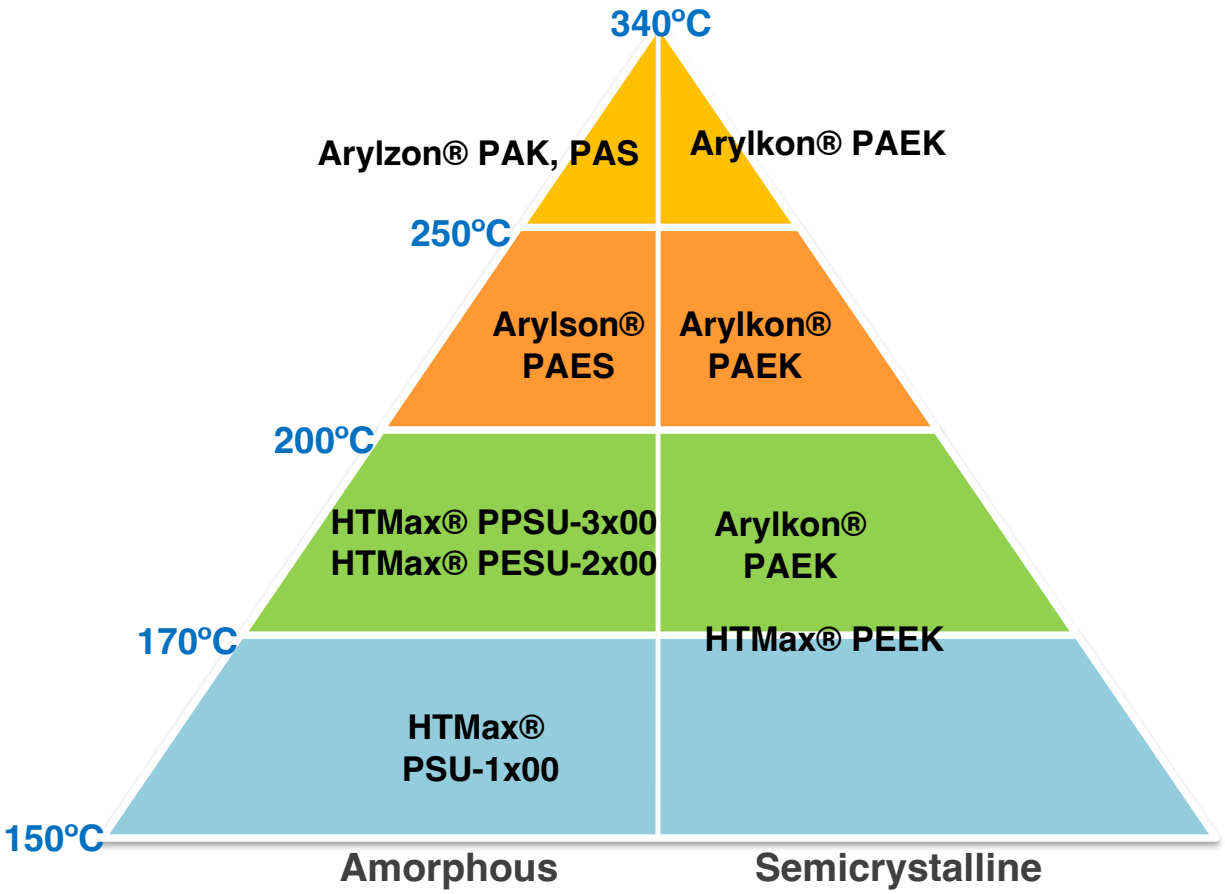
EMPOWERING YOUR INNOVATION WITH HIGH-PERFORMANCE POLYMERS



HTMax®, Arylson®, Arylkon®, Arylzon®

Shaping the Future of High-Performance Polymers

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EMPOWERING YOUR INNOVATION WITH HIGH-PERFORMANCE POLYMERS

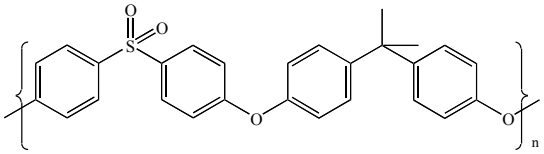
HT Materials Corporation is a leading innovator in high-performance thermoplastic polymers and your trusted partner for next-generation solutions.

