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REFRASIL[®] cloths



REFRASIL high temperature silica cloths provide continuous thermal protection from 982 °C to 1260 °C (1800 °F to 2300 °F).

REFRASIL silica textiles are continuous filament, amorphous silica products with the exceptional thermal performance and characteristics of a refractory material. REFRASIL products are produced through a proprietary chemical leaching process of specially formulated glass fibers. REFRASIL consists of $\geq 96\%$ silica (SiO_2) and resists oxidation and attack by most corrosive solutions. REFRASIL is a very health-friendly product and presents no known health hazards. REFRASIL fiber diameters range from 8 to 10 microns.

REFRASIL textiles have a melt point temperature of approximately 1593 °C (2900 °F) and a continuous use design temperature of 982 °C (1800 °F). REFRASIL is designed to provide for exceptional thermal and strength properties while maintaining desirable flexibility up to 982 °C (1800 °F).

The most popular form of REFRASIL silica is the standard woven cloth. REFRASIL cloths are available in a wide variety of various weights and thickness, as well as being offered with several different types of specialty coatings.

REFRASIL cloths are available in standard offerings such as UC series and pre-shrunk (C series) forms. The cloths can also be treated for abrasion resistance (AR series) and elevated continuous temperatures of to 1260 °C (2300 °F) (Irish series). In addition, the UC series fabrics are available with specialty coatings such as silicone rubber, aluminum foil, pressure sensitive adhesives (PSA), and neoprene rubber.

Features and benefits

- Suitable asbestos replacement
- Excellent spark and molten metal sheilding
- Highly resilient
- Fire resistant
- Resists damage from molten metal and radiant heat
- Compatible with most harsh chemicals
- Low halogen content
- High dielectric strength
- Minimal off-gassing
- Low thermal conductivity
- No known health hazards
- Amorphous structure
- Very cost effective

Availability

Standard roll size for all REFRASIL cloth is 46 m (50 lineal yards) ± 10 % maximum length. No roll contains more than two pieces of fabric and no piece within the roll is less than 9 m (10 lineal yards). REFRASIL's textiles are available in a variety

of product forms to suit each customer's specific needs-cloth, tape, sleeving, rope, yarn, cordage, batt and bulk fiber. All textiles can be purchased through a nationwide network of stocking distributors.

REFRASIL UC100 series – standard fabrics protect to 982 °C (1800 °F)

REFRASIL standard fabric (UC100 series) is identified by its tan color. UC100 series fabrics are very effective in applications such as welding blankets and screens, personnel protection shields, equipment protection, and stress relieving pads. UC100 series fabrics have been specifically designed

to provide the user with a cost-effective solution in many commercial and industrial applications. When used properly, UC100 series fabrics are designed to provide personnel and equipment protection as well as provide an effective barrier to molten metal splatter and sparks. The high silica content of these fabrics lends to its resistant to most chemicals and elements within the 982 °C (1800 °F) temperature range.

Material data of REFRASIL® UC100 series

Typical properties	Units	UC100-18	UC100-48	UC100-96	UC100-19-2SS
Product description		light	light	heavy	heavy duty
Color		tan	tan	tan	tan
Nominal width	mm/in	914/36	914/36	914/36	914/36
Nominal thickness	mm/in	0.76/0.030	0.81/0.032	1.32/0.052	1.42/0.056
Nominal weight	g/m ² /oz/yd ²	610/18	678/20	1221/36	1221/36

REFRASIL C100 series – pre-shrunk cloths protect to 982 °C (1800 °F)

REFRASIL "pre-shrunk" fabric (C100 series) is identified by its pure white color and is used in applications where very low

residual thermal shrinkage is desirable. C100 series fabrics are very effective in many heat treat applications and can be used in various composite applications.

