



DATA SHEET  
**NYACOL® Nano Barium Titanates**

**Colloidal Performance Materials**

**Barium Titanate – BT-SD, BT-HP, BT80 and Bt-Min®**

**NYACOL® Nano Barium Titanates**

Nyacol® Nano Barium Titanate is produced using proprietary hydrothermal technology. The process was developed in the early 2000's and commercial production began in 2004.

Nyacol® offers two types of barium titanate powder -- differing primarily in trace impurities. The powders are composed of aggregates of the nano-particle barium titanate and the powder particle size is controlled in the micronizing process. Typical properties are shown below.

**TYPICAL PROPERTIES**

	<b>BT-SD</b>	<b>BT-HP</b>
Chemical Formula:	BaTiO <sub>3</sub>	BaTiO <sub>3</sub>
Particle Size, Microns:	Adjustable 1 – 15	Adjustable 1 – 15
pH:	8 – 9	8 – 9
Ba/Ti Ratio:	Controllable 0.99 – 1.04	Controllable 0.99 – 1.04
Na, ppm:	<1000	<50
Cl, ppm:	<250	<10
Surface Area, BET method, m <sup>2</sup> /g	18 – 32	18 – 32

Nyacol® also offers two types of barium titanate dispersions. BT80 is a dispersion in water which demonstrates excellent long term colloidal stability. BtMin® is a dispersion in Isopar L and also has excellent colloidal stability. These products can be used to formulate very thin dielectric layers with excellent uniformity. BtMin® is particularly effective as a sintering control additive for nickel electrodes, enabling production of thin, continuous electrodes.

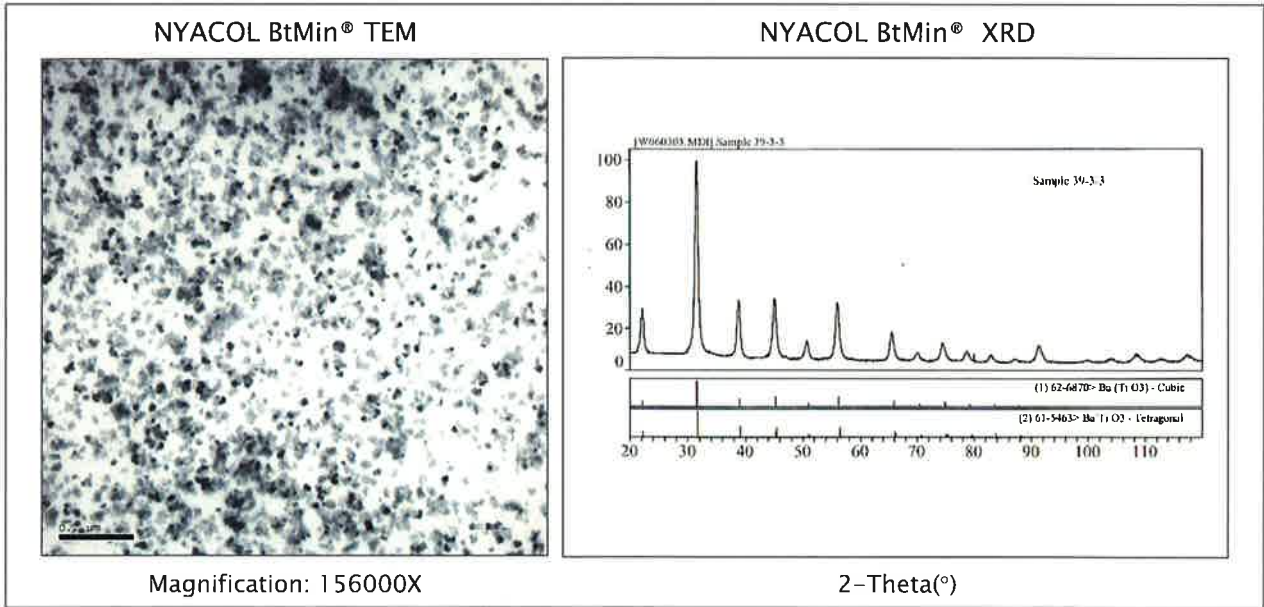
**TYPICAL PROPERTIES**

	<b>BT80</b>	<b>BtMin®</b>
Chemical Formula:	BaTiO <sub>3</sub>	BaTiO <sub>3</sub>
Carrier:	Water	Isopar L
Solids, %:	25 – 50	35
Particle Size, nm:	50	50
pH:	8 – 9	Not applicable
Surface Area, m <sup>2</sup> /g	18 – 32	18 – 32

