



## Continuous Production Microwave Furnace Now Operating at NanoMaterials Innovation Center, Alfred, New York

**Alfred, September 30, 2010:** The Western Hemisphere's first high-temperature (1500° C) continuous production microwave furnace is now fully functional at New York's NanoMaterials Innovation Center (NMIC), a wholly owned subsidiary of Alfred Technology Resources, Inc. (ATRI), near the campus of Alfred University. Microwave furnaces are increasingly used for the processing of magnetic materials, ceramics, powdered metals and other advanced materials at high temperatures. The continuous production furnace at NMIC can be used for high-temperature sintering of powdered metals, ceramics and functionally graded materials. This system reduces sintering time for Ni-Zn ferrites from 9 hours to 4 hours, with over 70% energy reduction and greater product density. It capably sinters alumina structural ceramics at 80-150°C lower than conventional furnaces, and reduces sintering time to 6 hours from 15-20 hours. This yields a 65% reduction in energy consumption and produces finer grain, higher strength components with less deformation and cracking.

Since the NMIC is a user facility, a variety of American companies are using the new furnace for proprietary microwave research. For example, [Spheric Technologies](#) used it in performing contract research on producing ceramic materials for use in the natural resources development industry. Another company recently used it to gauge the impact of continuous microwave processing in producing cement, evaluating energy, time and production cost advantages. A major metals supplier plans to conduct its own metallurgy tests using the furnace. Non-disclosure agreements with the NMIC shield companies as they evaluate microwave processing to gain a competitive edge in their respective industries.

The NMIC is a wholly-owned subsidiary of Alfred Technology Resources, Inc. NMIC provides universities and industry with critical technology resources in microwave processing, inorganic nanomaterials, and nanomaterials processing. For industry provide an environment to advance research, incubate new technology and transfer technology to industry partners. For new businesses we provide equipment access, facilities and infrastructure in support of new ventures. For universities we provide research resources supporting principal investigators of SBIR/STTR and CRADA research as well as a facility to actually conduct the university's end of industrially-sponsored research.

Other research equipment available via the NMIC includes:

- Microwave plasma torch for synthesizing nanopowders
- Sonochemical synthesis apparatus to manufacture nanopowders
- Spray drying - powder preparation
- Automated pellet press
- Tape casting and multilayer packaging
- Microwave sintering furnace for atmospheric and high vacuum applications
- Continuous microwave pusher tunnel kiln
- Microwave laboratory furnaces
- Carbon nanotube processing capability
- Atomic force microscopy with nanolithography

For details on how to use the NMIC for industrial research, industrially-sponsored university research, SBIR/STTR projects, or for qualified researcher access to shared experimental facilities, contact Gary Del Regno, Managing Director, Research & Development at (607) 587-8057 or visit [nanomic.org](http://nanomic.org)