Poly-Biz

- High hydrogen content
- Gamma shielding alternative to lead
- Available in slabs, cylinders, and other custom shapes

SWX-217 Poly-Biz is an effective alternative to lead-based shielding products. It is comprised of a solid suspension of high density bismuth powder in a polyethylene matrix. Poly-Biz is a non-hazardous gamma shield with an additional benefit as a neutron moderator.

1-inch of Poly-Biz is roughly equivalent to 1/4-inch of lead for gamma shielding applications. Poly-Biz is typically provided as slabs or bricks, but is readily machined into custom shapes, like the dark outer cylinder of the shielding cask pictured.

For more information visit: www.shieldwerx.com
Specifications

### Composition Data
- **Hydrogen atom density / cm³:** 5.39 x 10^{-22}
- **Hydrogen weight percent:** 3.09%
- **Bismuth atom density / cm³:** 6.60 x 10^{-21}
- **Bismuth weight percent:** 78.5%
- **Total Density:** 2.92 g / cm³ (182 lbs. / ft³)

### Radiation Properties
- **Macroscopic thermal neutron cross section:** 0.02 (cm⁻¹)
- **Gamma resistance:** 5 x 10^8 rad
- **Neutron resistance:** 2.5 x 10^{17} n / cm²

### Physical Properties
- **State:** Bricks, slabs, cylinders
- **Color:** Brown
- **Odor:** No odor
- **Machinability:** Excellent

### Thermal Properties
- **Recommended Temperature Limit:** 180 °F (82.2 °C)

### Chemical Properties
- **Chemical Name & Synonyms:** Bismuth Polyethylene
- **Trade Name & Synonyms:** SWX-217, Poly-Biz
- **Chemical Family:** Polyolefins
- **Formula:** Mixture (CH₂)n, Bi
- **Solubility in Water:** Negligible