

Varglas S1600 Sleeving

Flexible Fiberglass Sleeving

(-70°C to +482°C) (-94°F to +900°F)

Description

Varglas S1600 Sleeving is a high-strength, high-temperature sleeving produced from special S-2 Glass® fibers which, in addition to enhanced dielectric and mechanical properties, provide thermal protection beyond the limits of conventional sleeving made from E-glass fibers.

Although both S-2 Glass® and E-glass fibers have excellent resistance to all types of nuclear radiation, S-2 Glass®, unlike E-glass, is free of boron and, therefore, in the hostile atmosphere of a reactor, will not decompose to form gaseous products.

There are five types of S1600 Sleeving, all of which are noncorrosive, nonflammable and impervious to fungus attack.

Untreated: Not heat cleaned or treated, but containing its original sizing so it is available only in white.

Type H: Heat cleaned only. Since it is not treated with sizing or pigments after heat cleaning, it is available only in the natural (silver) color.

Type HO: Heat cleaned and treated with an acrylic resin binder (natural or pigmented).

Type HM: Heat cleaned and treated with an oleoresinous binder (natural or pigmented).

Type ML: Heat cleaned and treated with Pyre ML® binder (natural or pigmented), Natural & Green Only.

Binders are applied to retard fraying and to hold sleeving round for cutting. Types HO, HM and ML are available in a variety of colors which may be less vivid after exposure to 150°C. All five types are available in various wall thicknesses as well as with multiple walls. All will serve as secondary insulation unaffected indefinitely through a temperature range from -70°C to 482°C and withstand up to 950°C for shorter periods. Since there is no impregnant that will provide dielectric properties at those extremes, these sleeveings require heavy or multiple-wall thicknesses if used as primary insulation.

Specifications

Varglas S1600 Sleeveings conform to NEMA TF-2 and will not burn and are made from glass fibers conforming to Military Specification MIL- Y-1140H ,Class C, Form 1 (continuous filament yarns).

Applications

Varglas S1600 Sleeveings are used for thermal and mechanical protection in applications requiring stability under extreme temperature and corrosive environments.

Sizes

Types H, HO, HM and Untreated - AWG #26 through 2" I.D. Type ML - AWG #24 through 3/8" I.D.

Standard Color

Untreated - White only, Type H - Natural (silver) only, Types HO, HM and ML - Natural. Other colors made to order.

Standard Packaging

Coils - all 5 types. Spools where specified. Cut pieces are available, subject to cutting charges, in Types HO, HM and ML only.

S-2 Glass® is a registered trademark of AGY.

Pyre-ML® is a registered trademark of the DuPont Company

Varglas S1600 Sleeving Typical Properties

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Property	Performance
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Physical

Density, gm/cm ³	2.46 – 2.49
Elongation at Break, percent	5.4 – 5.8
Tensile Strength, psi @ 22°C	665,000 - 700,000
Water Absorbency @ 22°C, 65% R.H.	None

Chemical

Resistance to Acids and Alkalies	Good resistance to most acids and alkalies.
Effect of Bleaches and Solvents	Unaffected
Resistance to Mildew, Aging and Sunlight	Excellent resistance to sunlight and aging. Not attacked by mildew.

Electrical

Dielectric Strength	Provides only space factor electrical insulation of approximately 1375 volts for standard wall. No dielectric guarantee.
Volume Resistivity @ 22°C and 500 volts dc, ohm-cm	0.905×10^{13}
Dielectric Constant @ 22°C, 1 MHz	5.3
Dissipation Factor @ 22°C, 1 MHz	0.0020

Thermal

Thermal Endurance	Up to 482°C indefinitely; up to 950°C for shorter periods.
Strain Point	766°C (1410°F)
Annealing Point	816°C (1500°F)
Softening Point	1056°C (1932°F)
Thermal Conductivity, k	1.1 - 1.4
Specific Heat @ 22°C, kT/kg.K	.737
@ 200°C	.820
Flame Resistance	Passes NEMA TF-2, Section 6.3. Will not burn.
Cold Bend	-70°C *

*Actual performance should exceed this level since ultimate brittle point has not been determined

Notes:

Average properties of S Glass as reported in 2022 AGY S-2 Glass Product Brochure, considered to be applicable to bare glass filaments. Information contained here is precise and reliable. However being unique, each end-use should be evaluated to satisfy its specific requirements.



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