Founded in 2006 and headquartered in Saratoga Springs, New York, USA, HT Materials combines U.S. and Asian R&D with advanced manufacturing in Asia. Through our proprietary and patented high-performance polymer technologies, we support engineers and designers across a broad spectrum of industries — including automotive and e-mobility, aerospace and defense, oil & gas and energy, medical and life sciences, electrical and electronics, industrial equipment, and emerging additive manufacturing applications — helping them meet the most demanding thermal, mechanical, and chemical performance requirements.

HT Materials offers an impressive portfolio of high-performance thermoplastics, including **Polysulfones (PSU, PESU, PPSU), Polyetherimide (PEI), Polyarylethersulfones (PAES), Polyetheretherketone (PEEK), the broader family of Polyaryletherketones (PAEK), and our new generation of amorphous Polyarylketones (PAK)**. Leveraging innovative chemistry and proprietary formulations, we deliver materials with exceptional heat resistance, **tunable glass-transition and melting temperatures**, outstanding chemical and corrosion resistance, high strength and toughness, superior abrasion and wear performance, and inherent flame resistance — enabling tailored solutions for the most demanding applications.

Polysulfone

HTMax® PSU



HTMax® Polysulfone (PSU) is a rigid, high-strength, amorphous thermoplastic engineered for demanding high-temperature applications. It can be **injection molded, extruded, or thermoformed** into a wide range of shapes and components. HTMax® PSU is among the **purest polysulfones in the industry**, with cyclic oligomers (dimer and trimer) below 0.90%. These resins deliver a **superior combination of high-performance properties**.

Key High-Performance Properties of HTMax® PSU include:

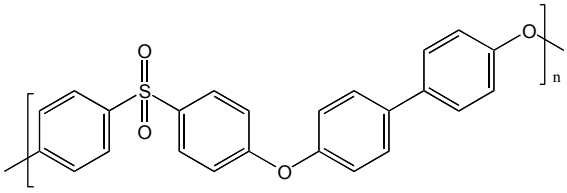
- ✓ Excellent thermal stability
- ✓ High toughness and strength
- ✓ Good environmental stress cracking resistance
- ✓ High heat deflection temperature, 345°F(174°C)
- ✓ Combustion resistance
- ✓ Dimensional stability
- ✓ Low shrinkage
- ✓ Transparency
- ✓ Low creep
- ✓ Low leachable

HTMax® PSU Resins for Extrusion, Compounding, and Injection Molding Applications

Product Grade	Supply Form	Melt Flow Rate (g/10min, @ 649.4°F (343°C)/2.16 kg)	Description
PSU-1100	Pellets	4	High viscosity for extrusion, and solution fabrication of hollow fiber membrane
PSU-1200	Pellets	9	Medium viscosity for extrusion, compounding, and injection molding
PSU-1600	Pellets	18	Medium viscosity with higher flow for compounding and injection molding

Polyphenylsulfone

HTMax® PPSU



HTMax® PPSU (Polyphenylsulfone) is a rigid, high-strength, amorphous thermoplastic engineered for demanding high-temperature applications. With **superior impact resistance** and excellent thermal stability, it can be **injection molded, extruded, or thermoformed** into a wide variety of shapes and components. **BPA-free** and able to withstand prolonged high temperatures and repeated sterilization, HTMax® PPSU is ideal for baby bottles, food service, medical and healthcare devices, laboratory equipment, plumbing components, and other sanitary or high-performance applications.

