

Description

Ultem R16SG00 sheet is an extruded polyetherimide (PEI) alloy sheet material used for rail interior applications. Ultem R16SG00 sheet is an amorphous thermoplastic offering outstanding high heat resistance, high strength, modulus and broad chemical resistance. Ultem R16SG00 sheet is inherently flame resistant with low smoke emission. Ultem R16SG00 sheet meets United States Federal Rail Administration (FRA 49 CFR Part 238, Appendix B) flammability and smoke emission characteristics for passenger cars and locomotive cabs. In addition, Ultem R16SG00 sheet complies with toxicity standard Bombardier SMP 800-C. The material may be thermoformed, pressure formed, twin sheet formed, or used in flat or cold formed applications. Information on stain and chemical resistance, processing, and secondary operations is available upon request.

Typical Property Values ♦ (Imperial)

Property	Test Method	Unit	Value
Physical			
Specific Gravity (Color Dependent)	ASTM D792		1.26-1.33
Water Absorption, Equilibrium, 24 hrs	ASTM D 570	%	0.70
Mechanical			
Tensile strength			
@ yield	ASTM D638	psi	13,100
@ ultimate	ASTM D638	psi	11,000
Tensile modulus	ASTM D638	psi	335,000
Tensile elongation @ ultimate	ASTM D638	%	35
Flexural strength (gauge dependent)#	ASTM D790	psi	20,400
Flexural modulus (gauge dependent)#	ASTM D790	psi	460,000
Dynatup impact strength, ½" diameter dart (gauge dependent) #	ASTM D3763	ft-lbs @ 75 °F	50
Izod impact strength (gauge dependent)#	ASTM D256A	ft-lbs/in	
notched @ 75 °F			1.4
unnotched @ 75 °F			no break
Gardner Impact strength, Round Tup (gauge Dependent)#	ASTM D 3029	in-lbs @ 75 °F	>320
Rockwell Hardness	ASTM D 785		123
Thermal			
Coeff. of Thermal Expansion	ASTM D696	in/in/° F	2.75 x10 ⁻⁵
Heat Deflection Temperature###	ASTM D648		
@ 264 psi		°F	373
@ 66 psi		°F	395
Flammability			
FRA 49 CFR Part 238, Appendix B Flame Spread Index, Is (<35 max)##	ASTM E-162		Pass. Is = <5
Smoke Density			
Ds - 1.5mins. (<100max)##	ASTM E-662		Pass, ds, 1.5 = 1
Ds - 4.0mins (<200 max)##			Pass, Ds, 4 = 7
Heat & Visible Smoke Release Rate	ASTM E-1354/ ISO-5660		
Average Heat of Combustion		MJ/kg	30.96
Average Extinction Area		m ² /kg	85.10

♦ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local SABIC Innovative Plastics' representative or the Quality Services Department.

Reported values based on 0.125" thickness

FRA Performance Criteria

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Typical Property Values ♦ (Metric)

Property	Test Method	Unit	Value
Physical			
Specific Gravity (Color Dependent)	ASTM D792		1.26-1.33
Water Absorption, Equilibrium, 24 hrs	ASTM D 570	%	0.70
Mechanical			
Tensile strength			
@ yield	ASTM D638	Mpa	90
@ ultimate	ASTM D638	MPa	76
Tensile modulus	ASTM D638	MPa	2310
Tensile elongation @ ultimate	ASTM D638	%	35
Flexural strength (gauge dependent)#	ASTM D790	MPa	140
Flexural modulus (gauge dependent)#	ASTM D790	MPa	3170
Dynatup impact strength, 1/2" diameter dart (gauge dependent) #	ASTM D3763	J @ 24 °C	5.6
Izod impact strength (gauge dependent)#	ASTM D256A	J/m	
notched @ 24 °C			74
unnotched @ 24 °C			no break
Gardner Impact strength, Round Tup (gauge Dependent)#	ASTM D 3029	J @ 24 °C	>36
Rockwell Hardness	ASTM D 785		123
Thermal			
Coeff. of Thermal Expansion	ASTM D696	1/°C	4.95 x10 ⁻⁵
Heat Deflection Temperature###	ASTM D648		
@ 1.82 MPa		°C	190
@ .45 MPa		°C	202
Flammability			
FRA 49 CFR Part 238, Appendix B Flame Spread Index, Is (<35 max)##	ASTM E-162		Pass. Is = <5
Smoke Density			
Ds - 1.5mins. (<100max)##	ASTM E-662		Pass, ds, 1.5 = 1
Ds - 4.0mins (<200 max)##			Pass, Ds, 4 = 7
Heat & Visible Smoke Release Rate	ASTM E-1354/ ISO-5660		
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Processing

Ultem R16SG00 sheet is an excellent candidate for thermoforming. It offers high, deep draw ratios, equal wall thickness distribution, and it can be formed into complex shapes using standard thermoforming equipment. Sandwich type heating systems give the best results. Ultem R16SG00 sheet has a forming temperature range of 260 - 288°C or 500 - 550°F. When forming, please reference our Ultem forming guide.

Chemical Resistance

Ultem R16SG00 sheet has excellent resistance to most mineral oils, greases, and aliphatic hydrocarbons. In applications where the Ultem R16SG00 sheet will come into contact with aggressive chemicals or solvent, specific (application related) testing is always advised.

Pre-drying

It is important to ensure that Ultem R16SG00 sheets are free of moisture prior to thermoforming. A hot air circulating oven set at 182°C or 360°F is recommended. Pre-drying times are:

Sheet thickness (inch)	Drying time (hrs.)
.060	6
.080	8
.093	10
.125	12

Assembling

Parts made from Ultem R16SG00 sheet can be assembled with plastics, metals, rubber and other materials using many types of adhesive bonding, welding and mechanical fastening techniques. Further information and advice is available on request.

Product Availability

Product code:	Ultem R16SG00 sheet	
Textures:	Ultem R16SG29 sheet - deep matte	
Gauges:	.060 inch / 1.5mm	
	.080 inch / 2mm	
	.093 inch / 2.36mm	
	.125 inch / 3.175mm	
Standard widths:		
	.060 - .080"	48 inch web width
	.093-.125"	48 and 60 inch web width
Standard length:	96 inch / 2438mm	
Colors Standard:	8156 Ivory, 71024 light gray, 71025 dark gray	

Other custom colors/custom lengths are available by special request

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