

## Phase II VanadiumCorp-Electrochem Technology Commences Trial Production

**VANCOUVER, BRITISH COLUMBIA** – May 24, 2017 VanadiumCorp Resource Inc. (TSX "VRB") (the "Company") is pleased to announce Phase II of the VanadiumCorp-Electrochem Technology has commenced direct processing of pure vanadium chemicals by Electrochem in Boucherville, Québec. VanadiumCorp is partnered with Electrochem for development of patent-pending and patented technologies to develop high performance vanadium electrolyte for energy storage and solving conventional supply chain constraints by enabling a wider spectrum of raw materials and several diversified products.

Adriaan Bakker, CEO of VanadiumCorp states, "We are applying VanadiumCorp-Electrochem Technology directly to 100% owned VTM supply and feedstocks to create high quality energy storage materials for batteries. Bench scale testing our VTM concentrate has yielded consistent recoveries of 95% of metal values from VTM concentrate, which includes electrolytic iron, vanadium chemicals as well as titanium residues as opposed to 95% loss with conventional methods."

Vanadiumcorp-Electrochem Technology Phase II will highlight multi-commodity sample production at a nameplate capacity of 300 kg per month scalable to 1 tonne per month at the end of the campaign by installing additional units. The larger scale will incorporate Electrochem's globally patented technology for electrowinning to produce high purity vanadium chemicals and electrolytic iron with the purpose to produce enough chemicals for qualification by potential end users. Phase II testing will utilize equipment similar to those used industrially to demonstrate production capability and process scalability. Commissioning of larger equipment, such as reactors and electrowinning cells began in April, 2017. A larger facility will also allow VanadiumCorp to assess the viability of the fully integrated technologies by also processing vanadiferous concentrates and metallurgical by-products supplied from various industrial partners worldwide. VanadiumCorp and Electrochem are both confident the disruptive integrated approach will have a profound impact for processing vanadium and iron feedstocks globally with exclusive, environmentally friendly technology developed in Quebec, Canada.

In February 2017, Vanadiumcorp Resource Inc. applied, jointly with Electrochem Technologies & Materials Inc., for a U.S. provisional patent application (U.S. 62/463,411) for a combined metallurgical and chemical process. This direct process technology replaces conventional pyrometallurgical processes that utilize either direct soda ash roasting of the magnetite, followed by water leaching, or the arc smelting and slagging of the magnetite, followed by soda ash roasting of the vanadium-rich slag. Smelting or roasting

is capital intensive with high operating costs, technical risks and significant emissions of greenhouse gases that pose serious environmental issues. The Vanadiumcorp-Electrochem technology addresses these key issues and allows the full recovery of vanadium for the production of either a vanadium electrolyte (VE) or vanadium chemicals used for preparing vanadium battery electrolyte as well as the concurrent production of a high-quality and competitive iron co-product.

Electrochem's globally patented electrowinning technology incorporated into the VanadiumCorp-Electrochem co-developed production flowsheet includes the following patents:

- International Patent Application WO 2009/124393 (A1) Granted – ELECTROCHEMICAL PROCESS FOR THE RECOVERY OF METALLIC IRON AND SULFURIC ACID VALUES FROM IRON-RICH SULFATE WASTES, MINING RESIDUES, AND PICKLING LIQUORS. The patent describes a novel electrochemical technology for recovering metallic iron and iron-rich alloys and concurrently regenerating sulfuric acid from iron-rich sulfate wastes, such as ferrous sulfate heptahydrate ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ), also called copperas in the trade, currently by-produced from the titanium white pigment industry, spent pickling liquors (SPLs) originating from iron and steel making plants, and finally pregnant leach solutions (PLS) generated during the acid leaching of ores and concentrates at various minerals and metals processing plants.
- Canadian Patent CA 2,717,887 C, Granted June 14th, 2016
- Chinese Patent CN 102084034 B, Granted June 6th, 2011
- Japanese Patent JP 5469157 B2, Granted February 7th, 2014
- South African Patent 2010/07214, Granted August 31, 2011
- European Patent Application EP 2268852 A4 Pending
- Brazil Patent Application BRPI 0911653 A2 Pending
- India Patent Application 2216/MUMNP/2010 Pending

Electrochem Technologies & Materials Inc. is a research and development company that invents, develops, patents, scales-up and commercialize proprietary metallurgical and electrochemical technologies that are innovative, and sustainable. VanadiumCorp-Electrochem Technology is located at Electrochem's facilities in Boucherville, Quebec.

The Vanadiumcorp plan for Canada includes 100% owned, NI 43-101 vanadium-iron-titanium resources, green process technology and global partnerships. Vanadiumcorp Electrolyte™ is 100% reusable, can be recycled by the batteries and represents the main improvement to increase vanadium storage battery lifetime.

**VanadiumCorp's NI 43-101 primary vanadium-iron-titanium resources:**

**100% owned Lac Doré Vanadium Project** –The Company's flagship VTM flagship project spans over 45 km<sup>2</sup> and is located in mining friendly Quebec, Canada close to the mining center of Chibougamau. The current NI 43-101 vanadium resource measures 621 Million LBs  $\text{V}_2\text{O}_5$  from VTM concentrate grading 1.08%  $\text{V}_2\text{O}_5$ . The Lac Dore was formerly developed by the Québec government from 1960' to 1980', and subsequently developed jointly by McKenzie Bay Resources and SOQUEM, who piloted production in 2002 of vanadium electrolyte at 99.9%  $\text{V}_2\text{O}_5$  at SGS Lakefield, Ontario, Canada for vanadium batteries in Japan. The Lac Dore is uniquely suited for vanadium electrolyte processing with virtually no impurities and exceptional metallurgical recoveries in the VTM. Other

advantages include at surface mineralization that is open at depth and along strike as well as proximity to infrastructure such as road, rail, 161Kv power, workforce, water and a local airport. The Lac Dore Project is also less than 1 km from mining claims fully permitted for mineral extraction owned by Blackrock Metals, who are also targeting VTM concentration on site.

**100% owned Iron-T Vanadium Project** – Located adjacent to the mining center of Matagami, Quebec, 350km west of Lac Dore. The current NI 43-101 VTM resource, titled the “Genesis Zone” measures 14,376,000 tonnes inferred at 0.42% V<sub>2</sub>O<sub>5</sub>. VTM mineralization is at surface, open at depth and along strike. Consistent drill results, trench samples and geophysics along the entire 22km strike-length indicate remarkably similar geology to the Lac Doré Vanadium Project including virtually no impurities and exceptional metallurgical recoveries. Rejean Girard, president of IOS Geocientifiques Inc. is a qualified person as defined by NI 43-101, has read and approved the technical information contained in this news release.

**On behalf of the board of VanadiumCorp:**

*Adriaan Bakker,*  
President and Chief Executive Officer

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