Key High-Performance Properties of HTMax® PPSU include:

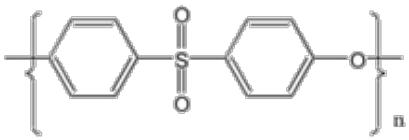
- ✓ **High Heat Resistance:** Heat deflection up to 405 °F (207 °C)
- ✓ **Superior Toughness and Impact Strength**.
- ✓ **Excellent Hydrolytic Stability:** Maintains properties after prolonged water exposure
- ✓ **Steam Sterilization Resistant**: Withstands repeated steam sterilization without meaningful loss of properties
- ✓ **Outstanding Chemical Resistance:** Better than PSU and PEI
- ✓ **Inherently flame retardant**
- ✓ **Transparent**
- ✓ **Colorable**

HTMax® PPSU Resins for Injection Molding, Extrusion and Compounding Applications

Product Grade	Supply Form	Melt Flow Rate (g/10min, @ 689°F (365°C)/5.0 kg)	Description
PPSU-3200	Pellets	18	General purpose low flow for extrusion and injection molding
PPSU-3400	Pellets	32	Medium flow for extrusion, compounding and injection molding
PPSU-3600	Pellets	40	High flow for compounding and injection molding

Polyethersulfone

HTMax® PESU



HTMax® Polyethersulfone (PESU) is a high-performance, amorphous thermoplastic engineered for demanding applications requiring exceptional thermal stability, mechanical strength, and chemical resistance. With a continuous service temperature up to **400 °F (204 °C)** and a broad operational range from **-40 °F to 400 °F (-40 °C to 204 °C)**, HTMax® PESU maintains its integrity under prolonged exposure to water, chemicals, and extreme temperatures. Key High-Performance Properties of HTMax® PESU include:

- ✓ **High Heat Deflection Temperature:** Up to **400 °F (204 °C)**, ensuring dimensional stability under heat
- ✓ **Superior Mechanical Strength:** Exceptional toughness and high tensile strength for demanding applications
- ✓ **Excellent Chemical Resistance:** Superior to PSU and PEI, with resistance to a wide range of chemicals
- ✓ **Inherent Flame Retardancy:** Meets stringent fire safety standards without the need for additives
- ✓ **Outstanding Hydrolytic Stability:** Maintains properties after prolonged exposure to water and steam
- ✓ **Transparency:** Allows for visual inspection and aesthetic design flexibility
- ✓ **Low Shrinkage and Creep:** Ensures dimensional accuracy and stability over time

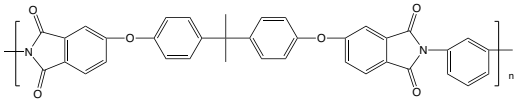
HTMax® PESU is ideal for applications in **healthcare, automotive, electrical and electronics, water filtration, and food contact** industries, where high thermal capability, inherent flame resistance, superior chemical resistance, and improved mechanical properties are essential.

HTMax® PESU Resins for Solution Casting, Extrusion, Compounding and Injection Molding Applications

Product Grade	Supply Form	Melt Flow Rate (g/10min, @ 689°F (365°C)/10.0 kg)	Description
PESU-2100	Flake/Pellets	30	High viscosity for solution casting of hollow fiber membrane, and extrusion molding
PESU-2200	Pellet	45	High viscosity for extrusion and injection molding
PESU-2400	Pellets	90	Medium viscosity for extrusion, compounding and injection molding
PESU-2600	Pellets	180	Medium viscosity with higher flow for compounding and injection molding

Polyetherimide

HTMax® PEI



HTMax® Polyetherimide (PEI) is an amber-transparent, amorphous high-performance thermoplastic resin with a glass transition temperature (Tg) of **422.6°F (217°C)**. It offers exceptional elevated thermal resistance, high strength and stiffness, and broad chemical resistance. With a relatively lower melt viscosity compared to polysulfones, it is well-suited for extrusion, injection molding, and thermoforming applications.

This resin is inherently flame-retardant, making it ideal for electronic components and testing devices. HTMax® PEI resin delivers a superior combination of high-performance properties, including:

- ✓ Excellent thermal stability: Maintains mechanical properties at elevated temperatures
- ✓ High strength and stiffness: Suitable for structural applications
- ✓ Good chemical resistance: Resists a wide range of chemicals
- ✓ High heat deflection temperature, up to 405°F (207°C)
- ✓ Excellent electrical properties: High dielectric strength
- ✓ Combustion resistance and low smoke generation: Meets stringent fire safety standards
- ✓ Dimensional stability: Retains shape under stress
- ✓ Low shrinkage: Ensures precise molding
- ✓ Transparency: Allows for visual inspection and design flexibility

