

## Manhattan Scientifics Miniature Fuel Cell Achieves 6X The Energy Performance of Lithium Ion Batteries

**Company's Tiny Fuel Cells Capable of Powering Cellular Phones** 

Los Alamos, NM April 17, 2002 -Manhattan Scientifics, Inc. (MHTX) announced today that it has boosted the energy of its MicroFuelCell<sup>™</sup> by a factor of six to nine times beyond the capabilities of current lithium ion batteries, with an estimated specific energy of 940watt\*hr/kg. In addition, the MicroFuelCell<sup>™</sup> power capability has been developed to the point where it will support demanding electronics such as color displays in cellular phones. In laboratories in Los Alamos, the company achieved 80 milliwatts/cm2.

The power and energy boosts were achieved using a sodium borohydride NaBH4 ampoule as a hydrogen producing fuel source. The company has filed two patents covering its ampoule fueling system. The diffusion ampoules are a clean way to power a MicroFuelCell<sup>™</sup> without breaking seals and creating messy fluid circulation.

Chief Fuel Cell Scientist Robert Hockaday said, "With our latest binary water NaBH4 ampoule, we have demonstrated the practical aspects of a pressure-regulating system. The latest ampoule was tested last week and completed three stop-start cycles. Currently we are running the fuel cell with the pressure-regulating ampoule and it is performing satisfactorily. The device and pressure regulating system are covered in one of two pending Manhattan Scientifics' patents using two component chemical hydride fuel and water ampoule systems. By running the MicroFuelCell<sup>™</sup> on hydrogen and air, we have achieved 80 milliwatts/cm2. With the MicroFuelCell<sup>™</sup> running at an expected 0.6 volts per cell, this translates roughly into 940Watt\*hr/kg."

The company also said that it has been running an array of four fuel cells powering a flashing light with an average power output of 0.7 milliwatts on a diffusion ampoule of fuel since February 11. The flasher cell has run continuously for over 60 days on a 12 ml ampoule of methanol-water. The company feels this is important because it verifies the practical aspects of powering a MicroFuelCell<sup>™</sup> using an ampoule-based fueling system.

Marvin Maslow, CEO of Manhattan Scientifics, said, "We very pleased with this progress in enhancing the capabilities of our MicroFuelCell<sup>TM</sup>. The development of the ampoule fueling system is particularly important because it brings us closer to the point where use of the MicroFuelCell<sup>TM</sup> technology becomes practical and commercialization becomes a reality. Also, this demonstrates a practical application of sodium borohydride as a safe, low pressure source of hydrogen fuel in small portable electronics. The use of sodium borohydride is for experimental purposes and in commercial applications would likely require the participation of other parties."



## **About Manhattan Scientifics**

Manhattan Scientifics, Inc., http://www.mhtx.com, is located in Montreal Canada, New Mexico and New York City. It is developing and plans to acquire technologies in a variety of environmentally friendly energy and other people-friendly industries.

The foregoing press release contains forward-looking statements which are subject to risk and uncertainty which may be beyond the company's control.

Copies of Manhattan Scientifics' press releases and related investor information may be found at <u>http://www.hawkassociates.com</u> and <u>http://www.americanmicrocaps.com</u>.

An investment profile about Manhattan Scientifics may be found at <u>http://www.hawkassociates.com/mhtx/profile.htm</u>.

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