



Ebatco Nano

A Monthly Newsletter

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Nano Brief

Greetings and welcome back! Thank you very much for your time spent reading our previous newsletters we have sent to you last few months. We hope that you will enjoy this issue as you have over the past issues. Included in this issue are:

- Updated information on upcoming events and tradeshow for Ebatco.
- The Nano Analytical Testing (NAT) Lab's newly acquired instrumentation.
- A Case Study characterizing a diamond suspension polishing slurry.

Ebatco

Last month, we noted the conventions we will be attending in the coming months. We are pleased to inform you that NIP27 has just been added to the list of scheduled conferences and trade shows we will be attending. Our MCA-3 Micro Contact Angle Meter will be on display for demonstration at NIP27. Once again, please visit us and chat about the wonderful nanoworld, nanomaterials, nano/micro scale characterization of materials and devices. Our staff scientists will be happy to meet you in person.

- October 4th-5th, **Booth # 112**, NIP27, Non-Impact Printing 27 Conference & Exhibition, Minneapolis, MN.
- October 18th-19th, **Booth # 629**, MS&T '11, Materials Science & Technology 2011 Conference & Exhibition, Columbus, OH
- October 24th-26th, BioInterface 2011, Bloomington, MN
- November 15th-16th, **Booth # 225**, International Symposium for Testing and Failure Analysis (ISTFA), San Jose, CA

NAT Lab

To better server our customer's increasing needs for our contract lab services, the NAT Lab has acquired several scientific and testing instruments in recent months. The newly acquired instruments expand our capability to characterize liquids and liquid suspensions. Specifically, we have added a density meter, refractometer, circulating water bath, viscometer, Coulter Counter and surface tensiometer. These instruments compliment our existing testing instruments. Our DelsaNano C Particle Analyzer, LS 13 320 Laser Diffraction Particle Size Analyzer, DM-701 Contact Angle Meter and MCA-3 Micro Contact Angle Meter can all be used along side

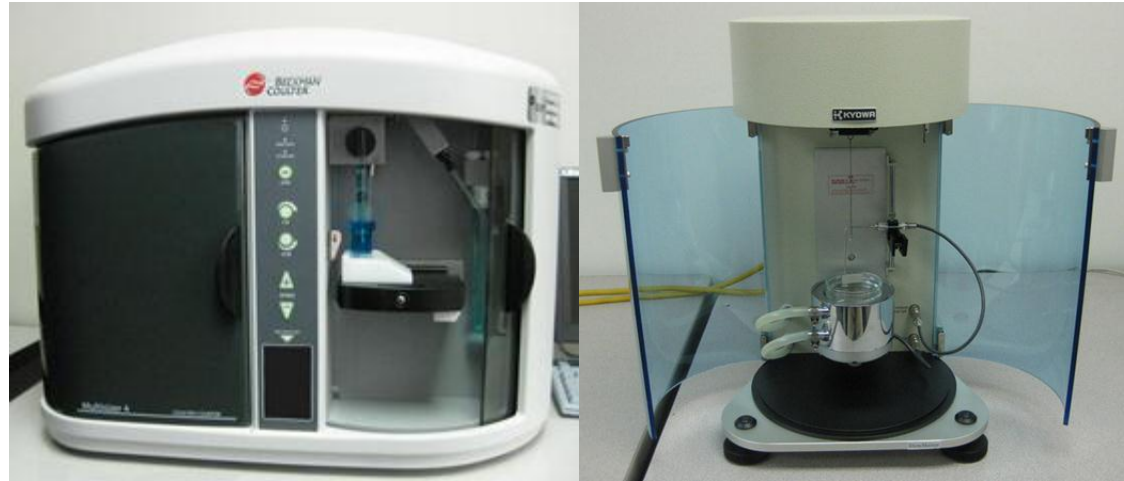
our new instruments to better understand the properties of solutions, suspensions, particles in suspensions, liquids, and liquid-solid interactions.