HTMax® PEI Resins for Extrusion, Compounding and Injection Molding Applications

Product Grade	Supply Form	Melt Flow Rate (g/10min, @ 680°F (360°C)/5.0 kg)	Description
PEI 4000	Pellets	17	High viscosity for extrusion, thermoforming, extrusion blow molding, and injection molding
PEI 4010	Pellet	30	Medium viscosity for compounding and injection molding

Next Generation PAES

Arylson® PAES

Arylson® PAES is **new class of poly(aryl ether sulfone) (PAES)** materials engineered to push the boundaries of performance. These cutting-edge polymers combine exceptional heat resistance, mechanical strength, and durability to address the toughest application environments.

Key Advantages

Ultra-High Glass Transition Temperature (Tg)
240–340 °C: Designed for demanding high-temperature environments where conventional PSU, PPSU and PESU reach their limits.

Superior Mechanical Properties:
Higher modulus for outstanding stiffness and dimensional stability
Excellent impact resistance even at low temperatures
Increased tensile and flexural strength to support structural and load-bearing designs

Enhanced Safety & Reliability:
Inherent flame resistance without additives
Low smoke and low toxic gas emission during combustion
Improved long-term performance under continuous heat exposure

Outstanding Chemical Resistance:
Withstand aggressive solvents, fuels, and cleaning agents far better than conventional sulfone polymers—expanding the design window for critical parts.

Why Choose Arylson® PAES?

Property	Arylson® **PAES**	**Conventional PSU/PPSU/PESU**
Tg (°C)	240–340	190–230
Modulus	Higher	Moderate
Impact Strength	High	Moderate–High
Flame Resistance	Inherent	Good (needs additives)
Chemical Resistance	Excellent	Moderate

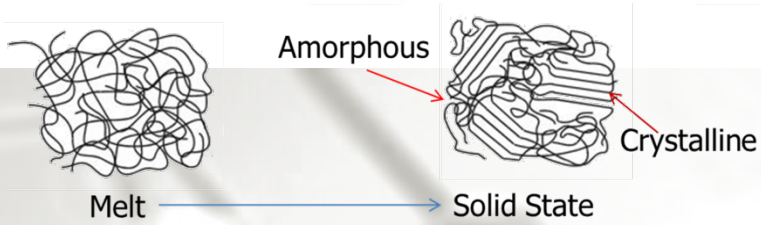
Unlock New Design Possibilities

With their exceptional combination of thermal stability, mechanical strength, chemical resistance, and inherent flame retardance, Arylson® PAES materials enable designers and engineers to replace heavier metals, lower-performance plastics, and even some thermosets—simplifying manufacturing and lowering lifecycle costs.

Polyetheretherketone

HTMax® PEEK

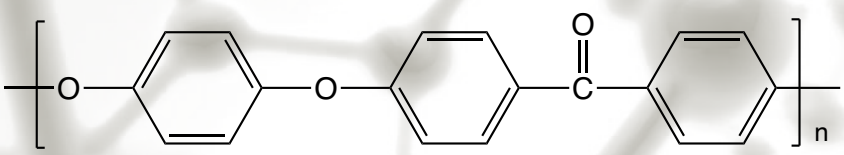
HTMax® Polyetheretherketone (PEEK) is a semi-crystalline thermoplastic engineered for **ultra-high-performance applications**. With a **glass transition temperature (Tg) of ~150°C (300°F)** and a **melting point near 343°C (649°F)**, it maintains excellent mechanical and dimensional stability under continuous use up to **260°C (500°F)**. PEEK combines **exceptional thermal resistance, superior impact strength, and broad chemical resistance**, making it suitable for environments where other thermoplastics may fail.



PEEK is one of the most capable semi-crystalline polymers available, often serving as a **lightweight metal replacement** in critical applications. Its unique combination of **strength, toughness, chemical resistance, and thermal stability** makes it ideal for **aerospace, automotive, medical, and industrial components** that must withstand extreme temperatures, repeated stress, and harsh chemical exposure.

