High Temperature Boron-Silicone

- 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.

For more information visit: www.shieldwerx.com
# Specifications

**Composition Data (as cast)**
- Hydrogen atom density/ cm³: \(4.49 \times 10^{22}\)
- Hydrogen weight percent: 4.74%
- Boron atom density/ cm³: \(1.04 \times 10^{21}\)
- Boron weight percent: 1.17%
- Total Density: \(1.59 \text{ g/cm}^3\) (99 lbs/ft³)

**Radiation Properties**
- Macroscopic thermal neutron cross section: \(0.80 \text{ cm}^{-1}\)
- Gamma resistance: \(1 \times 10^{10} \text{ rad}\)
- Neutron resistance: \(5 \times 10^{18} \text{ n/cm}^2\)

**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/m²)
- Compressive Strength: 450 psi (316,395 kg/m²)

**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: \(3 \times 10^{-4} \text{ in}^3/\text{in}^3 \cdot °F (5.4 \times 10^{-4} \text{ cm}^3/\text{cm}^3 \cdot °C)\)
- Linear Coefficient of Expansion: \(1 \times 10^{-4} \text{ in/in} \cdot °F (1.7 \times 10^{-4} \text{ cm/cm} \cdot °C)\)
- 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%

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