

SWX-259

Polykast Dry Mix



SWX-259 is a field-castable dry mix that provides excellent neutron shielding characteristics. It is typically cast into closed containers and retains its hydrogen content even at elevated temperatures.

SWX-259 is mixed on-site with water and provides a hydrogen atom density that is roughly 6% greater than that of pure water. While the recommended temperature limit for SWX-259 is 150 °F (66 °C), it will retain about 80% of its hydrogen content up to 300 °F (140 °C).

SWX-259 can be poured in layers and each layer forms a solid bond with the one underneath. It requires approximately 56 lbs. of SWX-259 dry mix to produce 1 ft³ of cast material. The material is typically provided in fiber barrels weighing 165 lbs (net).



Inexpensive neutron shielding



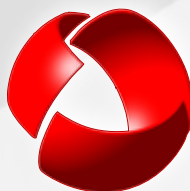
Field-castable into closed containers



Contains 0.9% boron and a very high hydrogen content



Sets up in about 30 minutes, requires only mixing with water



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Specifications

Composition Data

Hydrogen atom density / cm ³ :	7.1 x 10 ²²
Natural isotope distribution:	99.98% ¹ H
Boron atom density / cm ³ :	5.8 x 10 ²⁰
Natural isotope distribution:	19.6% ¹⁰ B and 80.4% ¹¹ B
Weight percent of all isotopes of boron:	0.9%
Total Density:	1.15 g / cm ³ (72 lbs/ ft ³)

Radiation Properties

Macroscopic thermal neutron cross section:	0.42 (cm ⁻¹)
Gamma resistance:	5 x 10 ⁶ rad
Neutron resistance:	2.5 x 10 ¹⁷ n/ cm ²

Physical Properties

State:	Dry powder containing granules
Color:	White
Odor:	No odor
Machinability:	Poor
Compressive Strength:	Poor

Thermal Properties

Recommended Temperature Limit:	150 °F (66 °C)
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Chemical Properties

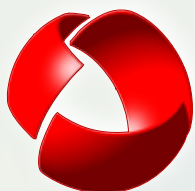
Chemical Name & Synonyms:	Borated Hydrogen-loaded castable dry mix
Trade Name & Synonyms:	SWX-259 Castable Poly
Chemical Family:	Calcium salt, borate, polyolefin
Solubility in Water:	< 1% (cast)

Reactivity Data

Reactive Metals and Metal Compounds:	Aluminum
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Material Incompatibility

Materials to Avoid:	Water, potassium, and acetic anhydride. Not compatible with aluminum housings
Gas	C, CO, CO ₂ , H ₂ O, organic vapors
Hazardous Polymerization:	Will Not Occur



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Data Sheet Revision: July 2007