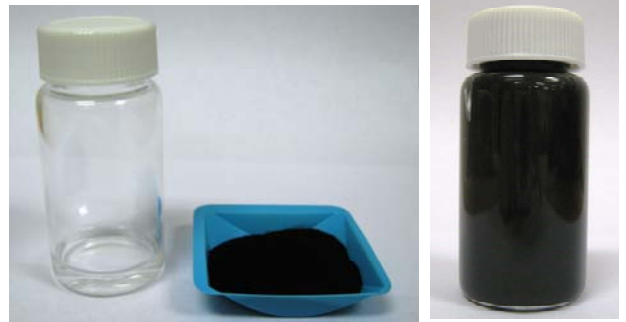


Background

Resodyn Acoustic Mixers has developed a novel mixer product line that uses low-frequency, high-intensity sound energy for mixing. The mixer technology, trademarked as ResonantAcoustic[®] Mixing, is applicable to a broad range of mixing classes that include liquid-gas, liquid-liquid, liquid-solid and powder-powder systems. Highlighted in this bulletin is: **Mixing Nano Material Into Liquid**. This demonstrates the application of suspending nano materials into solution.

Nano Powder Suspension

A formulation of nano silver was suspended in water using the LabRAM Mixer. The image on the left depicts the starting materials while the image on the right shows the results after mixing. The starting materials were 3.25 grams of 20-30 nanometer silver and 1.75 grams of water. The nano silver was added to the vial of water. The sample was placed on the LabRAM and mixed for 10 seconds. The result was a stable suspension of nano silver in the water. The final particles remained nano. No agglomeration of the particles occurred during the mixing process using RAM technology.



Starting Materials

After Mixing

RAM technology is well suited for blending of nano materials. and is currently being used in nano industry.

QuantumSphere, Inc. uses RAM and Dr. Doug Carpenter, Senior Scientific Advisor and Co-Founder, states "RAM is the only mixing technology capable of mixing our nano materials while retaining their nano characteristics" and "that with ultrasonic or three roll milling, the rapid heat generation limits the nano loading to 20%, while RAM allowed loadings of 65%"

Mixing in the end container allows for quick batch cycle and no clean up of the mixing equipment. This also allows for no loss of valuable nano material. Mixes may range from less than one gram to hundreds of kilograms.

RAM5 Mixer
for production
and process
development.



ResonantAcoustic[®] Mixer Benefits

- Easy cleaning
- Blends dissimilar powders
- Fast mixing times
- Can mix in the shipping container
- Solids, liquids, & gels
- Blend nano without agglomerating particles
- Can mix hazardous materials
- Coating applications

LabRAM Mixer
for lab use and
small volume
production
batches.



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