

3M and Reshine Complete NMC Cathode Patent License Agreement

3M and China-based Hunan Reshine New Material Company, Ltd have entered into a patent license agreement to expand the use of nickel, manganese and cobalt (NMC) used in lithium ion batteries. These batteries provide energy to a host of diverse applications ranging from the consumer electronics market to the automotive market. Under the agreement, 3M grants Reshine a license to U.S. Patents 6,660,432, 6,964,828, 7,028,128, and 8,241,791 and all global equivalents including in Taiwan, Japan, China and Europe.

The cathode compositions composed of nickel, manganese and cobalt offer an outstanding balance of power, energy, thermal stability and low cost. NMC cathode materials can be tailored through changes in composition and morphology to meet a wide range of demanding customer requirements, including high-energy, handheld consumer electronics to high-power (hybrid) electric vehicles. For large format battery applications, the excellent thermal stability of NMC cathode compositions contributes to improved battery safety performance and enables a lower total battery system cost.

“We are very pleased to have reached this agreement with 3M. It will further expand Reshine’s product offering and pave the way for NMC cathode materials in emerging applications for lithium ion batteries in the automotive market as well as further penetrate the established consumer electronics market,” said Tang Shunguo, president, Hunan Reshine New Material Company, Ltd.

“The compositions described in these patents will enable battery customers to further reduce cost and minimize materials cost fluctuations that are typical with higher cobalt cathode compositions,” said Christian Milker, business manager, 3M Electronics Markets Materials Division. “This agreement with Reshine will accelerate the market adaptation of the technology and enhance our ability to meet the rapidly growing needs of lithium ion battery manufacturers.”

Recently, the United States Patent and Trademark Office (USPTO) issued an Ex Parte Reexamination Certificate for U.S. Patent 7,078,128. As a result of the reexamination, the USPTO confirmed the patentability of all of 3M’s originally issued claims and no amendments were made to the patent.

3M continues to build on its expertise with investment and research on a number of product solutions and a broad-based technology portfolio targeting lithium ion batteries including anode powders, cathode powders and electrolyte additives. For more information about 3M Electronics Markets Materials Division, its products and services visit 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 88,000 people worldwide and has operations in more than 70 countries. For more information, visit www.3M.com or follow [@3MNews](https://twitter.com/3MNews) on Twitter.

About Reshine

A worldwide leading company in production of battery cathode active materials, Hunan Reshine New Material Company, Ltd has launched a wide variety of market leading products for lithium ion batteries. “Quality Innovation Power,” which drives Reshine growth every day. For more information visit www.resshine.net.

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