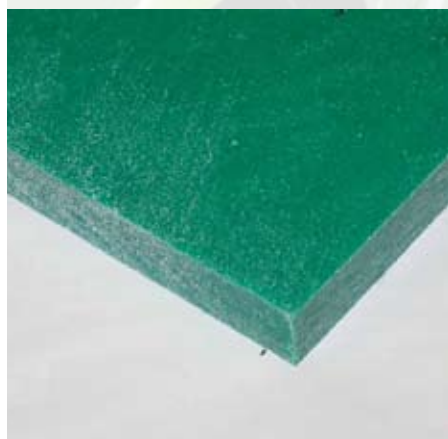


SWX-207HD & 207HD5

Self-Extinguishing Borated Polyethylene



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 higher 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. 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 a wide variety shapes including slabs, bricks, rods, and pellets. Standard 1-inch thick material is available in slabs up to 48" x 96". It is easily shaped and cut using ordinary woodworking and metalworking tools. Shieldwerx can custom machine SWX-207HD to your specifications.



Self-extinguishing polyethylene shielding



SWX-207HD contains 0.9% boron and 6% hydrogen



SWX-207HD5 contains 5.5% boron and 5.7% hydrogen

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shieldwerxTM

SWX-207HD & 207HD5

Self-Extinguishing Borated Polyethylene

Specifications

Composition Data

	<u>207HD</u>	<u>207HD5</u>
Hydrogen atom density / cm ³ :	6.15 x 10 ²²	5.5 x 10 ²²
Hydrogen weight % density:	6.0 %	5.72 %
Natural isotope distribution:	99.98 % ¹ H	
Boron atom density / cm ³ :	8.14 x 10 ²⁰	4.9 x 10 ²¹
Natural isotope distribution:	19.6 % ¹⁰ B & 80.4 % ¹¹ B	
Weight percent of all isotopes of boron:	0.86 %	5.45 %
Total Density:	1.7 g/cm ³ (106 lbs./ft ³)	1.6 g/cm ³ (99.8lbs/ft ³)

Radiation Properties

Macroscopic thermal neutron cross section:	0.41 (cm ⁻¹)
Gamma resistance:	5 x 10 ⁸ rad
Neutron resistance:	2.5 x 10 ¹⁷ n/cm ²

Physical Properties

State:	Bricks, slabs, cylinders
Color:	Grey/Green
Odor:	No odor
Machinability:	Excellent

Thermal Properties

Recommended Temperature Limit:	200 °F (93.3 °C)
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Chemical Properties

Chemical Name & Synonyms:	Borated Polyethylene
Trade Name & Synonyms:	SWX-207HD
Chemical Family:	Polyolefin's
Formula:	Mixture (CH ²) _n , B
Solubility in Water:	Negligible



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