

# VANADIUMCORP-ELECTROCHEM PROCESSING TECHNOLOGY ("VEPT") PCT OF THE INTERNATIONAL PATENT APPLICATION "WO 2018/1152628 (A1)" PUBLISHED BY THE WORLD INTELLECTUAL PROPERTY ORGANIZATION

**VANCOUVER, BRITISH COLUMBIA**, September 5th, 2018 – VanadiumCorp Resource Inc. (TSX-V: "VRB") (the "Company") and Electrochem Technologies & Materials Inc. ("Electrochem") are pleased to announce that The World Intellectual Property Organization "WIPO" (<u>www.WIPO.int</u>) has officially published the Patent Cooperation Treaty "PCT" of the International Patent Application WO 2018/152628 (A1) on August 30th, 2018 entitled:

### "METALLURGICAL AND CHEMICAL PROCESS FOR RECOVERING VANADIUM AND IRON VALUES FROM VANADIFEROUS TITANOMAGNETITE AND VANADIFEROUS FEEDSTOCKS"

The jointly owned "VanadiumCorp-Electrochem" processing technology ("VEPT") describes a novel chemical process invented by Dr. Francois Cardarelli that addresses the recovery of vanadium, iron, titanium, and silica feedstocks such as vanadiferous titano-magnetite, iron ores and concentrates such as magnetite and hematite, vanadium containing wastes such as BOF-slags, and other industrial by-products also containing vanadium.

The process consists to digest the vanadiferous feedstocks into concentrated sulfuric acid. The exothermic sulfation reaction allows operating quasi-autogenously while producing a sulfation cake and hence minimizing the energy consumption drastically compared to smelting processing methods used iron and steel producers. The dissolution of the sulfation cake with minimum amount of water yields a dense pregnant solution and reduces significantly the water usage compared to the conventional roasting process utilized by existing primary vanadium producers. After reducing electrochemically, the pregnant solution is subjected to chilling and crystallization yielding pure crystals of ferrous sulfate heptahydrate (also named copperas). The process further recovers titanium by hydrolysis from the iron depleted solution thereby producing a vanadium-bearing pregnant solution. The further concentration by evaporation and then a sequence of chilling and crystallization yields vanadyl sulfate as key precursor for the preparation of vanadium electrolyte (VE) used in vanadium redox flow batteries (VRFB) or for preparing various vanadium chemicals.

"The publication of the PCT for VEPT represents a major milestone for VanadiumCorp-Electrochem Process Technology. A special thanks to Dr. Francois Cardarelli, through his diligent work, expertise and joint partnership with VanadiumCorp has significantly increased the scope of feedstock capacity and commercial applicability from VEPT's announced invention and provisional patent application in February 2017. VanadiumCorp is committed to near term commercial demonstration of VEPT and the publication of the PCT patent application allows for the next phase required for potential commercialization and global deployment. For vanadium specifically, VEPT addresses the largest industry challenges relating to price volatility and high carbon footprint in the current vanadium market. With VEPT, vanadium is recovered directly from virtually any feedstock with high efficiency and negligible carbon footprint." said Adriaan Bakker, CEO and President of VanadiumCorp.

"This milestone was a mandatory step for securing our joint IP with VanadiumCorp and before initiating the national entry phases for key jurisdictions where negotiations are ongoing with industrial partners for the optioning/licensing of the technology. Moreover, the novelty and industrial applicability of the patent pending technology is a perfect addition with our patented iron electrowinning process aiming for commercial deployment here in Quebec and abroad constructing a fully integrated plant" said Dr. Francois Cardarelli, President of Electrochem Technologies & Materials Inc.

For convenient access to the PCT publication for VEPT, both Vanadiumcorp and Electrochem have allowed for direct download from both company websites using the following links:

## VanadiumCorp: <u>https://goo.gl/N8pPfU</u>

### Electrochem: <u>https://goo.gl/i5QzqF</u>

**VanadiumCorp Resource Inc.** is developing and exploring licensing potential for an innovative, disruptive process technology that unlocks a new strategic supply of vanadium and coproducts such as titanium. Jointly developed and owned with Electrochem, this innovative chemical process allows for integrated and low carbon footprint recovery of critical

metals needed on a global scale. VanadiumCorp also holds a significant vanadium-titanium-iron bearing resource base in mining friendly Quebec, Canada.

Electrochem Technologies & Materials Inc. is a private Canadian corporation that invents, develops, patents, scales-up and commercializes proprietary chemical, metallurgical and electrochemical technologies that are innovative, and sustainable. Electrochem currently owns four patented processes worldwide. The company also manufactures industrial electrodes, recycles rare earths from fluorescent lamps phosphors and also produces tantalum and tungsten fine chemicals at its production facilities in Boucherville.

#### On behalf of the board of VanadiumCorp:

## Adríaan Bakker

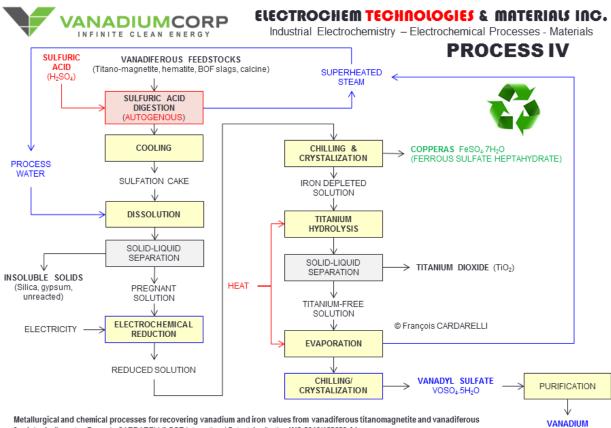
President and Chief Executive Officer

#### For more information:

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ELECTROLYTE (VE)

feedstocks [Inventor: François CARDARELLI] PCT International Patent Application WO 2018/152628 A1