

Each of **UPI's HASTILITE** polishing compounds, slurries & powders have been uniquely engineered for optimal stock removal and surface finish. Each formulation has a highly individualized set of properties to meet very specific criteria. All are excellent performers across a wide range of speeds, pressures, and polishing media to deliver...

- Low Angstrom Finishes
- Ability to Achieve Scratch Dig Down to 0/0
- Increased Yields
- Extremely High Purity
- Ability to Run at Variety of Concentrations
- Compatible with Wide Range of Pads, Pitch, & Synthetic Media
- Wide Range of Particle Sizes

UNIVERSAL PHOTONICS' extensive line of premium consumables and equipment bring the precision of semi-conductor technology to the optics industry.

Engineered to consistently deliver higher tolerances and yields, our products have been at the forefront of innovative polishing applications for nearly a century.

UNIVERSAL PHOTONICS specializes in total polishing systems, including polishes, pads & equipment. Our R&D team will work with you to develop a customized system for your unique application. All projects are treated with professional confidentiality.

For further technical information and sales inquiries, please contact our friendly customer service professionals or a UPI Field Applications Engineer.



**UNIVERSAL PHOTONICS
INCORPORATED**

The Science of Surfacing™

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NEXT-GEN POLISHING

**HASTILITE
HRD**

**NANO DIAMOND LAPPING SLURRY
FOR HARD OPTICS**

NEXT-GEN LAPPING / POLISHING

HASTILITE HRD, is a nanodiamond lapping slurry specially engineered for ultra-hard optics. It's unique formulation synergistically combines mechanical and chemical properties to significantly enhance removal rates and deliver surfaces with impeccable finish.

ADVANCED MATERIALS

Modern manufacturing is challenged by the variety of materials blueprinted into the optic applications that produce smartphones and wearables, consumer electronics, advanced defense systems, clean energy, LED-based lighting, and on and on.

The superhard materials many of these products necessitate (e.g. Silicon Carbide, Gallium Nitride, Diamond, Sapphire, etc.) require innovative processing and finishing techniques.

HASTILITE HRD's unique properties make it the perfect choice for lapping / polishing ultra-hard materials.

SIMULTANEOUS PROCESSING

Traditional diamond lapping processes either achieve high rates or high finish, but not both at the same time. **HASTILITE HRD**'s mixture of chemicals and nanodiamond particles is a key enabling technology for simultaneously achieving higher removal rates (20 - 60 micron/hr*) and surface finish ($R_a < 1 \text{ nm}^*$).

**Recorded results on Sapphire A-Face / C-Face*

IMPROVED PERFORMANCE

HASTILITE HRD manages robust lapping with low stress. Sub-surface damage is minimized and/or eliminated, which is a sure precursor for improved strength and finer surface quality.

Rapid process integration is also a product attribute. **HASTILITE HRD**'s unique formulation is well-paired with a variety of pads, pitch, and synthetic media like UPI's polyurethane **LP UNALON** pads.

INCREASED PRODUCTIVITY

HASTILITE HRD can reduce process and total polishing times an average 50% to 80%. In fact, as **HASTILITE HRD** boosts lapping rates, other benefits including increased shock resistance and reduced variability, contribute to increased yield.

HASTILITE HRD can replace multiple lapping steps on ultra-hard materials. Efficiently smoothing surfaces with significantly smaller flaw size, which ultimately results in shorter final polishing cycles.

NEXT-GEN SOLUTIONS

Learn more about **HASTILITE HRD**'s dual technology and the lapping / polishing results your ultra-hard optic can achieve.

UPI Field Applications Engineers are available to discuss the requirements of any critical surfacing application.

