

>> LIGHTWEIGHT, COST-EFFECTIVE AND EASILY FABRICATED

BOROTRON® BORATED PE

Key Benefits

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- 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

Note:

Materials with a 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.

Borotron® Borated PE

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.

Borotron® HD050 is based on Quadrant's high performance HDPE with 5% elemental boron. ●

Learn more at www.quadrantplastics.com



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Quadrant Engineering Plastic Products

Data Sheet - Borotron® HD050 Borated PE

**Typical
Average
Value**

Property

Units

Test Method

Mechanical
Properties

Specific Gravity, 73°F	-	ASTM D792	1.01
Tensile Strength, 73°F	psi	ASTM D638	2,400
Tensile Modulus of Elasticity, 73°F	psi	ASTM D638	111,200
Tensile Elongation (at break), 73°F	%	ASTM D638	3.9
Flexural Strength, 73°F	psi	ASTM D790	4,200
Flexural Modulus of Elasticity, 73°F	psi	ASTM D790	126,500
Compressive Strength, 10% Deformation, 73°F	psi	ASTM D695	3,500
Compressive Modulus of Elasticity, 73°F	psi	ASTM D695	97,400
Hardness, Durometer, Shore "D" Scale, 73°F	-	ASTM D2240	71
Izod Impact (notched), 73°F	ft.lb./in.	ASTM D256 Type "A"	0.9

Thermal
Properties

Coefficient of Linear Thermal Expansion (-40°F to 300°F)	in./in./°F	ASTM E-831 (TMA)	1.1 x 10 ⁻⁵
Heat Deflection Temperature 264 psi	°F	ASTM D648	
Melting Point (crystalline) peak	°F	ASTM D3418	260
Continuous Service Temperature in Air (Max.) (1)	°F	-	180

Electrical
Properties

Service Resistivity	ohms/square	ASTM D257	>10 ¹²
Flammability @ 3.1 mm (1.8 in.) (3)	-	UL94	HB

Miscellaneous

Water Absorption Immersion, 24 Hours	% by wt.	ASTM D570 (2)	<0.01
Water Absorption Immersion, Saturation	% 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 UL94 Test is a laboratory test and does not relate to actual fire hazard. Contact Quadrant for specific UL "Yellow Card" recognition number.

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