

SWX-213

Pure Polyethylene



SWX-213 is high purity polyethylene (HDPE) used to thermalize fast neutrons, primarily for experimentation where it is desirable to produce a thermal neutron flux from a higher energy field. SWX-213 has minimal impurities that might absorb thermal neutrons.

Pure Polyethylene can be easily machined into complex shielding form factors and is available in virtually any shape or configuration. This material is often used in applications involving reactor physics, activation analysis, isotopic neutron sources and specially fabricated neutron casks.



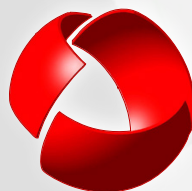
High density polyethylene (HDPE) with minimal impurities



Neutron moderator with very high hydrogen content



Available in slabs, cylinders, pellets, and can be easily machined into custom shapes



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Specifications

Composition Data

Hydrogen atom density / cm ³ :	7.90 x 10 ²²
Hydrogen weight percent:	14.38 %
Natural isotope distribution:	99.98 % ¹ H
Total Density:	0.92 g / cm ³ (57.4 lbs. / ft ³)

Radiation Properties

Macroscopic thermal neutron cross section:	0.03 (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, pellets
Color:	White
Odor:	No odor
Machinability:	Excellent

Thermal Properties

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

Chemical Name & Synonyms:	Pure Polyethylene
Trade Name & Synonyms:	SWX-213
Chemical Family:	Polyolefins
Formula:	Mixture (CH ²) _n
Solubility in Water:	Negligible



A Division of Bladewerx LLC

4529 Arrowhead Ridge Dr. SE
 Rio Rancho, New Mexico 87124
 United States of America
 Phone: +01.505.892.5144
 Fax: +01.505.890.8319
 Email: sales@shieldwerx.com

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