



DATA SHEET  
NYACOL® Y<sub>2</sub>O<sub>3</sub> Products

## COLLOIDAL PERFORMANCE MATERIALS

Nyacol Nano Technologies, Inc. offers a range of yttrium oxide-based products for use in various ceramic and investment casting applications.

### NYACOL® Y<sub>2</sub>O<sub>3</sub> (Yttria Sol)

Nyacol Y<sub>2</sub>O<sub>3</sub> is a water-based colloidal yttria sol for use as a sintering aid for silicon nitride and other ceramics, as a stabilizer for zirconia ceramics, for producing a transformation toughened alumina ceramic, as a high temperature binder for ceramics and fibers, and as a core wash for titanium investment casting.

### NYACOL® Y–Min

Nyacol Y–Min is a unique dispersion of nano-scale yttrium oxide suspended in mineral spirits. It is used as an additive in fuel combustion for scavenging of vanadium. The high surface area provides high reactivity. Y–Min also has excellent colloidal stability when diluted to the required working levels in the fuel, which aids in reaction. The product is low in viscosity for easy pumping and metering and has a high flash point of 65°C. The product is also used as a dopant in electronic ceramics such as MLCC dielectrics and inks. Y–Min is supplied pre-dispersed and ready to use.

### NYACOL® Y–Coat

Nyacol Y–Coat is a developmental water-based proprietary formulation designed to protect industrial components from high temperature corrosion and oxidation. The product is designed for use on many metals such as stainless steels, aluminum, nickel, titanium, magnesium and the superalloys. The product can provide protection as high as 1100°C. Y–Coat provides a cost effective alternative to the expensive rare earth doped specialty metals. Y–Coat can be applied by dip or spray methods. If there is sufficient oxygen present and elevated temperature during service, then no further processing is needed. The applications include reduction of corrosion, metal dusting and carbon attack. The product is environmentally safe, non-hazardous and can be applied in the field.

### NYACOL® Y<sub>2</sub>O<sub>3</sub>–SD

Nyacol Y<sub>2</sub>O<sub>3</sub>–SD is available as a high purity yttrium oxide powder. The purity is excellent at >99.5% Y<sub>2</sub>O<sub>3</sub>/TREO and TREO is 99.5% or higher.



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TYPICAL PROPERTIES

Parameters	Y2O3 (Yttria Sol)	Y-Min	Y-Coat	Y2O3-SD
Y <sub>2</sub> O <sub>3</sub> , wt. %	14	34 - 36	<1.0	99.5
Particle Size, nm	10	150 - 200	10	5.2 microns
Particle Charge	Positive	Positive	Positive	N/A
pH	7.0	> 5	6.5 - 7.5	N/A
Specific Gravity	1.17	1.09 - 1.11	1.0	BET: 22.5
Viscosity, cP	10	4 - 10	3	N/A
Counter Ion, mol/mol	2.5 Acetate	N/A	N/A	N/A
Carrier	Water	Isopar L	Water	Powder

PACKAGING

The products are available in 5-gallon plastic pails and 55-gallon drums.

TO ORDER MATERIAL OR FOR INFORMATION

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