

# INNOVATIVE PLASTICS

## PRODUCT LINE GUIDE:

### ULTEM™ RESINS



**ULTEM polyetherimide resin, PEI, is an amorphous high performance polymer which is characterized by excellent thermal properties, good chemical resistance, inherent flame retardancy and exceptional dimensional stability.**

#### General Value Propositions

- Long term high heat capability
- Dimensional stability / tight tolerances up to high temperatures
- Inherent FR, low smoke evolution and toxicity
- High modulus and strength up to high temperatures
- Hydrolytic stability
- Broad chemical resistance
- Global Food Contact approval
- Suitable for Potable Water applications
- Gamma, EtO and steam sterilizable
- Autoclavability at 134°C
- Metallizable
- Excellent processability
- Available in opaque and transparent colors

#### ULTEM resins vs competitive amorphous resins

- High temperature capability – with aesthetics
- Excellent dimensional stability (lower CTE)
- High modulus and strength

#### ULTEM resins vs sulfones

- 10-15% lower weight for equivalent stiffness
- 1.5–2 x strength to weight ratio

#### ULTEM resins vs metal and thermoset

- Reduction / elimination of secondary operations
- Possibility of function integration
- Direct metallization with excellent aesthetics
- Recycle usage
- Weight reduction

#### ULTEM resins vs semi-crystalline resins (GF Nylon / PPS)

- Better dimensional stability up to high temperatures
- Mechanical properties above Tg
- Long term thermal stability and recyclability
- Lower outgassing



INNOVATIVE PLASTICS  
**PRODUCT LINE GUIDE:**  
**ULTEM™ RESINS PORTFOLIO**



MVR: 360°C/5kg, cm<sup>3</sup>/10min; Flexural Modus, 2mm/min, MPa; IZOD Impact, unnotched, +23°C kJ/m<sup>2</sup>; VICAT Softening Temp, Rate B/120°C; UL94 Flame Cla ss Rating

	MVR	Flex Mod.	Vicat	IZOD	UL94*
<b>ULTEM 1000 resin series</b>					
General Purpose, Unreinforced					
1000 (R,F,E,EF,P) Standard, Extrusion	13	3300	212	6	V-0/0.75
1010 (F,R) Easy flow	25	3300	212	5	V-0/1.5
<b>ULTEM 2000 resin series</b>					
Glass reinforced, greater rigidity					
2100 (R,F) Standard, 10% glass reinforced	9	4500	217	30	V-0/0.41
2200 (R,F) Standard, 20% glass reinforced	7	6500	218	30	V-0/0.41
2300 (R,F) Standard, 30% glass reinforced	6	8500	220	40	V-0/0.25
<b>ULTEM 4000 resin series</b>					
Wear Resistant, reduced coefficient of friction					
4000 Reinforced, 25% glass reinforced	5	7000	220	15	V-0/0.84
4001 Unreinforced	13	3000	210	10	V-1/1.6
<b>ULTEM CRS5000 resin series</b>					
Superior chemical resistance					
CRS5001 (R) Unreinforced	7	2500	222	-	V-0/1.5
CRS5311 30% glass reinforced	7	8200	220	35	V-0/1.5
<b>ULTEM 9000 resin series</b>					
Fulfills aircraft regulations (ABD, FAR, OSU, NBS), delivered with individual lot certification					
9075 OSU 65/65, unreinforced, injection molding	15	3200	200	7	V-0/1.6
9085 OSU 55/55, unreinforced, high flow	65	2750	173	13	-
9090 OSUE55/55, improved ductility	14	2800	212	6	-
<b>Polymer Blend ATX series</b>					
Intermediate high heat performance, higher impact					
ATX200 (R,F) Opaque	16	3100	205	5	V-0/1.5
<b>Potable Water Portfolio</b>					
US FDA and European Food Contact approved. KTW, WRAS, ACS, NSF-61, W270 certified.					
PW1000 Unreinforced	13	3300	211	6	-
PW2100 10% glass reinforced	9	4500	217	30	-
PW2300 30% glass reinforced	6	8500	220	40	-
<b>Healthcare Portfolio</b>					
Compliant with ISO10993, FDA, USP Class VI					
HU1000 Transparent, unreinforced	13	3300	211	6	-
HU1004 Transparent, improved ductility	14	2800	212	6	V-0/0.75
HU2100 10% glass reinforced	9	4500	217	30	-

\* Please consult the UL card for exact grade-color specific details.

Suffix	Description	Suffix	Description
R	Standard mold release, non transparent, non food contact	P	Powder
E	Mold release, transparent	F	Food contact

Please consult the ULTEM resin brochure or our website to view our complete portfolio.

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## PRODUCT LINE GUIDE:

### ULTEM™ RESINS MARKETS



#### Automotive

- Dimensional stability @ high temperature
- Direct metallization
- Lower weight ratio
- Processing ease

#### Portfolio

Lighting / Reflectors:

**ULTEM grades AUT195, AUT200, AUT210**

Under the hood:

**ULTEM 1xxx, 2xxx, CRS5xxx series**

#### Aircraft / Mass Transportation

- Low flame, smoke density and toxicity
- OSU, FAR 25.853, ABD0031 compliant
- High strength / stiffness to weight ratio
- Processing ease (vs thermoset)
- Impact and chemical resistance
- Individual lot certification
- Custom colors

#### Portfolio

**ULTEM grades 9075, 9085, 9090**

#### Consumer Electronics / Electrical

- Weight and cost reduction
- High heat and creep resistance
- Excellent dimensional stability, low CTE
- High stiffness & strength to weight ratio
- Thin wall, ECO-compliant V0/5VA
- Heat, humidity, chemical resistance
- Low outgassing, low ionics
- Plating solutions

#### Portfolio

**ULTEM 1xxx, 2xxx, CRS5xxx series**

#### Healthcare

- Meets ISO10993, USP VI Biocompatibility
- 134°C autoclavable
- Gamma, EtO compatible
- Chemical resistance to lipids, disinfectants
- High (compression) strength
- Transparent, colorable

#### Portfolio

**ULTEM grades HU1000, HU1004 and HU2xxx series**

#### Food Services

- Heat resistance
- IR and microwave transparent
- Global food contact compliance
- Stain resistance
- Light weight and impact resistance
- Passes 3A dairy standard sanitary test
- System cost solution
- Transparency and custom colors

#### Portfolio

**ULTEM 1xxxF and 2xxxF series, MD131(A)**



#### Fluid

- Hydrolysis resistant
- Dimensional stability
- High knitline strength
- Low sensitivity to creep
- Thin wall, ECO-compliant V0/5VA
- Drinking water KTW, WRAS, ACS W270, NSF61 approvals

#### Portfolio

**ULTEM grades PW1000 and PW2xxx series**

**ULTEM 1xxx(F), 2xxx(F), CRS5xxx series**



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