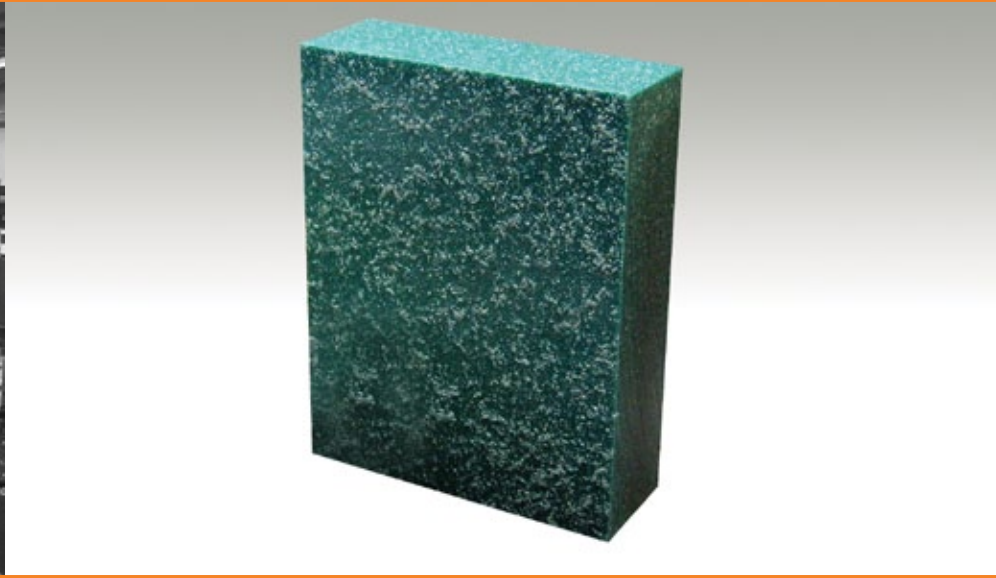


Lightweight, Cost-Effective
And Easily Fabricated

**SIMPLY NO
SUBSTITUTE**

Borotron® Borated PE



Competitive Advantage

- Quadrant Borotron® Borated PE has been used as a medical and industrial shielding material to attenuate and absorb neutron radiation. This easily fabricated polymer material also offers designers greater durability and function over a wider range of temperatures than traditional materials.
- Quadrant Borotron® HD050 is based on Quadrant's high performance HDPE with 5% elemental boron.

Key Benefits

- Easy to handle and fabricate
- Durable over a wider temperature range
- Consistent density and homogeneity
- Superior dimensional quality and flatness
- Available as 48" x 96" sheets for simple installation in most applications

Common Applications

- Medical vaults and doors
- Hot cells
- Nuclear storage and transport containers
- Nuclear detection systems
- Particle accelerators



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Data Sheet - Borotron® Borated PE

	Property	Units	Test Method	Typical Average Value
Mechanical Properties	Specific Gravity @ 73°F	-	ASTM D792	1.01
	Ultimate Tensile Strength	psi	ASTM D638	2,400
	Tensile Modulus	psi	ASTM D638	111,200
	Elongation, at break	%	ASTM D638	3.9
	Shear Strength	psi	ASTM D790	4,200
	Flexural Modulus of Elasticity	psi	ASTM D790	126,500
	Compressive Strength @ 10% Deformation	psi	ASTM D695	3,500
	Compressive Modulus	psi	ASTM D695	97,400
	Hardness, Rockwell	-	ASTM D2240	71
	Notched Izod Impact (1/8")	ft. lb./in. of notch	ASTM D256 Type "A"	0.9
Thermal Properties	Coefficient of Liner Thermal Expansion (-40°F to 300°F)	in./in./°F	ASTM E831	1.1 x 10 ⁻⁵
	Deflection Temperature @ 264 psi	°F	ASTM D648	-
	Tg-Glass Transition (amorphous)	°F	ASTM D3418	260
	Continuous Use Temperature (1)	°F	-	180
Electrical	Surface Resistivity	ohms/square	ASTM D257	>10 ¹²
	Flammability @ 3.1 mm (1.8") ³	-	UL94	HB
Other	Water Absorption Immersion, 24 Hours @ 73° F (2)	% by wt.	ASTM D570 (2)	<0.01
	Absorption Immersion, Saturation @ 73° F (2)	% by wt.	ASTM D570 (2)	<0.01

- (1) Data represents Quadrant's estimated maximum long-term service temperature based on practical field experience.
 (2) Specimens: 1/8" thick x 2" diameter or square.
 (3) Estimated rating based on available data. The UL-94 Test is a laboratory test and does not relate to actual fire hazard.

Note

Materials with high hydrogen density are also used as a component in neutron shielding systems. If you are looking for the broadest range of sizes and shapes in unfilled hydrogen rich material, Quadrant can meet your needs with TIVAR® 1000.



All statements, technical information and recommendations contained in this publication are presented in good faith, based upon tests believed to be reliable and practical field experience. The reader is cautioned, however, that Quadrant Engineering Plastic Products does not guarantee the accuracy or completeness of this information and it is the customer's responsibility to determine the suitability of Quadrant's products in any given application.

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