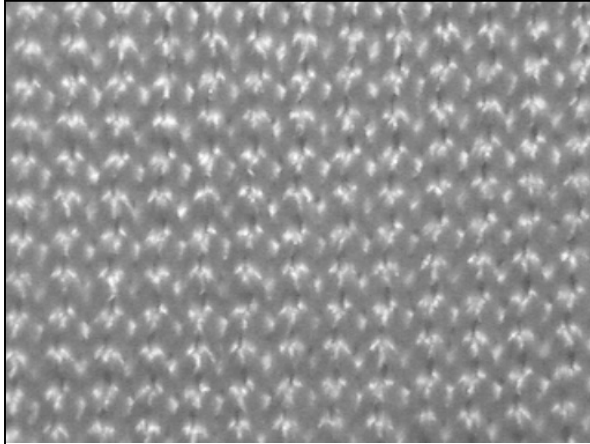




Zircar Zirconia, Inc.
"Manufacturer of the original ZIRCAR products" ©

ALUMINA FIBERS and TEXTILES TYPE AL



Face of Alumina Knit Cloth Type ALK-15 at 60X

FEATURES

- Excellent Thermal Shock Resistance
- 99% Pure Alumina
- Trace Level of Silica (0.09 wt%)
- Dimensional Stability in Hydrogen
- Low Thermal Conductivity
- No Outgassing
- Six Different Product Formats Offered
- Available 'Off the Shelf'

Alumina (Al_2O_3) has excellent thermal shock resistance, high dimensional stability and good chemical inertness, which makes our alumina fiber products ideal for fast firing cycles up to 1700°C. Our alumina fibers and textiles are made by the same unique Zircar process used for manufacturing yttria-stabilized zirconia cloths and felts. This process yields a high purity alumina fiber with only trace amounts of silica, making it more stable in hydrogen environments than the more commonly found sol-gel alumina fibers that have 3% silica. Our high purity alumina fiber and textiles are offered in six different standard product forms; bulk fiber Type **ALBF**, two felts Types **ALF-50** and **ALF-100** and three types of knit cloth Types **ALK-15**, **ALW-15** and **ALW-30**.

APPLICATION INFORMATION

- Alumina fiber textiles are used as insulation for glass melting furnaces.
- Alumina bulk fiber, Type ALBF, is used as bulk fill insulation.
- Alumina fiber textiles are used as insulation for fiber optic furnaces.
- Alumina fiber textiles are used in SOFC and PEM type fuel cells as gaskets.
- Alumina fiber cloth is used as insulation in differential scanning calorimeters (DSC's).

Zircar Zirconia, Inc.
PO Box 287
Florida, NY 10921-0287
USA

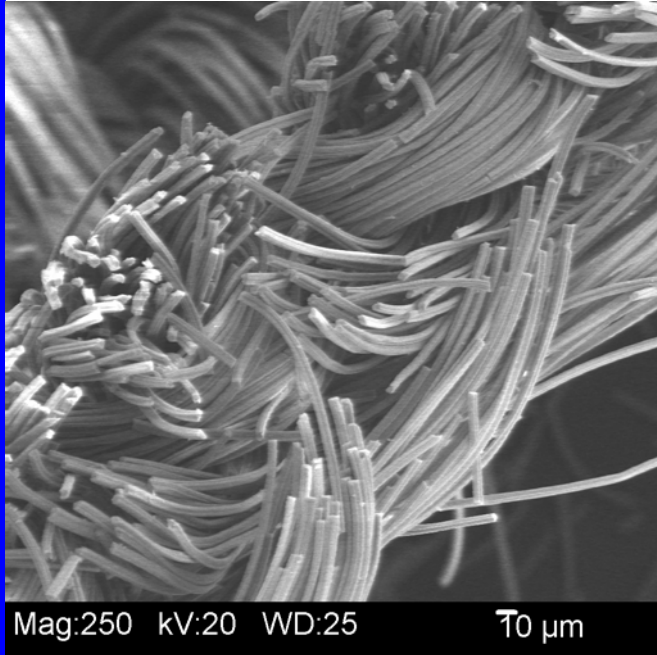
Tel: 845-651-3040
Fax: 845-651-0074
email: sales@zircarzirconia.com
web: www.zircarzirconia.com

Product Data
Bulletin #E-01
January 2004
Page 1 of 3

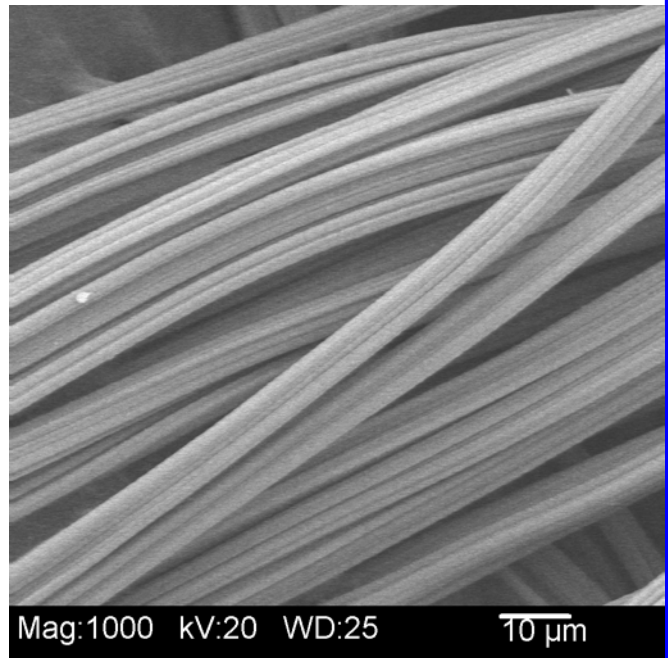


Zircar Zirconia, Inc.
"Manufacturer of the original ZIRCAR products" ©

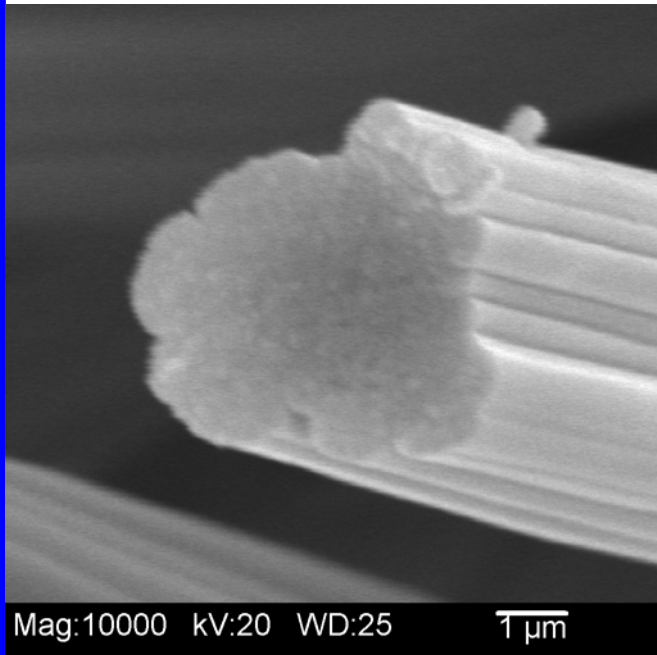
ALUMINA FIBERS and TEXTILES TYPE AL



Alumina Cloth Type **ALK-15** has the unique advantage of being a knit structure. This structure allows irregular shapes to be cut that do not unravel or fray. The SEM photomicrograph to the left shows the cut edge of Type **ALK-15** and the individual filaments of the knit threads.



The SEM photomicrograph above shows individual fibers arranged mostly parallel to each other in a thread. These filaments show the serrated nature of all "Zircar Process" fibers.



The SEM photomicrograph to the left shows the end of an individual fiber in Type **ALK-15**. The individual submicron crystallites which make up the near theoretical density fiber can be seen clearly. Fiber diameter is approximately 6 microns

Zircar Zirconia, Inc.
PO Box 287
Florida, NY 10921-0287
USA

Tel: 845-651-3040
Fax: 845-651-0074
email: sales@zircarzirconia.com
web: www.zircarzirconia.com

Product Data
Bulletin #E-01
January 2004
Page 2 of 3



Zircar Zirconia, Inc.
"Manufacturer of the original ZIRCAR products" ©

ALUMINA FIBERS and TEXTILES TYPE AL

PROPERTIES & CHARACTERISTICS

| | ALF-100 | ALK-15 |
|---|-------------|-------------|
| Nominal Composition, Wt% | | |
| Al ₂ O ₃ | 99+ | 99+ |
| ZrO ₂ & HfO ₂ | 0.42 | 0.42 |
| SiO ₂ | 0.09 | 0.09 |
| CaO | 0.06 | 0.06 |
| Melting Point, °C (°F) | 2015 (3630) | 2015 (3630) |
| Bulk Porosity, % | 97 | 88 |
| Bulk Density, g/cc (pcf) | 0.13 (8) | 0.49 (31) |
| Tensile Strength, g/cm width (lb/inch width) | 49 (0.28) | 116 (0.65) |
| Loss on Ignition, 1 hr at 950°C (1742°F), Wt% | 3.8 | 1.4 |
| Outgassing | Nil | Nil |
| % Shrinkage, 1 hour at 1650°C (3002°F) | 15 | 7 |

ORDERING INFORMATION

Type **AL** Fibers and Textiles are available in six standard product forms, which are listed in the table below with their ordering item number. Please contact our Sales Department for pricing and availability.

| Standard Sizes | Item Number |
|---|-------------|
| ALF-50, FELT, 12" X 12" X ~0.05" | E01A01 |
| ALF-100, FELT, 12" X 12" X ~0.1" | E01B01 |
| ALK-15, TRICOT KNIT CLOTH, 12" X 12" X ~0.015" | E01C01 |
| ALW-15, SQUARE WEAVE CLOTH, 12" X 12" X ~0.015" | E01D01 |
| ALW-30, SATIN WEAVE CLOTH, 12" X 12" X ~0.03" | E01E01 |
| ALBF, BULK FIBER, 1 pound | E01F01 |

Zircar Zirconia, Inc.
PO Box 287
Florida, NY 10921-0287
USA

Tel: 845-651-3040
Fax: 845-651-0074
email: sales@zircarzirconia.com
web: www.zircarzirconia.com

Product Data
Bulletin #E-01
January 2004
Page 3 of 3