

**APPLICATION NOTES**

June 2008

**Introduction**

Ultra-Sol “R” Alumina Suspensions are unique permanent suspensions of our industry standard Ultra-Lox aluminum oxide abrasive powders. The unique alkaline chemistry combined with the high-purity (>99.99%) alumina powders provide an optimum solution for critical needs in precision polishing of optical materials, electro-optical materials, laser crystals, ophthalmic lenses, and in metallurgical specimen preparation.

The information provided in this note should be used as a starting point for the customer’s application.

**Use**

Ultra-Sol R5-, R15-, R25-, and R100-PS Standard Alumina Suspensions

This series of suspensions is ideal for less stringent polishing applications where a totally scratch-free surface is not necessary. They have the unique ability to break down during the polishing process to produce nicely polished surfaces, but with a coarser surface roughness than that which can be obtained with the Ultra-Sol M -PS series.

The “R” Series of Ultra-Sol Alumina Suspensions are available in industry standard particle sizes as shown in the chart below:

Standard Alumina Suspension		% Al <sub>2</sub> O <sub>3</sub>
Suspension	Functional Particle Size	Solids
R5-PS	1.0 μm	15
R15-PS	0.3 μm	15
R25-PS	0.1 μm	15
R100-PS	0.05 μm	10

It is recommended that Ultra-Sol Alumina Suspension be used in pure form. However, if diluted, use only high-quality de-ionized water (>18 M ohm). Mild agitation is all that is needed to keep the diluted slurry suspended. The product should be mixed periodically 10-20 min/day, by recirculation or mechanical stirring. Storage and re-use of diluted slurry is not recommended. If diluted slurry is allowed to sit long enough to settle out of suspension, re-use of the settled solids, without proper rework, may cause some minor scratching and should be avoided. Due to the product unique formulation, it is further recommended that the user should not attempt adjustment of the pH. If a different pH is required, please contact your EMINESS Technologies, Inc. Applications Engineer, for assistance in attaining the desired results.

Storage tanks and distribution piping should be constructed of engineered plastic of polyethylene, polypropylene or fluoropolymer. Materials such as aluminum, copper, brass and PVC should be avoided.

Standard packaging includes five (5) gallon pails and fifty-five (55) gallon drums. One (1) gallon bottles are also available upon request. All containers are High Density Polyethylene (HDPE). Maintain storage in a temperature-controlled environment, between 40 and 100°F, avoiding prolonged exposure at either extreme.

**Ultra-Sol Alumina Suspensions** are safe, aqueous based slurries. However, to avoid skin or eye irritation, handlers should use personal protective equipment including, rubber gloves, protective clothing, and eye protection. Follow all MSDS and label precautions and use appropriate industrial safety and hygiene practices when handling or using this product.

### **Grinding and Lapping**

Eminess Technologies has a complete line of **Ultra-Sol** permanent alumina suspensions made from industry standard levigated alumina in particle sizes from 1 to 25 microns for all of your grinding and lapping applications.

*If you have any questions or comments, please don't hesitate to call  
your EMINESS Technologies, Inc. Applications Engineer.*