Rudolph Research Analytical DDM 2911 Density Meter (left) and J357 Automatic Refractometer (right)



Brookfield Engineering TC-502D Circulator Bath (left) and DV-II+Pro Viscometer (right)



Beckman Coulter Multisizer 4 (left) and Kyowa Interface Science DyneMaster DY-700 High Accuracy Surface Tensiometer (right)

Case Study

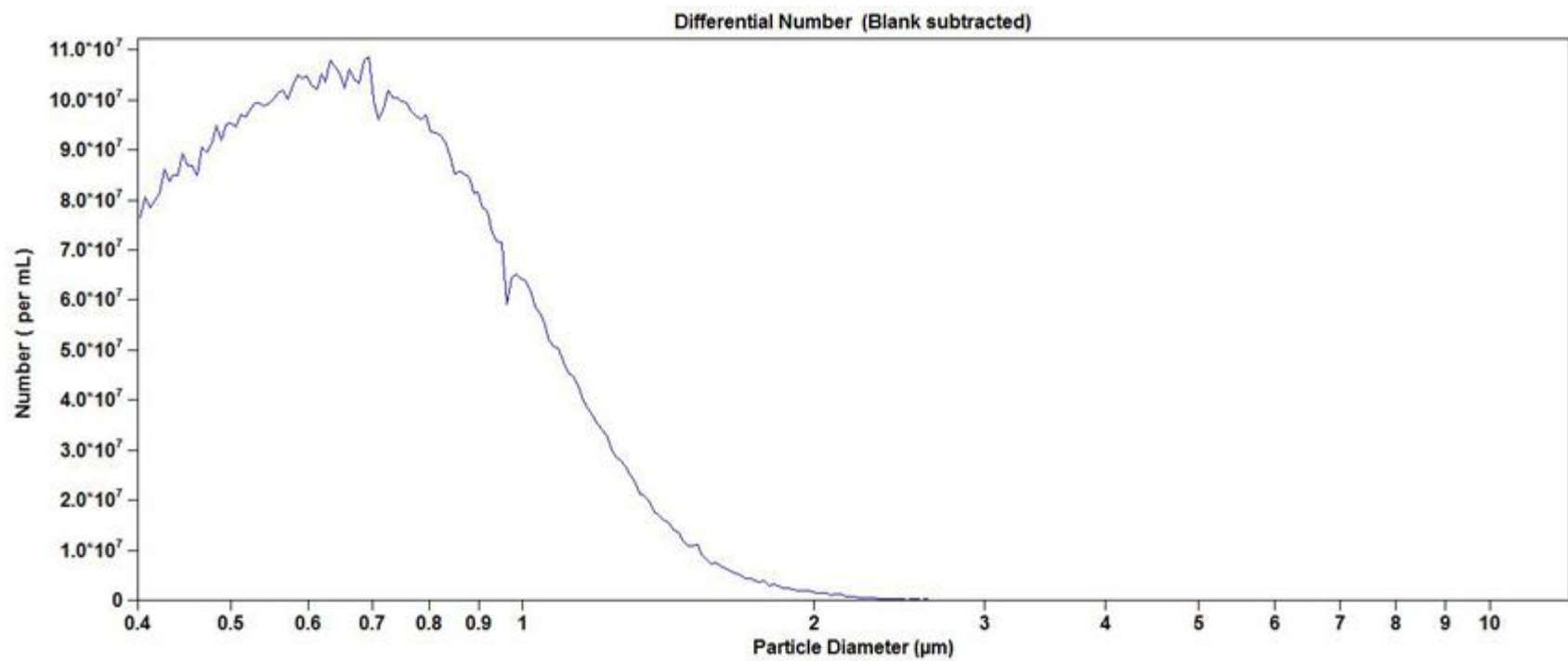
Polishing slurries can be used to reduce the surface roughness of a material. Using finer particle suspensions can further smooth the material surface. They are useful in fields where ultra-smooth surfaces are ideal. Knowing the physical properties of a slurry can be useful in understanding its quality, cleanliness and potential effectiveness. Slurries containing large aggregates can leave large or undesired scratches on a material surface. These scratches can be devastating to the smoothness and surface uniformity. The polishing slurry presented here is a 1 μm polycrystalline diamond suspension in water. The density, surface tension and particle number per milliliter were characterized by our newly acquired DDM 2911 Density Meter, DY-700 Surface Tensiometer and MultiSizer 4 instruments.

Density Measurement Results at Room Temperature

Test 1 (g/cm ³)	Test 2 (g/cm ³)	Test 3 (g/cm ³)	Ave. (g/cm ³)	S.D. (g/cm ³)
1.00172	1.00178	1.00178	1.00176	0.00003

Surface Tension Measurement Results at Room Temperature

Test 1 (mN/m)	Test 2 (mN/m)	Test 3 (mN/m)	Ave. (mN/m)	S.D. (mN/m)
72.52	72.53	72.49	72.51	0.02



Particle number per milliliter distribution results.

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