

# Technical Data Sheet

## BORIC ACID



### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Brand Name</b>	Boric Acid	<b>Manufacturer</b>	InCide Technologies, Inc.
<b>Chemical Formula</b>	H <sub>3</sub> BO <sub>3</sub>		50 N. 41 <sup>st</sup> Avenue
<b>Chemical Name/Synonyms</b>	Orthroboric Acid, Boracic Acid		Phoenix, AZ 85009
<b>Chemical Family</b>	Inorganic Borates	<b>EMERGENCY PHONE NUMBERS</b>	
<b>CAS/TSCA No.</b>	10043-35-3	<b>CHEMTREC</b>	<b>800-424-9300</b>
		<b>INCIDE TECHNOLOGIES</b>	<b>602-233-0756</b>
		<b>Effective date</b>	January 1, 2009

### SECTION 2- TYPICAL PROPERTIES

The following properties are typical of normal production.

#### CHEMICAL ANALYSIS

		<b>Granular</b>		<b>Powder</b>	
		<u>Typical Range</u>	<u>Standard Specification</u>	<u>Typical Range</u>	<u>Standard Specification</u>
Boric Acid	(H <sub>3</sub> BO <sub>3</sub> )	99.8-101.6%	99.8% min	99.8-101.6%	99.8% min
Boron Oxide	(B <sub>2</sub> O <sub>3</sub> )	56.2-57.2%	56.2% min	56.2-57.2%	56.2% min
Sulfate	(Na <sub>2</sub> SO <sub>4</sub> )	0.04-0.15%	0.15% max	0.04-0.50%	0.50% max
Chloride	(Cl)	40-90 ppm	90 ppm max	40-150 ppm	150 ppm max

#### SCREEN ANALYSIS (% CUM. RETAINED)

<b>Granular</b>			<b>Powder</b>		
<u>U.S Std.</u>	<u>Typical Range</u>	<u>Standard Specification</u>	<u>Typical Range</u>	<u>Standard Specification</u>	
+20	0-1%	1.0% max	-----	-----	-----
+40	6-70%	-----	-----	-----	-----
+60	40-90%	-----	-----	-----	-----
+100	70-98%	-----	20-35%	-----	35% max
+200	90-99%	-----	-----	-----	-----

#### BULK DENSITY, poured

	<u>Granular</u>	<u>Powder</u>
<b>Typical Range:</b>	53-60 lb/ft <sup>3</sup>	33-37 lb/ft <sup>3</sup>

#### ANGLE OF REPOSE, horizontal

34 degrees

### SECTION 3- THEORETICAL PROPERTIES

The following properties are textbook data and are provided for convenience and reference only. These properties are not normally commercial product and no representation is made relative to commercial product.

#### THEORETICAL COMPOSITION

#### pH of Aqueous Solutions

		<u>Percent</u>	<u>pH of Aqueous Solutions</u>	
			<u>By Weight Of Solution</u>	<u>20°C(68°F)</u>
Boric Oxide	(B <sub>2</sub> O <sub>3</sub> )	56.30%	0.5	5.4/0.4
Boron	(B <sub>2</sub> O <sub>3</sub> )	17.49%	1.0	5.1/0.2
Water	(H <sub>2</sub> O)	43.70%	2.0	4.6/0.2
			3.0	4.2/0.2

## SOLUBILITY IN WATER AS H<sub>3</sub>BO<sub>3</sub> (Boric Acid)

<u>°C</u>	<u>Temperature</u> <u>°F</u>	<u>Percent By Weight Of</u> <u>Saturated Solution</u>	<u>Pounds Per U.S.</u> <u>Gallons Of water</u>	<u>Grams Per Liter</u> <u>Of Water</u>
0	32	2.70	0.231	27.7
10	50	3.52	0.304	36.5
20	68	4.65	0.407	48.7
30	86	6.34	0.562	67.4
40	104	8.17	0.736	88.3
50	122	10.23	0.939	112.6
60	140	12.97	1.221	146.5
70	158	12.75	1.523	182.8
80	176	19.06	1.907	228.8
90	194	23.27	2.441	292.8
100	212	27.53	3.035	364.1
*103.3	*217.9	29.27	3.306	395.6

\*Boiling Point

### SOLUBILITY IN OTHER SOLEVENTS

		<u>°C</u>	<u>°F</u>	<u>Percent By</u> <u>Weight</u>
<b>MELTING POINT (Heated in closed space)</b>				
169°C (366°F)	Methyl alcohol	25	77	20.20
<b>SPECIFIC HEAT @ 25°C</b>	Ethyl alcohol, 95%	25	77	11.20
19.45 cal/deg-mol	Propyl alcohol	25	77	7.18
<b>HEAT OF SOLUTION (ABSORBED) @ 25°C</b>	Iso-butyl alcohol	25	77	5.26
-5.40 Kcal/g-mol	Iso-amyl alcohol	25	77	4.31
<b>HEAT OF FORMATION @ 25°C</b>	Glycerol, 99%	20	68	18.2
261.55 Kcal/g-mol	Acetone	20	68	0.6

### SOLUBILITY

The solubility of boric acid is influenced by the presence of other salts. Lithium and Sodium chlorides and mineral acids decrease the solubility, while potassium and rubidium chlorides increase it. Potassium nitrate, potassium sulfate, sodium nitrate and sodium sulfate also increase the solubility. The presence of borax raises the solubility due to the formation of polyborate ions.

### STABILITY

Boric acid is stable at ordinary temperatures. Upon heating it gradually loses water, changing to metaboric acid, HBO<sub>2</sub>. On continued heating all water is lost, and the anhydrous oxide B<sub>2</sub>O<sub>3</sub> is formed.

### SECTION 4- PACKAGING AND HANDLING

**Granular: 50 pound (25kg) and 100 pound (50kg)** multi plastic lined paper bags palletized and stretch wrapped. Fifty bags per pallet only. It is also available in 2000 lb. semi-bulk bags (1000kg).

**Powder: 50 pound** multiwall paper bags.

Information concerning the handling and use of this product is provided in a material safety data sheet (MSDS). This MSDS must be fully read and understood prior to any exposure, handling, or use of the product.

*Information presented herein has been compiled from sources considered dependable and is accurate and reliable to the best of our knowledge and belief, but it is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any laws or regulations. It is the user's responsibility to determine the suitability of any material for a specific purpose and adopt necessary safety precautions. We make no warranty as to results to be obtained in using any material and, since conditions or use are not under our control, we must necessarily disclaim all liability with respect to use of any material supplied by use.*