

ULTEM™ R16SG00 SHEET

PRODUCT DATASHEET

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. 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 ♦ (Metrics)

PROPERTY	TEST METHOD	UNITS	VALUE
PHYSICAL			
Specific Gravity	ISO 1183	g/cm ³	1,27
Water Absorption, Equilibrium, 24 hrs.	ISO 62	%	1,25
MECHANICAL			
Tensile strength	ISO 527		
@ yield		MPa	95
@ break		MPa	70
Tensile modulus	ISO 527	MPa	3000
Tensile elongation @ break	ISO 527	%	35
Flexural strength	ISO 178	MPa	135
Flexural modulus	ISO 178	MPa	3000
Izod impact strength	ISO 180	kJ/m ²	
@ notched +23 °C			6
@ un-notched +23 °C			no break
Hardness (358N/30s)	ISO2039-1	MPa	145
THERMAL			
Coefficient of Thermal Expansion	ISO 11359-2	1/°C	5 x10 ⁻⁵
Heat Deflection Temperature	ISO 75/Ae		
@ 1,82 MPa		°C	180
FLAMMABILITY			
FRA 49 CFR Part 238, Appendix B			
Flame Spread Index, Is (<35 max) [#]	ASTM E162		Pass
Smoke Density	ASTM E662		
Ds - 1.5 min (<100max) [#]			Pass
Ds - 4 min (<200 max) [#]			Pass
Heat & Visible Smoke Release Rate	ASTM E1354/ ISO5660		
Total Heat Release		MJ/m ²	72
Average Heat of Combustion		MJ/kg	31
Average Extinction Area		m ² /kg	85

♦ 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 SABIC Innovative Plastics' Quality Services Department.

[#] FRA Performance Criteria

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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 an 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 180 °C or 360 °F is recommended. Pre-drying times are:

Sheet thickness (inch)	Drying time (hrs.)
1.5	6
2	8
2.36	10
3.175	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 R16SG29 sheet
Textures	Deep matte
Gauges	1.5 mm / .060 inch 2 mm / .080 inch 2.36 mm / .093 inch 3.175 mm / .125 mm
Standard width	.060 - .080" 48 inch web width .093 - .125" 48 and 60 inch web width
Standard length	2438 mm / 96 inch
Colours standard*	8156 Ivory, 71024 light grey, 71025 dark grey

* Other custom colors/custom lengths are available by special request.

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