

## FOR IMMEDIATE RELEASE

### **3M Invests in Novel Silicon Anode for Lithium Ion Batteries**

#### *3M Research to Pioneer the Future; Company Expands Manufacturing*

**ST. PAUL, Minn. – March 15, 2012** – 3M, the leading United States (U.S.) battery materials supplier, is investing in research and manufacturing of novel Silicon (Si) based 3M anode materials. The technology enables advanced batteries for reliable power that is required to keep up with the global increase of mobile societies and electric vehicles.

3M was recently granted another U.S. patent, 8,071,238 for its [Silicon anode](#) compositions that can increase cell capacity by over 40 percent when matched with high-energy battery cathodes. The company has invested resources and expertise toward commercialization of battery technology for the past 15 years.

3M's investments into the high-energy metal based anode for lithium ion batteries include matching a recent U.S. Department of Energy (DOE) grant for \$4.6 million as part of efforts to build more energy-efficient vehicles. The research will help to develop and integrate new cell materials that will make a transformative change in energy density and in cost in lithium ion batteries used in electric vehicles. Especially critical to the project success is 3M's Si based anode material. The 3M investment in research and development includes putting in 3M's best [battery materials](#) technology for cathode, anode and battery electrolyte additives into the project.

"3M has a proven track record of being an innovator in battery materials, and we are committed to supporting the growing U.S. and global lithium ion battery industry," said Chris Milker, business development manager for 3M Electronic Markets Materials Division. "Our investment into research and development, coupled with our experience and portfolio of more than 40 core technologies – including nanotechnology, adhesives, precision coating, fluoromaterials – give us the tools and confidence in our ability to develop next-generation materials for better cells."

The new research efforts deepen 3M's rich history of sustainability and in making a global impact through innovation. The research expands upon the company's long-standing initiatives in the battery market to commercialize battery technology for electric vehicles and consumer electronics.

In addition to its investment in robust research and development, 3M recently completed the first phase of Silicon anode manufacturing capacity expansion in early 2012 in its Cottage Grove, Minn., facility. The expansion included the installation of large-scale manufacturing equipment specialized to 3M and its proprietary anode chemistry. The U.S.-based facility will provide Si anode material to 3M's global battery customers.

3M is well ahead of its time in pioneering research for lithium ion battery materials, which began in the 1990s for early auto market applications. Lithium ion batteries are a common source of power for laptop computers and electronic handheld devices and emerged as a power source for battery powered hand tools. In addition, 3M lithium ion technology is emerging for transport applications including the hybrid vehicles market. Because of the company's consistent investment into the industry, 3M has uniquely developed three critical battery materials used in lithium ion batteries. These include silicon anode chemistry, novel cathode technologies (nickel, manganese, cobalt) and electrolyte (salts and additives).

Besides battery cathode, anode and electrolyte technologies, 3M also offers tapes and adhesives for assembly of consumer electronics and fluids to manage heat during the manufacture of electronic devices. Using its broad portfolio of battery materials, 3M has the unique capability to integrate these materials to solve customers' battery problems.

For more information about 3M battery materials, visit [www.3m.com/batterymaterials](http://www.3m.com/batterymaterials)

### **About 3M**

3M captures the spark of new ideas and transforms them into thousands of ingenious products. Our culture of creative collaboration inspires a never-ending stream of powerful technologies that make life better. 3M is the innovation company that never stops inventing. With \$30 billion in sales, 3M employs 84,000 people worldwide and has operations in more than 65 countries. For more information, visit [www.3M.com](http://www.3M.com) or follow @3MNews on Twitter.

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