






SWX-207HD5 & 207HD Neutron Shielding

Self-Extinguishing Borated Polyethylene



-  Self-extinguishing polyethylene shielding
-  SWX-207HD contains ~1% boron and 6% hydrogen
-  SWX-207HD5 contains ~5% boron and 6.6% hydrogen

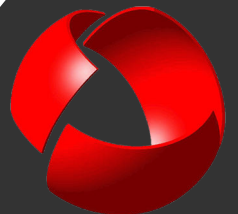
SWX-207HD Self-Extinguishing Borated Polyethylene is used for neutron shielding applications where flame resistance is necessary or desired for the installation. Its hydrogen content is slightly lower than that of SWX-201 Borated Polyethylene.

Self-extinguishing materials are desirable for use in any location requiring neutron shielding where there is an issue with fire loading and a need to reduce the amount of material contributing to the overall amount of combustible materials. ASTM test D-635 (Flammability of Self-Supporting Plastics) shows SWX-207HD to be self-extinguishing. ASTM Test D-2863 gives a Limiting Oxygen Index of 30.2. In addition to the fire resistance, SWX-207HD produces negligible smoke when exposed to flame.

SWX-207HD contains high hydrogen content to provide good characteristics for the attenuation of fast neutrons and contains 0.9% by weight boron (4.7% for SWX-207HD5). It has relative high density of 1.7 g/cc (106 lbs/cu ft), which improves its gamma shielding characteristics compared to other polyethylene based shields. SWX-207HD has numerous applications in nuclear facilities including shielding hatches, ducts, sumps, stairwells, etc.

SWX-207HD is available in slabs, 1-inch thick, in sizes up to 96" x 48". It is easily shaped and cut using ordinary woodworking and metalworking tools. Shieldwerx can custom machine SWX-207HD to your specifications.

For more information visit: www.shieldwerx.com





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Specifications

Composition Data	<u>207HD</u>	<u>207HD5</u>
Hydrogen atom density / cm ³ :	6.10 x 10 ²²	6.35 x 10 ²²
Hydrogen weight percent:	6.01 %	6.65 %
Hydrogen natural isotope distribution:	99.98 % ¹ H	99.98 % ¹ H
Boron atom density / cm ³ :	8.14 x 10 ²⁰	4.19 x 10 ²¹
Boron natural isotope distribution:	19.6 % ¹⁰ B & 80.4 % ¹¹ B	19.6 % ¹⁰ B & 80.4 % ¹¹ B
Boron weight percent:	0.86 %	4.71 %
Total Density:	1.70 g / cm ³ (106 lbs / ft ³)	1.60 g / cm ³ (99.8lbs / ft ³)
Radiation Properties		
Macroscopic thermal neutron cross section:	0.64 (cm ⁻¹)	3.19 (cm ⁻¹)
Gamma resistance:	5 x 10 ⁸ rad	5 x 10 ⁸ rad
Neutron resistance:	2.5 x 10 ¹⁷ n/cm ²	2.5 x 10 ¹⁷ n/cm ²
Physical Properties		
State:	Sheets, bricks	Sheets, bricks
Color:	Grey/Tan	Grey/Black
Odor:	No odor	No odor
Machinability:	Excellent	Excellent
Thermal Properties		
Recommended Temperature Limit:	200 °F (93.3 °C)	200 °F (93.3 °C)
Chemical Properties		
Chemical Name & Synonyms:	Borated Polyethylene	Borated Polyethylene
Trade Name & Synonyms:	SWX-207HD	SWX-207HD5
Chemical Family:	Polyolefins	Polyolefins
Formula:	Mixture (CH ²) _n , B	Mixture (CH ²) _n , B
Solubility in Water:	Negligible	Negligible