Distinct Features of HTMax® PEEK:

- ✓ Exceptional chemical resistances (organics, acids, and bases)
- ✓ Excellent wear and abrasion resistance
- ✓ Best-in-class fatigue resistance
- ✓ Low moisture absorption ensuring dimensional stability
- ✓ Superior dielectric with low loss at high temperatures and frequencies
- ✓ High purity
- ✓ High mechanical strength at temperatures in excess of 500°F (260°C)



The **HTMax® PEEK** product line offers a versatile range of grades—including **standard, high-melting, and low-melting formulations**—designed for **injection molding, extrusion, additive manufacturing (3D printing), and composite fabrication**, providing engineers with flexible solutions for diverse high-performance applications.

Polyetheretherketone

HTMax® PEEK

HTMax® Standard-Melting PEEK Resins — Engineered for Extrusion, Compounding, and Injection Molding

Product Grade	Tg,°F (°C)	Tm,°F (°C)	Tc,°F (°C)	Inherent Viscoisty (dL/g)	Description
PEEK-430	305 (150)	644 (340)	554 (290)	0.95	High viscosity for extrusion, compression molding and injection molding
PEEK-420	305 (150)	644 (340)	563 (295)	0.80	Medium viscosity for extrusion, compounding, and injection molding
PEEK-410	305 (150)	644 (340)	572 (300)	0.70	Medium viscosity with higher flow for compounding and injection molding

HTMax® Low-Melting PEEK Resins — Optimized for Extrusion, Injection Molding, Thermoforming, Composites, and Additive Manufacturing

Product Grade	Tg,°F (°C)	Tm,°F (°C)	Tc,°F (°C)	Inherent Viscosity (dL/g)	Description
PEEK-130	316 (158)	581 (305)	455 (235)	0.95	High viscosity for 3D printing, Powder coating, Blow molding, Rotomolding, Thermoforming, Extrusion (thick wall), Injection Molding (thick wall)
PEEK-120	315 (157)	581 (305)	464 (240)	0.80	Medium viscosity for 3D printing, Powder coating, Blow molding, Rotomolding.
PEEK-110	315 (157)	581 (305)	473 (245)	0.70	Medium viscosity with higher flow for 3D printing, Composites, Powder coating, Rotomolding

HTMax® High-Melting PEEK Resins — Engineered for Extrusion, Compounding, Injection Molding, and Extreme Applications

Product Grade	Tg,°F (°C)	Tm,°F (°C)	Tc,°F (°C)	Inherent Viscosity (dL/g)	Description
PEEK-630	334 (168)	725 (385)	635 (335)	0.95	High viscosity for extrusion, compression molding and injection molding
PEEK-620	334 (168)	725 (385)	635 (335)	0.80	Medium viscosity for extrusion, compounding, and injection molding
PEEK-610	334 (168)	734 (390)	644 (340)	0.70	Medium viscosity with higher flow for compounding and injection molding

Next Generation PAEK

Arylkon® PAEK

Redefining the Limits of High-Performance Aromatic Ketone Polymers

Arylkon® PAEK, a new semicrystalline poly(aryl ether ketone) (PAEK) family, represents the next step in high-performance engineering thermoplastics. Engineered for environments where today's PEEK, PEK and PEKK reach their limits, these materials combine a glass-transition temperature (Tg) of 165 to 205 °C with a melting point (Tm) of 310 to 380 °C, enabling continuous service under extreme thermal and chemical stress. They offer higher modulus, greater tensile and flexural strength, and excellent impact resistance, while improving inherent flame retardance and maintaining chemical resistance to fuels, lubricants and aggressive cleaning agents. This unique property profile makes them ideal for replacing metals, lower-performance polymers, and even thermosets in demanding aerospace, automotive, industrial, energy, medical and electronic applications.

Breakthrough Material Performance

- ✓ Tunable melting point (Tm 310 to 380 °C) and high glass transition (Tg 165 to 205 °C) — continuous use in the harshest thermal environments.
- ✓ Higher modulus and strength than existing PEEK, PEK, PEKK for outstanding stiffness and load-bearing capacity.
- ✓ Excellent impact resistance to withstand sudden shocks and vibrations.
- ✓ Improved inherent flame resistance with low smoke/low toxicity.
- ✓ Excellent chemical resistance to fuels, lubricants, aggressive cleaning agents and hot aqueous environments.

