

# SWX-217

## Poly-Biz



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.



**High hydrogen content**



**Gamma shielding alternative to lead**



**Available in slabs, cylinders, and other custom shapes**



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## Specifications

### Composition Data

Hydrogen atom density / cm <sup>3</sup> :	5.39 x 10 <sup>22</sup>
Hydrogen weight percent:	3.09 %
Bismuth atom density / cm <sup>3</sup> :	6.60 x 10 <sup>21</sup>
Bismuth weight percent:	78.5 %
Total Density:	2.92 g / cm <sup>3</sup> (182 lbs. / ft <sup>3</sup> )

### Radiation Properties

Macroscopic thermal neutron cross section:	0.02 (cm <sup>-1</sup> )
Gamma resistance:	5 x 10 <sup>8</sup> rad
Neutron resistance:	2.5 x 10 <sup>17</sup> n/ cm <sup>2</sup>

### Physical Properties

State:	Bricks, slabs, cylinders
Color:	Brown
Odor:	No odor
Machinability:	Excellent

### Thermal Properties

Recommended Temperature Limit:	180 °F (82.2 °C)
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### Chemical Properties

Chemical Name & Synonyms:	Bismuth Polyethylene
Trade Name & Synonyms:	SWX-217, Poly-Biz
Chemical Family:	Polyolefins
Formula:	Mixture (CH <sup>2</sup> ) <sub>n</sub> , Bi
Solubility in Water:	Negligible



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Data Sheet Revision: Nov 2015