


SWX-227A

Borated Flexi-Panel



SWX-227A Borated Flexi-Panel is typically used for shielding high-energy neutrons such as those produced by high-energy accelerators used in physics research and fusion test facilities. Neutrons absorbed by facility structural elements can produce high energy capture gammas and activate the components of concrete. SWX-227A is a flexible light-weight sheet material with a high concentration of boron that can be used to mitigate the impact of these high energy neutrons. The relatively high boron content of 9% (natural isotope distribution) produces an attenuation factor of 22 for thermal neutrons. SWX-227A does have hydrogen that helps slow the fast neutrons and can reduce the overall radiation field. It is an inexpensive neutron shielding material and is available in flexible sheets 0.275" thick x 48" x 48" (7 x 1219 x 1219 mm). The strong, rubber-like material is self-extinguishing when exposed to flame. Each sheet weighs only 27-lbs (12.3 kg) and is easily handled and installed by non-specialized personnel. This material can be cut to size using

a pocket knife and can be bent in a radius as small as 1/2" (12.7mm). SWX-227A is easily attached to concrete or other wall materials using standard mounting techniques.



Inexpensive Flexible Neutron Shielding Material ideal for installation on walls or in doors

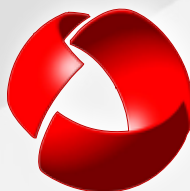


Contains 9% boron along with hydrogen in a tough flexible elastomer



Easily Handled and Installed by Non-Specialized Personnel.

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Specifications

Composition Data

Hydrogen atom density / cm ³ :	4.63 x 10 ²²
Natural isotope distribution:	99.98% ¹ H
Boron atom density / cm ³ :	5.8 x 10 ²¹
Natural isotope distribution:	19.6% ¹⁰ B and 80.4% ¹¹ B
Weight percent of all isotopes of boron:	9.00%
Total density:	1.16 g / cc (72.2 lbs/cu ft)

Radiation Properties

Macroscopic thermal Neutron cross section:	4.41 cm ⁻¹
Gamma resistance:	10 x 10 ⁸ rad
Neutron resistance:	5.0 x 10 ¹⁷ n/ cm ²

Physical Properties

State:	Rubbery Solid
Odor:	Mild odor
Color:	Off-white
Machinability:	Poor, but easy to cut

Thermal Properties

Recommended Temperature Limit:	180 °F
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Chemical Properties

Chemical Name & Synonyms:	Borated Polyurethane
Trade Name & Synonyms:	Type SWX-227A Borated Flexi-Panel
Chemical Family:	Boron compound and polyurethane mixture
Solubility in Water:	Negligible



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