Why Upgrade from PEEK, PEK, PEKK?

Property	Our New PAEK Class	PEEK / PEK / PEKK
Tg (°C)	165–205	143–165
Tm (°C)	310–380	335 (PEEK) / 372 (PEK) / 360 (PEKK)
Modulus & Strength	Higher	High
Impact Resistance	High	High
Flame Resistance	Inherent / Improved	Inherent
Chemical Resistance	Excellent	Very good

Benefits for OEMs & Designers

- ✓ Pushes performance boundaries beyond today's aromatic ketone polymers.
- ✓ Replace metals, lower-performance plastics, or thermosets.
- ✓ Greater design freedom with lightweight, processable, recyclable thermoplastic solutions.
- ✓ Lower lifecycle costs through longer component life and easier manufacturing.

Amorphous Polyarylketone

Arylzon® PAK

Arylzon® PAK, a new amorphous polyarylketone (PAK), pushes the boundaries of high-performance polymers. With a glass transition temperature (Tg) of 260 to 290 °C, it delivers thermal stability comparable to high-end thermosets — yet it is melt-processable like PEEK. This unique combination allows designers to achieve complex shapes, thin-wall parts, and high-volume production that were previously impractical with ultra-high-temperature plastics.

Key Differentiators

- ✓ High Thermal Capability: Tg of 260 to 290 °C for continuous use under extreme heat.
- ✓ Chemical Resistance Like PEEK: Outstanding resistance to fuels, lubricants, and aggressive cleaners.
- ✓ Excellent Inherent Flame Resistance: Low smoke, low toxicity without additives.
- ✓ True Thermoplastic Processing: Injection molding, extrusion, and potential for 3D printing — no post-cure required.
- ✓ Dimensional & Mechanical Stability: High modulus, strength, and impact resistance even at elevated temperatures.

Positioned Between Two Worlds: Amorphous PAK combines the heat capability of PAI and thermoplastic polyimides with the ease of processing of PEEK, bridging the gap between high-temperature thermosets and processable thermoplastics.

Performance Highlights

Feature / Property	Amorphous PAK (New)	PAI (Thermoset)	Thermoplastic Polyimide (TPI)
Glass Transition (Tg, °C)	260–290	~275 (after cure)	250–275
Melt Processability	Yes (like PEEK)	No (requires cure)	Yes (narrow window)
Chemical Resistance	Excellent (like PEEK)	Good–Excellent	Good
Inherent Flame Resistance	Excellent	Excellent	Excellent
Continuous Use Temp (°C)	230–260+	230–260	230–240
Mechanical Strength / Modulus	High	Very High	High
Impact Resistance	High	Moderate	Moderate
Processing Productivity	High (injection/extrusion)	Low	Moderate

Amorphous Polyarylketone

Arylzon® PAK

Arylzon® PAK delivers PAI-like temperature capability with PEEK-like processability and PEEK-level chemical resistance — a unique blend of performance and manufacturability.

Benefits for OEMs & Designers

- ✓ Replace PAI or thermoplastic polyimides where melt processability and easier fabrication reduce costs.
- ✓ Achieve weight savings over metals and longer service life than lower-temperature thermoplastics.
- ✓ Greater design freedom with complex shapes and high-productivity molding or extrusion.

Potential Applications

- ✓ Aerospace & Defense
  High-temperature brackets, clips, ducting, housings, electrical connectors exposed to jet fuel and hydraulic fluids.
- ✓ Automotive & E-Mobility
  Battery pack components, motor insulation, under-hood parts, lightweight replacements for metals or thermosets.
- ✓ Industrial & Energy
  Pump and valve parts, seals, wear components exposed to hot aggressive fluids, downhole tools.
- ✓ Electrical & Electronics
  High-heat insulating parts, high-voltage connectors, coil bobbins, 5G/6G infrastructure housings.
- ✓ Medical & Life Sciences
  Sterilization-resistant surgical tools, housings for high-temperature sterilizers, devices requiring repeated autoclave cycles.
- ✓ Additive Manufacturing
  High-temperature filament or powder for aerospace and medical parts.