

HIGH PURITY CHEMICALS FOR SEMICONDUCTOR

LIQUID SOURCES

Triethylborate (TEB)

Application:

Triethylborate is an organic borate ester compound which can be used as a boron source in the deposition of doped silicate glasses in low pressure and plasma enhanced CVD. Boron and phosphorus act as glass flow temperature modifiers. The softening temperature of silicate glasses is modified by varying concentrations of doping constituents. The boron source for doped silicate glasses has traditionally been diborane. Triethylborate has been considered as a replacement for diborane and Trimethylborate. Benefits of TEB include the ease of handling a liquid source, less health hazards, improved purity levels and improved performance characteristics over diborane. TEB is a Liquid at room temperature and pressure and has a relatively high vapor pressure that allows for bubbling with a carrier gas or vacuum processing.

Specification:

Purity (Trace Metals) 99.99999+%

Rev. Date 10/95

Assay	99.99% minimum
Al	1 ppb maximum
Ag	1 ppb maximum
As	1 ppb maximum
Au	1 ppb maximum
Ba	1 ppb maximum
Bi	1 ppb maximum
Ca	2 ppb maximum
Co	1 ppb maximum
Cr	1 ppb maximum
Cu	1 ppb maximum
Fe	2 ppb maximum
Color	10 APHA

Ga	2 ppb maximum
Hg	2 ppb maximum
K	2 ppb maximum
Li	2 ppb maximum
Mg	1 ppb maximum
Mn	1 ppb maximum
Na	2 ppb maximum
Ni	1 ppb maximum
Pb	1 ppb maximum
Sn	2 ppb maximum
Sr	1 ppb maximum
Ti	1 ppb maximum
Zn	2 ppb maximum
Water	20 ppm maximum

Delivery Hardware:

Hong Kong Specialty Gases offers our ULSI Grade TEB in industry standard quartz bubblers and stainless steel ampules as well as application specific delivery systems. High purity quartz bubbler is available in 500, 1000, and 1500cc sizes. The 316L stainless steel ampules are available in 0.5, 1.3, and 2.3 liter with various valve and delivery configurations. For large volume consumption, refill bulk canisters are available in 1 and 2 gallon capacities.

Physical Properties:

Formula	(C ₂ H ₅ O) ₃ B
Chemical Family	Organic Borate Ester
Molecular Weight	146.00
Boiling Point	117.4°C
Melting Point	-84.8°C
Density at 20°C	0.864gm/ml
Vapor Pressure	See chart below
Vapor Density (Air=1)	5.04
Flash Point	11°C

Vapor Pressure:

