

UltraPur™ TEB

Triethylborate

Triethylborate (TEB) is an organic boron ester compound which is widely used as a boron source in the deposition of doped silicate glass in a low-pressure and plasma-enhanced CVD. Boron acts as a glass flow temperature modifier and gettering agent. The boron source of doped glass has traditionally been diborane.

TEB has been considered a replacement for diborane and trimethylborate. Its benefits include ease of handling a liquid source, reduced health hazards, improved purity levels and improved performance characteristics over diborane. TEB is a liquid at room temperature and has a relatively high vapor pressure that allows for bubbling with a carrier gas, vacuum processing or direct liquid injection.

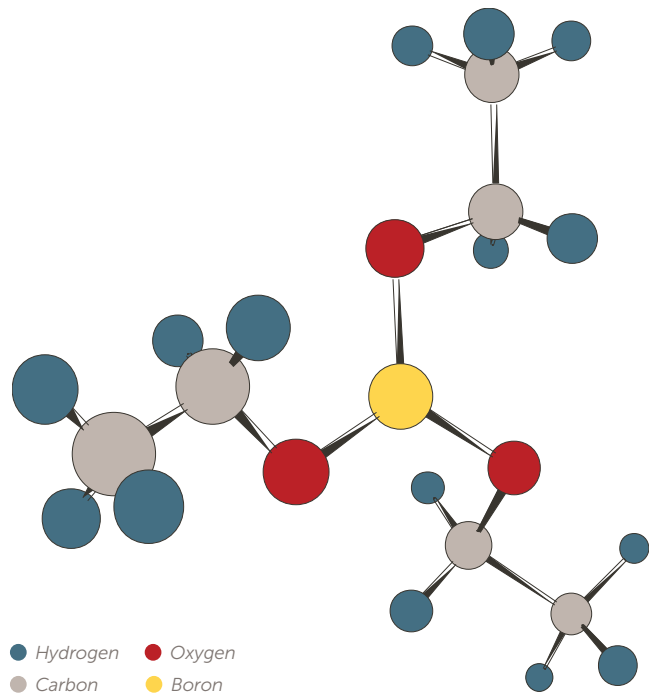
Entegris offers TEB in an ultrapure grade which is purified using proprietary techniques allowing us to supply the most consistent, high-purity chemical available.

Canisters and delivery systems

Entegris UltraPur™ TEB is available in a wide variety of stainless steel canisters and ampoules to fit all tools and delivery systems. Standard sizes include 5-gallon, 10-gallon and 200-liter. Options include manual or air-operated valves, level sensors and keyed configurations.

Entegris offers the Unichem™ 3100 and Unichem 3200 dual-canister chemical delivery systems for BPSG applications.

Entegris is a leading industry supplier that provides a complete line of advanced materials, delivery systems and control/monitoring systems which enable comprehensive material lifecycle management solutions for OEMs and end users.



APPLICATIONS

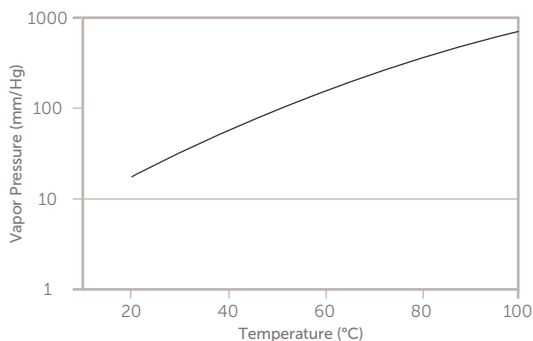
- Plasma-enhanced CVD deposition
- Custom blends of TEPO and/or TEB with TEOS are available for high-volume applications

FEATURES & BENEFITS

- Improved performance characteristics over diborane
- Replaces diborane and trimethylborate
- Ease of handling a liquid source
- Reduced health hazards
- Improved purity levels
- Standard shelf life of 24 months

PERFORMANCE DATA

Vapor Pressure Curve



SPECIFICATIONS

Physical properties

Chemical formula	C ₆ H ₁₅ O ₃ B
Molecular weight	146.02
Density	0.8546 gm/mL
Boiling point	118.5°C (245.3°F) @ 0.1 mm Hg
Melting point	-84.8°C (-120.64°F)
Flash point (closed cup)	11°C (51.8°F)

Purity analysis

Element	Specification	Analytical method
Aluminum	0.200 ppb	ICP-MS
Antimony	0.100 ppb	ICP-MS
Arsenic	0.100 ppb	ICP-MS
Barium	0.100 ppb	ICP-MS
Beryllium	0.100 ppb	ICP-MS
Bismuth	0.100 ppb	ICP-MS
Cadmium	0.050 ppb	ICP-MS
Calcium	0.800 ppb	ICP-MS
Cerium	0.050 ppb	ICP-MS
Chromium	0.100 ppb	ICP-MS
Cobalt	0.050 ppb	ICP-MS
Copper	0.100 ppb	ICP-MS

Purity analysis (continued)

Element	Specification	Analytical method
Gallium	0.050 ppb	ICP-MS
Germanium	0.050 ppb	ICP-MS
Gold	0.100 ppb	ICP-MS
Hafnium	0.050 ppb	ICP-MS
Indium	0.050 ppb	ICP-MS
Iridium	0.050 ppb	ICP-MS
Iron	0.300 ppb	ICP-MS
Lead	0.100 ppb	ICP-MS
Lithium	0.050 ppb	ICP-MS
Magnesium	0.200 ppb	ICP-MS
Manganese	0.100 ppb	ICP-MS
Mercury	0.100 ppb	ICP-MS
Molybdenum	0.100 ppb	ICP-MS
Nickel	0.200 ppb	ICP-MS
Niobium	0.050 ppb	ICP-MS
Palladium	0.050 ppb	ICP-MS
Platinum	0.050 ppb	ICP-MS
Potassium	0.200 ppb	ICP-MS
Rhenium	0.050 ppb	ICP-MS
Rhodium	0.050 ppb	ICP-MS
Rubidium	0.050 ppb	ICP-MS
Silver	0.050 ppb	ICP-MS
Sodium	0.500 ppb	ICP-MS
Strontium	0.050 ppb	ICP-MS
Tantalum	0.050 ppb	ICP-MS
Thallium	0.050 ppb	ICP-MS
Thorium	0.050 ppb	ICP-MS
Tin	0.100 ppb	ICP-MS
Titanium	0.100 ppb	ICP-MS
Tungsten	0.050 ppb	ICP-MS
Uranium	0.100 ppb	ICP-MS
Vanadium	0.500 ppb	ICP-MS
Zinc	0.200 ppb	ICP-MS
Zirconium	0.050 ppb	ICP-MS

Purity analysis (continued)

Particle size	Specification	Analytical method
>0.2 µm	10 mL	PMS
>0.3 µm	7 mL	PMS
>0.5 µm	5 mL	PMS
>1.0 µm	1 mL	PMS

Parameter	Specification	Analytical method
Assay	99.99%	GC
Chloride	50 ppb	Typical
Color	5	Typical
Purity	99.9999995%	ICP-MS
Water	20 ppm	KF Titrator

Maximum TEB fill weights for Entegris canisters

5-gallon	15,750 grams
10-gallon	30,500 grams
200-liter	100,000 grams

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

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