



Impet[®] PET
Thermoplastic Polyester

Short-Term Properties

Impet® thermoplastic polyester (PET) resins provide high-temperature performance with long-term thermal capacity. These products offer outstanding long-term dielectric strength and mechanical properties, as well as superior thermal and chemical resistance. They are ideal for high-performance applications that require toughness, rigidity, exceptional dimensional stability and excellent electrical properties.

All Impet PET grades offer excellent surface gloss and color retention. Products with these grades are able to meet specific requirements of certain packaging and film applications while still maintaining optimum property qualities.

Impet® PET “R” grades are made with up to 100% post-consumer recycled polyethylene terephthalate, and additional “green” recycled versions are available with little or no performance difference, proving the strength and stiffness factors of Impet PET are ideal for various applications.

Impet PET – Post Consumer Grades	
Grade	Description
330R	30% GR with post-consumer recycled PET. Good thermal stability, good mechanical properties.
340R	45% GR with post-consumer recycled PET. Good thermal stability, strength and stiffness.
830R	35% Glass/Mineral with post-consumer recycled PET. Excellent combination of strength, stiffness, warp resistance and high temperature capability.
Impet PET – Standard Grades	
2700 GV 1/20	20% GR. High flow, excellent appearance.
2700 GV 1/30	30% GR. High flow, excellent appearance, high HDT.
2700 GV 1/45	45% GR. High flow, excellent appearance, high modulus and very high HDT.

Injection Molding Conditions*

Drying Conditions: 3 hours @ 135°C (275°F)
A dehumidifying hopper dryer should be used

Moisture Level: Must dry below 0.01%

Mold Temperature: 110-135°C (230-250°F)

Melt Temperature: 270-300°C (518-572°F)

Screw Speed: 50-75 rpm

Back Pressure: 0-25 psi

Injection Pressure: As needed

Typical Barrel Settings:

Feed Zone: 260-270°C (500-520°F)

Center Zone: 270-280°C (520-530°F)

Front Zone: 280-285°C (530-540°F)

Nozzle: 280-290°C (530-550°F)

*Typical conditions suggested for guidance only.

Typical Application Areas

Automotive:

Ignition Housings:

- Distributor housings
- Coil housings
- Rotors
- High-voltage ignition components
- Electrical system components
- Ignition coils

Interior/Exterior Components:

- Grille opening retainers
- Engine covers
- Exterior rear-view mirror housings
- Windshield wiper components
- Headlamp bezels
- HVAC vent doors
- Cowl vents
- Other structural body components
- Sunroof motor housing

Consumer Electronics/ Appliances:

- Motor housings and internal components
- Corn poppers
- Coffee makers
- Hair curlers
- Hair dryers
- Oven handles, small appliance handles

**For more information on these applications or products,
contact your local Celanese Sales Office or Product Information Services at 1-800-833-4882**

Impet PET Typical Properties								
Grade			330R	340R	830R	2700 GV1/20	2700 GV1/30	2700 GV 1/45
Physical properties	Unit	Test Standard						
Density	kg/m ³	ISO 1183	1.58	1.73	1.59	1.52	1.6	1.74
Melt Flow Rate*	g/10 min.	ISO 1133	3	4	5	34	17	4
Mold Shrinkage - Parallel	%	IOS 294-4	0.2	0.2	0.2	0.3	0.9	0.2
Mold Shrinkage - Normal	%	IOS 294-5	0.6	0.6	0.6	0.9	0.7	0.6
Water absorption (24 hr)	23°C		0.13	0.17	0.15	0.15	0.1	0.12
Mechanical properties								
Tensile modulus (1mm/min)	MPa	ISO 527-2/1A	11100	168	11000	8200	11500	17761
Tensile stress (5mm/min)	MPa	ISO 527-2/1A	159	174	120	133	168	185
Tensile strain at break (5mm/min)	%	ISO 527-2/1A	2.3	1.7	2.0	2.0	2.0	1.5
Flexural modulus (23°C)	MPa	ISO 178	11000	15400	10900	8100	11100	17000
Flexural strength (23°C)	MPa	ISO 178	229	240	190	173	225	240
Charpy impact strength @ 23°C	kJ/m ²	ISO 179/1eU	27	24	26	20	28	35
Charpy impact strength @ -30°C	kJ/m ³	ISO 179/1eU	28	21	22	20	28	31
Charpy notched impact strength @ 23°C	kJ/m ⁴	ISO 179/1eU	8.5	11	7	6.8	8.8	12
Charpy notched impact strength @ -30°C	kJ/m ⁵	ISO 179/1eU	8.8	9	5.3	6.6	8.8	13
Notched impact strength (Izod) @ 23°C	kJ/m ⁶	ISO 180/1A	8.8	9.5	6.4	7.2	7.3	13
Rockwell Hardness			122	121	115	123	123	121
Thermal properties								
Melt temperature (10° C/min)	°C	ISO 11357-1-2,3	245	245	245	250	250	250
Glass transition temperature (10° C/min)	°C	ISO 11357-1-2,3	73	73	76	80	80	72
DTUL @1.8 Mpa	°C	ISO 75-1/-2	221	229	206	233	225	228
DTUL @0.45 Mpa	°C	ISO 75-1/-2	240	242	235	248	248	248
Coeff. of linear thermal expansion (parallel)	E-4/°C	ISO 11359-2	0.18	0.14	0.21	0.23	0.21	0.15
Coeff. of linear thermal expansion (normal)	E-4/°C	ISO 11359-2	0.7	0.83	0.8	0.95	0.64	1.0
Limiting Oxygen Index (LOI)	%	ISO 4589	23	23	22	25	24	25
Flammability @1.6mm	UL94		HB	HB	HB	HB	HB	HB
Electrical properties								
Dielectric constant - 1 Mz		IEC 60250	3.37	3.17	3.93	3.05	3.7	4.19
Dissipation factor - 100Hz		IEC 60250	<1 E-3	<1 E-3	<1E-3	<1 E-3	<1E-3	<1 E-3
Dissipation factor - 1MHz	E-4	IEC 60250	120	130	160	130	120	130
Volume resistivity	Ohm*m	IEC 60093	1.4 E14	1E 14	7E 13	3E 14	2E 14	1E 14
Surface resistivity	Ohm	IEC 60093	3E 15	5 E14	4 E15	>3E 14	3E 15	>1E 14
Electric strength	kV/mm	IEC 60243-1	32	24	20	31	33	35
Comparative track index (CTI)		IEC 60112	175	225	200	200	170	175
Arc Resistance	Sec.		25	80	58	84	39	110

Values shown are based on limited laboratory testing. These provisional values are not intended for use in establishing maximum, minimum or range values for specification purposes.

* UL Flame Class Rating was determined by Celanese laboratory testing.



The chemistry inside innovation™

ENGINEERED MATERIALS

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Engineered Materials

- Celanex® thermoplastic polyester (PBT)
- Hostaform® and Celcon® acetal copolymer (POM)
- Celstran®, Compel® and Factor® long fiber reinforced thermoplastic (LFRT)
- Celstran® continuous fiber reinforced thermoplastic (CFR-TP)
- Fortron® polyphenylene sulfide (PPS)
- GUR® ultra-high molecular weight polyethylene (UHMW-PE)
- Impet® thermoplastic polyester (PET)
- Riteflex® thermoplastic polyester elastomer (TPC-ET)
- Thermx® polycyclohexylene-dimethylene terephthalate (PCT)
- Vandar® thermoplastic polyester alloy (PBT)
- Vectra® and Zenite® liquid crystal polymer (LCP)

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