



BASALT BASIC PROPERTIES

MARCH 2018

BASALTEX

Basaltex has been the pioneer for the introduction of basalt fibers and semi-finished products in the European market for over 15 years. With a strong focus on added value to meet customers needs and expectations, Basaltex has completed several projects in the industry. Basaltex is a Belgium SME, part of a family owned holding company active in the textile market, and fully dedicated to providing basalt solutions.

THE BASALT FIBER

These mineral fibers extruded out of molten basalt rocks, offer unique fire, heat and chemical resistance, combined with high mechanical properties. The basalt fiber is natural and produced out of stones, without any additives like glass fiber.

General properties

Property	
Density	2.67 kg/dm ³
Moisture content	< 0.1 %
Melting Temperature	1350 °C

Dry fiber

Property	
Tenacity (ASTM D3822)	
10 – 12 µm	> 700 mN/tex
13 – 16 µm	> 650 mN/tex
17 – 22 µm	> 600 mN/tex

Impregnated strand

Property	Typical Value
Tensile Strength (ASTM D2343)	
10 µm	3.100 MPa
13 µm	3.000 MPa
17 µm	2.900 Mpa
E-Modulus (ASTM D2343)	
10 µm	89 Gpa
13 µm	87 GPa
17 µm	85 GPa

Thermal properties

Property	Value
Melting Point	1350°C
Operating temperature	-260°C to 600 °C
Short term max. operation temperature	700 °C
Fire blocker	Up to 1200°C
Coefficient of Thermal Expansion	1.4 x 10 ⁻⁶ / °C
Specific heat capacity (22 °C)	0.86 J/g.K

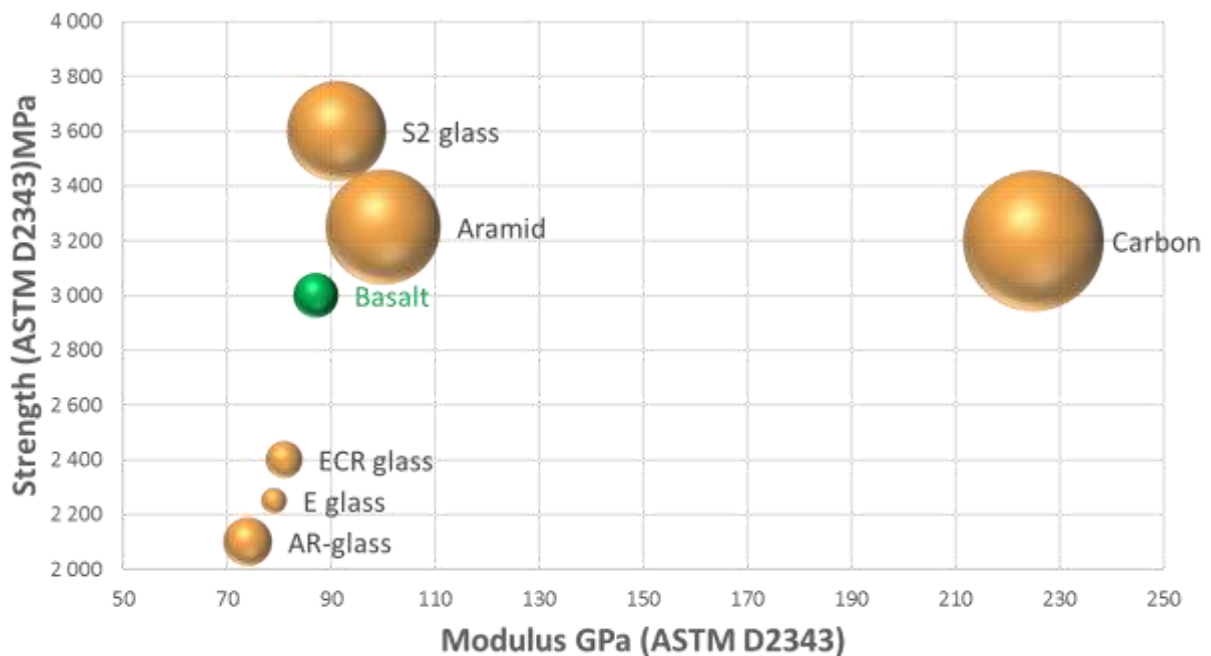
COMPARISON WITH OTHER FIBERS

TYPICAL CHEMICAL COMPOSITION

Chemical components	Weight % Basalt	Weight % E-Glass
SiO₂ (silica)	57.5	55
Al₂O₃ (alumina)	16.9	15
Fe₂O₃ (ferric oxide)	9.5	0.3
MgO	3.7	3
Na₂O	2.5	0.8
TiO₂	1.1	-
K₂O	0.8	0.2
B₂O₃	-	7
F	-	0.3

COMPARISON OF MECHANICAL PROPERTIES

Property	E glass	ECR glass	AR-glass	S2 glass	Basalt	Aramid	Carbon
Density	2.55-2.58	2.62	2.68	2.45	2.67	1.45	1.74-1.8
Modulus GPa	78-80	81	74	91	85-89	70-140	200-250
Strength MPa	2000-2500	2200-2600	2000-2200	3410-3830	2900-3100	2900-3600	2700-3750
Moisture %	0.1	-	-	0.1	0.008	3.5	0.1



Ball size in the graph depicts the average price (€/kg)!