

# Nano One Granted 3 New Patents

written by Raj Shah | June 17, 2021

June 17, 2021 ([Source](#)) –

- 3 new patents, issued and allowed in Canada, the US and China.
- Patents extend protection on One-Pot process and LNMO cathode materials.
- Patents add value to One-Pot, M2CAM, coated nanocrystal and sustainability enhancing technologies.

Nano One® Materials Corp. (**TSX: NANO**) (**OTC PINK: NNOMF**) (**FSE: LBMB**) ([Nano One](#)) is a clean technology company with a patented process for the low-cost, low-carbon footprint production of high-performance cathode materials used in lithium-ion batteries. Nano One today announced that its patent estate will expand to include three (3) issued patents, bringing Nano One's patents to a total of 19 with more than 35 patent applications pending.

A notice of allowance has been received for Canadian Patent Application 3,023,602 with issuance expected in the near future. This patent will extend the protection related to specific components of the proprietary One-Pot process developed by Nano One.

The recently issued Chinese Patent 2017100669194 joins a family of related patents already issued in the US, Canada, Taiwan, Japan and Korea. This patent extends the protection for a powder manufactured by Nano One's patented One-Pot process.

The US Patent 11,018,331 joins a related patent issued in Taiwan to provide coverage for a novel method for phosphate stabilizing of lithium-ion battery cathodes. This is an important, low-cost

durability improvement to lithium nickel manganese oxide (LNMO) cathode material, that is also known as high voltage spinel (HVS). By treating the surface of the cathode particles, the patented technology mitigates instabilities common to spinel including LNMO and enables elevated operating temperatures that are typical in electric vehicle batteries.

In addition, LNMO also delivers energy and power on par with other high-performance cathodes and is more cost effective because it is cobalt free, low in nickel and does not require excess lithium. Its three-dimensional structure keeps it from expanding, contracting and straining the battery, and enables faster rates of charge and discharge. LNMO also has an operating voltage that is 25% higher than commercial high nickel cathodes, enabling fewer cells in applications such as power tools and electric vehicles while providing improved productivity, efficiency, thermal management and power.

The One-Pot process is applicable to a range of cathode materials including LNMO, NMC and LFP. It forms durable single crystal cathode powders and protective coatings simultaneously. Nano One's M2CAM (Metal to Cathode Active Material) technology enables these materials to be made directly from metal powders and lithium carbonate for a cleaner and sustainable battery metals supply chain. These innovations are intended to drive down costs, energy and carbon footprint in the battery supply chain and align Nano One with the cost and environmental objectives of automotive companies, cathode producers, miners, investors, and global net-zero initiatives.

These recent advances in intellectual property have been supported in part by advisory services and research and development funding from the National Research Council of Canada Industrial Research Assistance Program (NRC IRAP) and will extend Nano One's patent portfolio to include 19 issued patents

across the globe in jurisdictions that include Canada, United States, Taiwan, China, Japan and Korea. Nano One also has over 35 patent applications currently pending with additional applications being considered.

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### About Nano One

Nano One Materials Corp (Nano One) is a clean technology company with a patented, scalable and low carbon intensity industrial process for the low-cost production of high-performance lithium-ion battery cathode materials. The technology is applicable to electric vehicle, energy storage, consumer electronic and next generation batteries in the global push for a zero-emission future. Nano One's One-Pot process, its coated nanocrystal materials and its Metal to Cathode Active Material (M2CAM) technologies address fundamental performance needs and supply chain constraints while reducing costs and carbon footprint. Nano One has received funding from various government programs and the current "Scaling of Advanced Battery Materials Project" is supported by Sustainable Development Technology Canada (SDTC) and the Innovative Clean Energy (ICE) Fund of the Province of British Columbia. For more information, please visit [www.nanoone.ca](http://www.nanoone.ca)

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