Large, High Grade Titanium Vanadium Magnetite Deposit

Isortoq
South West Greenland

Greenland Day at PDAC

March 5, 2018
A Great Location:

- South West Greenland
- 61 N 47 E
- Located on a wide sheltered inlet
- Deep water (>20 m)
- Coastal altitude
- No inland logistics
- Potential for hydro and wind power
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High-tonnage and High-grade:

- 2 Titanomagnetite rich troctolite dykes
- Outcropping or insignificant overburden
- Striking 15 kms along strike.
- Open at depth and along strike

- Three historical drilling programs
- Inferred Resource of 70.3 MT

- Consistent high Ti, V, and Fe grades
- High grade concentrate goal
- Excellent recoveries
- No penalty elements

<table>
<thead>
<tr>
<th>Grade</th>
<th>TiO₂</th>
<th>Ti</th>
<th>V₂O₅</th>
<th>V</th>
<th>FeO</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>In situ</td>
<td>10.9%</td>
<td>7.5%</td>
<td>0.144%</td>
<td>0.11%</td>
<td>43.4%</td>
<td>29.6%</td>
</tr>
<tr>
<td>Concentrate</td>
<td>19.2%</td>
<td>11.5%</td>
<td>0.32%</td>
<td>0.17%</td>
<td>62.7%</td>
<td>48.7%</td>
</tr>
<tr>
<td>Recovery</td>
<td>87.6%</td>
<td></td>
<td>95.3%</td>
<td></td>
<td></td>
<td>80.2%</td>
</tr>
</tbody>
</table>
Development Strategy:

- Detailed Magnetics Survey
- Surface sampling program
- Drilling
- Metallurgical test-work
**Isortoq Vision:**

ROM 5 MT pa.

Product: Concentrates

Options:

*Hydro metallurgical Plant on site*

*Smelting: Iceland / Canada / China*
Titanium

Titanium (Ti), a lustrous transition metal with a silver colour.
A low density and high strength metal that is resistant to corrosion, cracking and, temperature creeping.
Occurs mainly in rutile and ilmenite and in titanomagnetics.
It is strong as steel but much less dense.

<table>
<thead>
<tr>
<th>TiO₂ Feedstock Consumption</th>
<th>% of total consumption</th>
<th>Short term outlook</th>
<th>Medium term outlook</th>
<th>Long term outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigment</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ti metal</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding &amp; other</td>
<td>5%</td>
<td></td>
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</tr>
</tbody>
</table>

Titanium products and uses

**Titanium Dioxide (TiO₂)** – 6.4 mtpa.
An *inorganic white solid used as pigment - the brightest and whitest available*

- Creates whiteness and opacity - paints, toothpaste, sunscreen, food, cosmetics and pharmaceutical products
- Reflects infrared radiation and improves durability of coatings, paper, plastics

**Titanium Sponge**
Ferro-titanium: Alloy agent with aluminium, molybdenum, nickel, zirconium, iron
- Aircraft engines and frames (~66%), spacecraft and missiles
- Shipbuilding - hulls, submarines, other structures contacting seawater
- Automobile frames and engines
- Nuclear waste storage, power plant condensers, desalination plants, hydro-metallurgy, sports equipment, laptops

**Titanium 99.99**
- Jewellery
- Bio-medicine ability to osseointegrate – joints, dental implants

Global Pigments Market

Estimated at $17.6 billion
Forecasted to be US$31.98 billion by 2023 *
CAGR: 6.8% *(Research and Markets 2017)*

World demand tracks global GDP
Supply-Demand relationship moves with economic and capacity investment cycles
Pricing increases tied to high utilization.

**China**
- The largest and fastest growing market ~1.5 million mta.
- Exports ~680 kT multi purpose grades
- Imports ~220 kT high quality TiO₂
- Increasing Ore imports for beneficiation feedstock
Vanadium

A silvery-grey, ductile, and malleable transition metal.

Derived from mined iron ore or from steel slag.

The strongest strength to weight ratio of any alloy.

Vanadium Uses

As an Alloy

In Steel: Ferro-vanadium (90% of vanadium produced)
- Both strengthens steel and protects it from corrosion and rust
- Inner structure of fusion reactors
- High-speed tool steels (HSS) and surgical instruments
- Axles, bicycle frames, crankshafts, gears, other critical components

Titanium alloy of choice in aerospace and defence
- Jet engines, high-speed airframes and dental implants.

Vanadium-gallium
- Superconducting magnets (17.5 teslas or 175,000 gauss)

Vanadium oxides

- V₂O₅: A catalyst for the production of sulphuric acid
- Oxidation of propane and propylene Ceramics
- VO₂: Infrared radiation blocker in glass coatings

In the battery sector

- Vanadium redox battery used commercially for small scale grid energy storage.
- Lithium ion batteries use Lithium vanadium oxide as a high energy density anode
- A cathode in the Lithium Vanadium Phosphate Battery

Market

90% production from China (53%) South Africa (20%) and Russia (17%)
Chinese Iron (and V) mining under pressure due to high mining costs

Demand highly correlated to steel production
Increasing intensity of Vanadium use for higher qualities
Chinese rebars, High strength steels in automobiles; Aircraft production

Roskill 2015 forecast: $18 - $21/kg equilibrium FeV prices
Current price ~ $40/kg. 2017 Deficit 9700 MTV
3.4% Long term Demand CAGR
Resource 500 Fevti

Privately held

Considering IPO

Sourcing other Ti and V opportunities

Resource 500 Group

Application process for 2 Cobalt properties

Uranium

Lead and Zinc

Tin