



SWX-237 Neutron Shielding

High Temperature Boron-Silicone



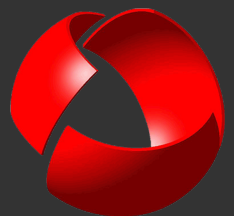
SWX-237

- Field-castable multi-part liquid and powder kit (97 Lbs = 1 Ft³)
- Pre-cast custom shapes in a hard rubber-like elastomer
- Contains 1% boron with a high hydrogen content
- Fire and heat resistant material

SWX-237 Boron-Silicone is a fire and heat resistant field-castable neutron shielding material. It is silicone elastomer based and has a high hydrogen content.

At temperatures up to 400 °F (204.4 °C), it will retain almost 90% of its initial hydrogen for extended periods. The hydrogen content of SWX-237 is 67% of that found in water and contains 1% boron for thermal neutron attenuation.

SWX-237 is available in a variety of shapes and sizes. It has a hard rubber-like consistency that will minimize any impact due to secondary missile formation and is self-extinguishing.





SWX-237 Neutron Shielding

Specifications

Composition Data (as cast)

Hydrogen atom density/ cm ³ :	4.49 x 10 ²²
Hydrogen weight percent:	4.74 %
Boron atom density/ cm ³ :	1.04 x 10 ²¹
Boron weight percent:	1.17 %
Total Density	1.59 g / cm ³ (99 lbs / ft ³)

Radiation Properties

Macroscopic thermal neutron cross section:	0.80 cm ⁻¹
Gamma resistance:	1 x 10 ¹⁰ rad
Neutron resistance:	5 x 10 ¹⁸ n / cm ²

Physical Properties

State	Liquid/Powder mix kit or pre-cast solid
Color	Dark gray when cast
Odor	no significant odor
Machinability:	Fair
Hardness:	Shore "A" Durometer Scale = 66
Tensile Strength (ASTM D368):	50 psi (35,155 kg/ m ²)
Compressive Strength:	450 psi (316,395 kg/ m ²)

Thermal Properties

Recommended Temperature Limit:	400 °F (204.4 °C)
Heat Capacity:	0.4 cal/g °C
Specific Heat:	950 J/(Kg-K)
Thermal Conductivity:	0.584 W/(m-K)
Cubical Coefficient of Expansion:	3 x 10 ⁻⁴ in ³ /in ³ °F (5.4 x 10 ⁻⁴ cm ³ /cm ³ °C)
Linear Coefficient of Expansion:	1 x 10 ⁻⁴ in/in °F (1.7 x 10 ⁻⁴ cm/cm °C)
Vapor Pressure (mm Hg):	5
Evaporation Rate (ether=1):	<1

Chemical Properties

Chemical Name & Synonyms:	Borated Silicone
Trade Name & Synonyms:	SWX -237
Chemical Family:	Silicone Monomer
Formula:	Silicone plus B and H compounds
Solubility in Water:	<1%

