TECHNICAL BULLETIN

Conversion factors

For determination of the principal constituents, or equivalents, of more common boron compounds, the following table of conversion factors may be found convenient.

As an example of its application:

1. Wanted: Pounds of B_2O_3 in X pounds of borax
Calculation: X pounds of borax x 0.3652 = pounds of B_2O_3

2. Wanted: Pounds of borax equivalent to X pounds of B_2O_3
Calculation: Pounds of B_2O_3 x 2.738 = pounds of borax to furnish x pounds of B_2O_3

For pure boron compounds

To convert		to	multiply by	reciprocal
Ammonium biborate	$(NH_4)_2B_4O_7 \cdot 4H_2O$	B_2O_3 $(NH_4)_2O$ NH_3	0.5288 0.1977 0.1293	1.891 5.058 7.734
Ammonium pentaborate	$(NH_4)_2B_{10}O_{16} \cdot 8H_2O$	B_2O_3 $(NH_4)_2O$ NH_3	0.6396 0.0957 0.0626	1.563 10.450 15.974
Borax	$Na_2B_4O_7 \cdot 10H_2O$	B_2O_3 H_3BO_3 $Na_2B_4O_7$ $Na_2B_4O_7 \cdot 5H_2O$ Na_2O	0.3652 0.6485 0.5277 0.764 0.1625	2.738 1.542 1.895 1.309 6.153
Boric oxide (borin trioxide or anhydrous boric acid)	B_2O_3	B	0.31074	3.218
Neobor® (borax 5 mol) (borax pentahydrate)	$Na_2B_4O_7 \cdot 5H_2O$	B_2O_3 $Na_2B_4O_7$ $Na_2B_4O_7 \cdot 10H_2O$ Na_2O	0.4780 0.6908 1.309 0.2128	2.092 1.448 0.764 4.700
Optibor® boric acid	H_3BO_3	B_2O_3	0.5630	1.776
Potassium pentaborate	$K_2B_{10}O_{16} \cdot 8H_2O$	B_2O_3 K_2O	0.5937 0.1606	1.685 6.221
Potassium tetraborate	$K_2B_4O_7 \cdot 4H_2O$	B_2O_3 K_2O	0.4559 0.3083	2.193 3.244
Sodium metaborate 4 mol	$Na_2B_2O_4 \cdot 4H_2O$		0.3419 0.3043	2.924 3.286
Sodium metaborate 8 mol	$Na_2B_2O_4 \cdot 8H_2O$	B_2O_3 Na_2O	0.2525 0.2248	3.960 4.448
Sodium perborate	$NaBO_3 \cdot 4H_2O$	B_2O_3 0 (available)	0.2263 0.2014 0.1040	4.419 4.965 9.617