Material data of REFRASIL® C100 series

Typical properties	Units	C100-48	C100-96
Product description		light	heavy
Color		white	white
Nominal width	mm/in	838/33	838/33
Nominal thickness	mm/in	0.66/0.026	1.42/0.056
Nominal weight	g/m ² /oz/yd ²	610/18	1187/35

REFRASIL AR100 series – abrasion resistant cloths protect to 982 °C (1800 °F)

REFRASIL abrasion resistant fabric (AR100 series) is identified by its distinctive orange color and is coated with a specially formulated coating making it more abrasion resistant than standard UC100 series fabrics. The AR100 series fabrics are

recommended for highly rigorous applications subjected to dragging, scraping, tearing, and snagging. The AR100 series fabrics make a great choice for fabricated welding cloths, pads, screens, and personnel protection shields. Although the AR coating begins to degrade near 177 °C (350 °F), its thermal and tensile properties continue up to around 982 °C (1800 °F).

Material data of REFRASIL® AR100 series

Typical properties	Units	AR100-48	AR100-96
Product description		light	heavy
Color		orange	orange
Nominal width	mm/in	914/36	914/36
Nominal thickness	mm/in	0.81/0.032	1.32/0.052
Nominal weight	g/m ² /oz/yd ²	678/20	1221/36

REFRASIL specialty coated fabrics protect to 982 °C (1800 °F)

REFRASIL standard fabrics (UC100 series) are available with the following coatings: Pressure sensitive adhesive (PSA), silicone rubber, aluminum, neoprene, and black ceramic oxide. These coatings are designed to provide special properties to enhance and diversify the exceptional qualities of the REFRASIL standard fabrics. These specialty coatings increase

the usability of the fabrics by adding properties such as fabric adhesion, water resistance, heat reflectance, and additional thermal protection. Coatings are available in various configurations of single and double sided on all weights of fabrics. The specifications shown below represent only a partial list of product offerings. Additional configurations are available upon request.

Material data of REFRASIL® specialty coated fabrics

Typical properties	Units	ADH-48	UC100-48 -RS1	UC100-96 -BCS2	UC100-96 -GRNS2	UC100-48 -AC1	UC100-48 -BN1	UC100-96 -BC
Product description		adhesive	silicone	silicone	silicone	aluminum	neoprene	blk oxide
Color		tan	red	black	green	silver	black	black
Nominal width	mm/in	914/36	914/36	914/36	914/36	864 – 889/ 34 – 35	914/36	914/36
Nominal thickness	mm/in	0.89/0.035	0.89/0.035	1.47/0.058	1.47/0.058	0.84/0.033	0.89/0.035	1.75/0.069
Nominal weight	g/m ² /oz/yd ²	780/23	882/26	1627/48	1627/48	712/21	882/26	1356/40

REFRASIL Irish series – pre-shrunk fabrics protect to 1260 °C (2300 °F)

REFRASIL Irish insulation cloth was developed to extend the temperature range and flexibility characteristics of REFRASIL textiles. The Irish series fabrics are identified by their green color which is from the special high-temperature treatment.

REFRASIL Irish insulation will withstand continuous temperatures to approximately 1260 °C (2300 °F) with little or no change in properties. REFRASIL Irish fabrics come in two versions. C1554 is the base Irish coating and 2221 is comprised of C1554 with an additional finish coating for ease of handling and physical integrity during fabricating.

Material data of REFRASIL® Irish series

Typical properties	Units	C1554-48	C1554-96	2221-48	2221-96
Product description		Irish cloth	Irish cloth	treated Irish cloth	treated Irish cloth
Color		green	green	green	green
Nominal width	mm/in	838/33	838/33	838/33	838/33
Nominal thickness	mm/in	0.66/0.026	1.42/0.056	0.71/0.028	1.47/0.058
Nominal weight	g/m ² /oz/yd ²	610/18	1187/35	678/20	1356/40

* registered trademark of HITCO Carbon Composites Inc.

These data and information are based on carefully conducted tests and experiments and shall inform the user. They should not be regarded as a specification or guarantee for the suitability of certain applications. Users should at any rate ensure and confirm the suitability of the product for the intended purpose by carrying out their own tests and research.

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