## Nano One Adds Battery Materials Strategist Robert Morris to Address the Market Need for Environmentally Sustainable Battery Metals

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## Highlights

- Robert Morris joins Nano One<sup>™</sup> as an expert advisor on battery raw materials strategies.
- Automotive companies, investors and governments are increasingly requiring environmentally sustainable supply chain practices.
- Nano One's latest technology eliminates the need for metal sulfates from refiners and reduces costly and environmentally sensitive waste streams in cathode production.
- A patent application has been filed that could align Nano One's process with those of the raw material suppliers for a cost effective, integrated and environmentally sustainable supply chain.

Dr. Stephen Campbell, CTO of Nano One, is pleased to introduce Nano One advisor Mr. Robert Morris and present an emerging opportunity to leverage Nano One's patented cathode production technologies in addressing a growing requirement for clean and sustainable sources of battery raw materials. "The leaders in electric vehicle manufacturing, investors and governments are all seeking sustainable sources of raw materials for use in lithium-ion batteries, especially nickel and cobalt," said Dr. Campbell. "We believe that Nano One's cathode production technology could contribute by enabling integration with raw material suppliers to eliminate waste streams and provide a cost effective and environmentally sustainable process. We have recently filed another patent application relating to the integration opportunity."

Mr. Robert Morris of Morris Consulting has joined Nano One as an advisor to explore business opportunities with battery metal producers looking to provide environmentally sustainable and value added materials into the battery supply chain. Mr. Morris has more than 15 years' experience in the mining industry, most recently with Vale as Executive Vice-President of Sales and Marketing in Base Metals and as President of Vale Japan Ltd. He was instrumental in developing Vale's strategic direction relating to its electric vehicle strategy, positioning its vast nickel and cobalt assets towards the production of essential battery materials. Prior to Vale, Mr. Morris was Managing Director at Umicore Greater China responsible for marketing Umicore's line of cathode battery materials to the China market.

Mr. Morris said, "There is a tremendous opportunity to further optimize the global supply chain for the critical metals required for today's lithium ion batteries. In addition to bringing important efficiencies to the supply chain, Nano One's technology has the capability to significantly reduce the waste stream associated with processing these metals in the production of cathode active materials."

Mr. Morris joins a strong team of strategic advisors at Nano One including Joe Lowry, Gord Kukec and Dr. Byron Gates.

Miners and refiners supply nickel in the form of sulfate (22% nickel, 78% waste) to manufacturers, mostly in China, who mix it in a caustic process with cobalt and manganese to form an intermediate precursor while generating a sizable sulfate waste stream that adds cost, complexity and environmental challenges. Lithium is then added to the precursor in a prolonged thermal process to form cathode powders, before final protective coatings can be applied. This supply chain is long and complicated with waste handling, sales, support, logistics, shipping, and margins added at each stage.

Nano One's patented one-pot process forms durable single crystal cathode powders and protective coatings simultaneously and directly from non-sulfate metal salts. It is an aqueous process that operates at room-temperature and atmospheric pressures, and it eliminates the precursor step, and the extra coating steps completely while keeping the sulfate stream at the refiner where it can be recycled. This aligns Nano One with the sustainability objectives of automotive companies, investment communities and governmental infrastructure initiatives. It also offers an opportunity for nickel refiners to provide environmentally and sustainability minded sources of nickel or to integrate and manufacture cost-reduced value-added cathode powders for direct supply to battery manufacturers.

Dr. Campbell added, "We look forward to working with Mr. Morris on building relationships with upstream metals refiners and exploring opportunities to align Nano One's processes with those of the raw material suppliers to add value, reduce waste and improve environmental footprints."

Nano One Materials Corp.

## Dan Blondal, CEO

For information with respect to Nano One or the contents of this

news release, please contact John Lando (President) at (604) 420-2041 or visit the website at <a href="http://www.nanoone.ca">www.nanoone.ca</a>.

## About Nano One

Nano One Materials Corp has developed patented technology for the low-cost production of high-performance lithium ion battery cathode materials used in electric vehicles, energy storage and consumer electronics. The processing technology enables lower cost feedstocks, simplifies production, and advances performance for a wide range of cathode materials. Nano One has built a demonstration pilot plant and is partnered with global leaders in the lithium ion battery supply chain to advance its lithium iron phosphate (LFP), lithium nickel manganese cobalt oxide (NMC) and lithium nickel manganese oxide (LNM) cathode technologies for large growth opportunities in e-mobility and renewable energy storage applications.

Nano One's pilot and partnership activities are being funded with the assistance and support of the Government of Canada through Sustainable Development Technology Canada (SDTC), the Automotive Supplier Innovation Program (ASIP) a program of Innovation, Science and Economic Development Canada (ISED), and the Province of British Columbia through the Ministry of Energy, Mines and Petroleum Resources. Nano One is also supported through advisory services and research and development project funding from the National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP). Nano One's mission is to establish its patented technology as a leading platform for the global production of a new generation of battery materials. <u>www.nanoone.ca</u>.

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