

## For Immediate Release

# NEWS

Microfluidics, a division of MFIC Corporation, develops revolutionary approach to fast reaction chemistry

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## **NEW, TECHNOLOGY PROVIDES CONTINUOUS PROCESSING AND FAST REACTION CHEMISTRY OF MULTIPLE STREAMS TO PRODUCE UNIFORM NANOPARTICLES**

**Newton, Mass. – February 18, 2004** — Microfluidics, a division of MFIC Corporation, today announced that laboratory systems of its patented High-Pressure Multiple-Stream Mixer Reactor (MMR) are now available on special order. The MMR produces uniform nanoparticles with phase purity previously unachievable by conventional batch reaction technology. This degree of reaction chemistry control can lead to cost-effective product improvements and the development and manufacture of new nanomaterials in scalable quantities.

Applications for the new MMR technology include improving the performance of planarization media, superconductors, abrasive silica, recording media, photographic emulsions and pigment synthesis. It can also be used in the development and production of pharmaceutical products. The MMR is being tested in new product development by a biopharmaceutical customer, as well as in an in-house program to develop nanosuspensions of polymer-encased active materials as drug delivery systems.

“MMR makes reaction chemistry an even more exciting field,” says Irwin Gruverman, MFIC’s CEO. “Currently most reaction chemistry is done in batch reactors, which are capital intensive and have high operating costs compared to MMR continuous processing. MMR processing yields structures far smaller, purer and more uniform than a batch reactor.”

Using computer controls to adjust the multiple stream flow by keeping the intensifier pumps operating in phase, the MMR system mixes two or more solution streams of fast-reacting molecules. Intense pressure and the fixed geometry of the proprietary reaction chamber are keys to the MMR’s performance. Multiple streams of reactants, pressurized to as high as 40,000 psi, are fed in stoichiometric ratios into the reaction chamber. Precipitated particles begin to form at a controlled rate and are quenched at the desired uniform size. This process produces high product yields with minimal unwanted byproducts and with uniform nanoparticle size. The intense mixing also minimizes local variations in pH or concentration improving uniformity of composition, crystal size and phase purity.

The MMR can be custom-built to meet research and production needs. The laboratory system has a capacity of 10 gallons per hour and it is projected that throughputs of 200 gallons per hour and higher will be achievable in production systems.

MFIC Corporation., through its Microfluidics Division ([www.microfluidicscorp.com](http://www.microfluidicscorp.com)), provides patented and proprietary, high performance Microfluidizer® high-shear fluid processing equipment to the chemical, pharmaceutical, biotechnology, cosmetic/personal care, and food additives industries.