Pixelligent Technologies

- Nanocrystal Additive Company
- Products for the Electronics, Industrial & Military Markets
- 11,000 Sqr Ft. Pilot Manufacturing Facility
- Awarded $11M+ in Federal Grant Programs Since 2007
- Raised $9M Equity
Pixelligent “Secret Sauce”

- Nanoparticles 2 nm – 10 nm
- Spheres, Rods, Tetrapods, etc.
- Uniform Dispersions, No Agglomerations
- High Loadings (>50%)
- Highly Scalable
Pixelligent NanoAdditives

Applications

• Improved anti-reflection
• Improved scratch resistance and hardness
• Improved anti-corrosion
• Improved chemical resistance
• High refractive index
• Improved tribological properties
Pixelligent Flexible Synthesis

Compatible with:

- Polymers
- Acrylics
- SOGs
- Siloxanes
- Polyesters
- Epoxy resins
- Silicones
Brewer Science Partnership

- Supported by $8.2M NIST Grant
- Start Date 2/2010
- 3 yr. Program, Matching Funds
- Joint Development w/Brewer Science
  - Microlithography Application
  - Encapsulant Coating for HB LED’s
- Scale-up to Kg’s/Day
- Ahead of Schedule
ALCOA Inc. Partnership

- Start Date 6/2011
- 6 mo. Program
- Awarded by PANMC
- Joint development of a nano-crystal enhanced composite coating system
  - Improved Corrosion Resistance
  - Improved Scratch Resistance
  - Improved Appearance
Lubricants Applications

- Nanocrystals dispersed in base oils along with other additives
- Reduce Friction Coefficient
- Increase Wear Resistance
- Increase Load Bearing
- Improve Thermal Properties
- Many uses – engines, high speed machining, drilling ...
Clean Technology

- Metal Oxide Nanocrystals - Highly Stable
- Wet Chemistry Minimizes Potential EHS Issues
- Closed-Loop Manufacturing, Recycle 90% of Our Solvents
- HB-LED Additives
  - More Efficient
  - Reduced Heat
  - Increased Brightness
- Industrial Additives
- Lubricant Additives
ZrO₂/HfO₂ Scale-Up Timeline

- 1Q10: 0.8 g HfO₂/Day, 0.4 g ZrO₂/Day
- 3Q10: 12 g HfO₂/Day, 7 g ZrO₂/Day
- 2Q11: 270 g HfO₂/Day, 160 g ZrO₂/Day
- 4Q11: >1 kg HfO₂/Day, >1 kg ZrO₂/Day
Pilot Manufacturing Facility

- 11,000 Ft$^2$ occupied, 50,000 Open for Expansion
- $ From BDC & DBED
- Multiple KG’s/Day 4Q2011
- 15 Employees $\rightarrow$ 25
- Actively Engaging w/Customers & Partners

Manufacturing Facility On-Line 2Q2011
Open Positions

- VP Manufacturing w/Six Sigma
- Director Bus Development
- Industrial Chemical Engineer
- Controller
- Technicians
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