Hatch Study Supports the Benefits of Nano One's One-Pot Process and M2CAM Technology

written by Raj Shah | January 24, 2022
Highlights:

- Hatch highlights potential environmental benefits and economic competitiveness of M2CAM
  - Eliminates 100% of sulphate waste
  - Uses 60% less water
  - Cost and capital competitive
- Opportunities to further optimize and already underway

January 24, 2022 (Source) – Nano One® Materials Corp. (TSX: NANO) (OTC Pink: NNOMF) (FSE: LBMB) (Nano One) is a clean technology company with patented processes for the low-cost, low-environmental footprint production of high-performance cathode materials used in lithium-ion batteries. Nano One is pleased to announce the successful completion of an industrial scale engineering study conducted by Hatch Ltd. (Hatch) a leading global engineering firm.

This is another important step forward in Nano One's efforts to bring the latest innovations in cathode manufacturing technology through scale-up towards commercialization. The study supports that Nano One's patented One-Pot M2CAM (metal to cathode active material) process offers both environmental and potential economic benefits when compared to conventional cathode manufacturing processes.

"The energy transition that is underway will require a 100-fold increase in the production of lithium-ion batteries and the

materials that go into them," explained Dan Blondal, CEO of Nano One, *"but there is an unintended consequence. For every terawatt-hour of battery production, the current cathode manufacturing process generates over 2 billion kilograms of sodium sulphate waste. Put another way, that is 500 NFL football fields, one foot deep in waste, for every 15 million cars. This is not sustainable at larger volumes. Our M2CAM technology uses no sulfate and eliminates 100% of this waste and it is also economically differentiated, standing up to highly optimized conventional processes. We believe it can leapfrog the wasteful methods in use today."*

By working with automotive OEMs and others, Nano One can support localized, cost-effective and more environmentally sustainable materials. Continuous innovation and engineering optimization will further improve the financial and environmental benefits of the One-Pot process as Nano One forges relationships across the supply chain in support of its commercialization strategy.

The engineering study set out to compare the conventional sulphate process for manufacturing cathode active materials (CAM) with Nano One's One-Pot M2CAM process for nickel rich cathode materials.

Conventional cathode manufacturing produces approximately 1.8 times more weight in sodium sulphate waste than it does in CAM product, whereas Nano One's process produces no waste. It is estimated the One-Pot M2CAM process also reduces water consumption by approximately 60% prior to recycling. Further, the Hatch work supports that the Nano One's process significantly reduces the number of process steps to get to a single crystal coated cathode active material helping reduce costs and create efficiencies.

The report estimates competitive economics for Nano One and its

One-Pot process over conventional cathode processes and identifies opportunities for further cost savings, despite One-Pot having over 20-years less industrial optimization. Work is already underway on further optimizations.

Mark Bellino, Global Director of Battery Market Solutions at Hatch stated *"We are delighted to be collaborating with Nano One on the automotive scale engineering of their innovative process technologies. We look forward to building on the results of this study for further optimization and for a range of different cathode formulations*".

About Hatch Ltd.

Hatch is a global professional services firm with consultants, engineers and project management personnel passionately committed to the pursuit of a better world through positive change. Our global network of 9,000 professionals work on the world's toughest challenges. Our experience spans over 150 countries around the world in the metals, energy and infrastructure market sectors.

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**.

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