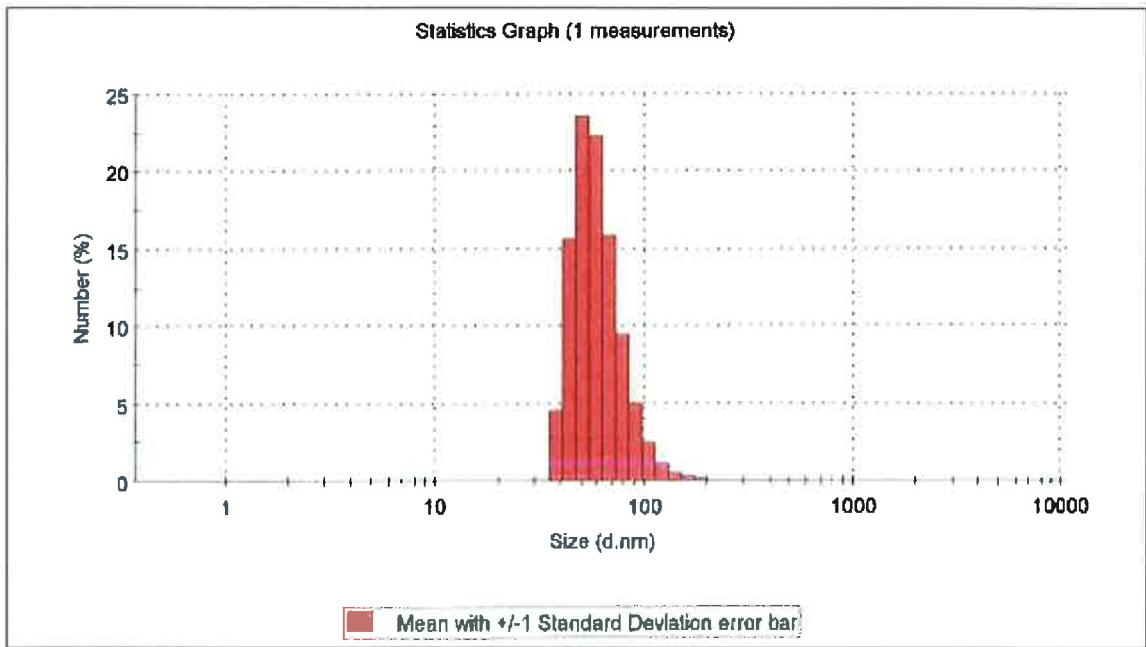
The following figures show typical properties for particle size by Malvern zetasizer and TEM, and XRD on the powders.



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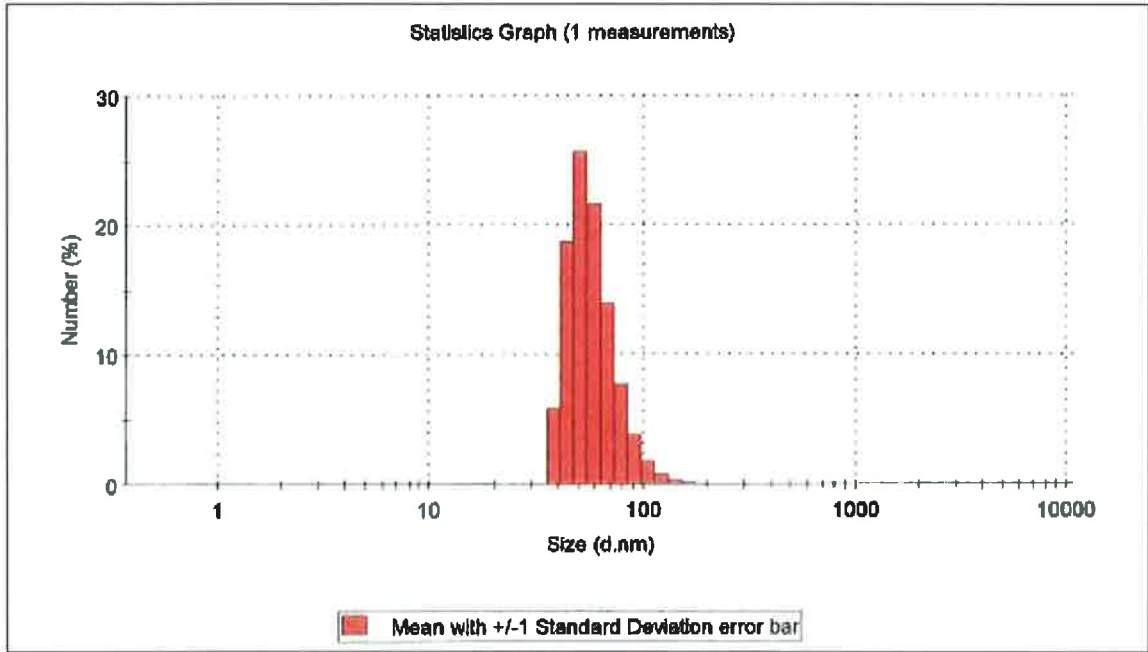
BtMin® TYPICAL PSD





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BT80 TYPICAL PSD



TO ORDER MATERIAL OR FOR INFORMATION

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