

# Technical Data — 5 Percent Borated Polyethylene

## Product features and details

### Background

Polyethylene has a high hydrogen content that slows fast neutrons, which are then captured by the high cross-section boron. This minimizes the dose from captured gammas.

This material is most frequently used in the form of sheets of 1" x 48" x 96" or 1" x 48" x 48" sizes. Each 48" x 96" sheet weighs 154 pounds and can be layered with offset joints to minimize any neutron streaming at the joints.

### Miscellaneous Data

Calculated Heat of Combustion:	15,300BTU/lb=8425 calories/gram
Thermal Conductivity, k: BTU-ft/(hr)(ft <sup>2</sup> )(°C)	1
Thermal Conductivity, k: Cal-cm/(sec)(cm <sup>2</sup> )(°C)	0.004
Specific Heat: Cal/(g)(°C)	0.56
Linear Coefficient of Thermal Expansion: (cm/cm)(°C)	$1.1 \times 10^{-4}$
Cubical Coefficient of Thermal Expansion: (cm/cm)(°C)	$1.1 \times 10^{-4}$
Compressive Strength (psi):	800

### Wall Shielding Installation Instructions

Polyethylene-based shielding cannot be cemented using standard methods. so A&L Shielding recommends attachment with physical means such as Hilti fasteners or anchor bolts.

This type of material must be pre-drilled prior to attaching anchors to prevent stress cracking. A&L Shielding recommends that the top layer of material be attached to the wall with at least six anchor bolts per piece.

Layers beneath the top layer can be held with one or more bolts, depending on the surface and material.



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