

Quartzel[®] Rovings

Since 1922, Saint-Gobain Advanced Ceramic Composites formerly known as Saint-Gobain Quartz or Quartz & Silice has been a solution provider to Aeronautic, Defense and Railway industries. Based in Nemours (France) and also in Louisville, KY (US), Saint-Gobain Advanced Ceramic Composites is recognized as the world-wide leader in the production of fused quartz fibers commercialized under the brand name Quartzel[®].



Quartzel[®] fiber is a homogeneous, non-porous, continuous, amorphous, ultra-pure silica glass with a SiO₂ content ≥ 99.95%. Quartzel[®] rovings are assemblies of either 9μm or 14μm filaments gathered into strands (forming package) and processed with a very low number of twists.

Applications

Reinforcement for composites

- Radome (weather, fighter, satcom, DBS, UAVs)
- Electromagnetic windows
- Stealth materials with structural performance for all airborne, grounded & marine military application
- Sacrificial ablative component for thermal protection
- Very thin composites with low area density for increased mechanical performances : professional sport goods, luxury goods, electronic substrates

Heat insulation at elevated temperature

- Fabrics for furnace lining in industrial and semicon applications
- Thermocouple insulation
- High temperature and fireproof cables
- Thermal protection systems (TPS) of space launchers
- Satellite thermal shielding
- Filtration at elevated temperature and/or in aggressive environ.
- High temperature seals
- Insulation in automotive exhausts

Main properties

- Outstanding electromagnetic properties thanks to the lowest dielectric constant and dielectric loss among mineral materials (resp. 3.74 and 0.0002 at 10 GHz)
- Non pollutant material with SiO₂ content above 99.95%
- Resistant to most acids
- High mechanical strength & virtually no shrinkage at HT
- Low CTE (0.54x10⁻⁶ K⁻¹) & good resistance to thermal shock
- Integrity as insulating material up to 1050°C
- Ablative material above 1600°C

Textile processing

Quartzel[®] rovings can be used in a large variety of textile processes :

- Weaving UD: fabrics (woven or knitted)
- Filament winding
- Pultrusion
- Unidirectional prepregging tape
- Filament & fiber alignment & positioning
- Non-crimped fabrics (NCF)

TECHNICAL DATA AND YARN NOMENCLATURE

SiO₂ content ≥ 99.95%

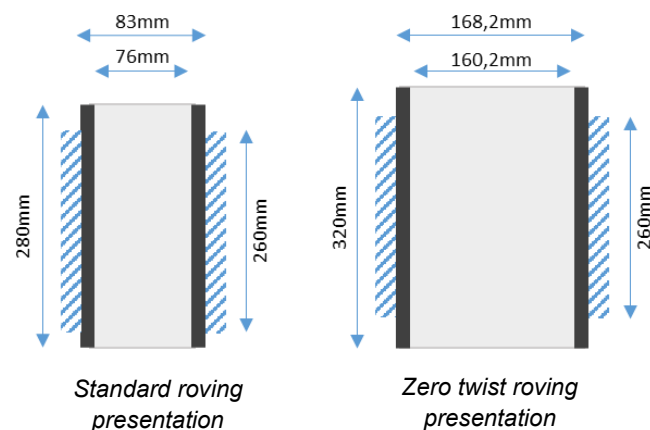
The following table gives details of standard Quartzel[®] rovings (2-3 twists/m):

Based on ISO 2078 (Europe)	US customary system	Nominal linear density (ISO 1889/ASTM D1907)**		Tensile strength (ISO 3341/ASTM D2256)**
		tex	100 x yard/lb	Typical values in daN***
C9 267 [sizing*] (33)	300 8E [sizing*]	267	18.6	14
C9 400 [sizing*] (33)	300 12E [sizing*]	400	12.4	22
C14 640 [sizing*] (80)	125 8E [sizing*]	640	7.8	30
C9 667 [sizing*] (33)	300 20E [sizing*]	667	7.4	34
C14 960 [sizing*] (80)	125 12E [sizing*]	960	5.2	38
C14 1600 [sizing*] (80)	125 20E [sizing*]	1600	3.1	48

[sizing*]: Available sizing are : QS1318 (Worldwide) / QSCY1 (Worldwide) / QS13-QPC1 (US Only)
Standard bobbin weight : 1kg. Carton dimension (mm): L 580 x W 580 x H 400. 8 bobbins max. per carton.

*daN = 2.25 x Lbf **with a slight internal modification to adapt to quartz material

- QS1318 and QS13-QPC1 are multipurpose high performance direct sizings, recommended for most textile processes and composite applications. They can be used with thermoset resins and among others : Phenolic, Epoxy, BMI, etc..
- QSCY1 sizing is designed specifically for optimized compatibility with cyanate ester resin systems.



STORAGE

Quartzel[®] yarns properties are guaranteed for 24 months when properly stored indoors, protected from direct sunlight exposure and in its original packaging. Store preferably at less than 35°C, avoiding humidity consistently higher than 80%.

Dual-use disclaimer: Quartzel[®] products are all classified as a dual-use commodity by the European and US authorities. Therefore, an export license is required to export these goods to some countries. Our team will support you in this process.

The information given in this data sheet is believed to be accurate and reliable. However it is the users responsibility to determine whether the material is suitable for their particular application, process and/or environment. This data sheet may be modified without prior notice. Quartzel[®] is a registered trademark of Saint-Gobain Quartz S.A.S. Version RO-A4-EN-02/25 - All rights reserved

<https://www.quartz.saint-gobain.com/>

SAINT-GOBAIN QUARTZ S.A.S.

77140, 10 Rue des Etangs
Saint-Pierre-Les-Nemours, FRANCE
Tel : +33 (0)1 64 45 45 00
E-Mail : quartzsalesfr@saint-gobain.com
SIRET : 562 053 314 00075

SAINT-GOBAIN QUARTZ U.S.A.

7201 Distribution Drive
40258 Louisville, Kentucky, USA
Tel : +1 502-933-1005
E-Mail : quartz.sales.usa@saint-gobain.com