

# Imperial Mining Sets Comprehensive 2021 Plan at Crater Lake after \$2.6M Financing

After a positive summer drill program at its flagship **scandium-rare earth** Crater Lake Property in northeastern Quebec, Imperial Mining Group Ltd. (TSXV: IPG) successfully closed a \$2.6 million financing in December to accelerate the project forward in 2021.

Imperial Mining plans to use the proceeds to complete definition drilling at Crater Lake's "TG Zone", and to deliver both a 43-101 Resource Report and a Preliminary Economic Assessment (PEA) by the end of June 2021.

Last trading at \$0.16, Imperial Mining Group has a market cap of \$20 million and a PEA could re-rate the company, shifting it closer to the \$175 million market cap of NioCorp Developments Ltd. (TSX: NB | OTCQX: NIOBF) that has a Feasibility Study at its Elk Creek niobium-scandium project in Nebraska, United States.

Peter Cashin, President & CEO of Imperial Mining Group, recently commented, "I am very pleased of the positive response that the market has shown for our private placement. The financing was oversubscribed, and we believe that it was motivated by the recent significant announcements in the critical metal space, in particular for scandium and the rare earths."

## Scandium Alloys at Home and in Space

Manufacturers in many industries, including automotive, aerospace, and defense, recognize that scandium-modified

aluminum alloy materials could become a critical input into their production processes.

With the push for lighter and stronger materials to make vehicles more fuel-efficient and the need for tough and durable metal alloys for the resurgence in space activity, scandium-aluminum “superalloys” have been already used by NASA and the European Space Agency (ESA).

In a March 2020 speech at the Satellite 2020 Conference, Elon Musk, founder of Tesla (NASDAQ: TSLA) and SpaceX stated that the aerospace engineers at SpaceX were going to switch to a different alloy “pretty soon” to replace the current stainless-steel alloy, known as 301.

Scandium-aluminum alloys are highly valued as an important lightweight material and are one-third the weight of steel and 60 % of the weight of titanium alloys.

Scandium-aluminum alloys are also corrosion-resistant and can be used in a variety of industries, including aerospace, automotive, and consumer products, such as baseball bats, bicycle frames, and golf clubs.

A small percentage of scandium alloyed with aluminum enables aluminum to be effectively welded to another piece of scandium-aluminum alloy, without the need for heavy hardware to join the pieces together.

Scandium-aluminum alloys are currently being used by California-based Relativity Space, a private aerospace manufacturing company. Relativity Space’s massive 3D printer can create a rocket from raw material to flight in 60 days.

The automotive industry could be a large market opportunity for scandium. With scandium-aluminum’s self-welding abilities, engine blocks could be constructed using 3D printers.

In addition, according to a recent report, the average

passenger vehicle contains over 150 kilograms of aluminum and the average light truck contains over 230 kilograms of aluminum. If only 1% of the traditional aluminum used in the approximately 17 million light vehicles (cars and light trucks) produced in the United States each year, switched to scandium-aluminum, that impact would create a demand for 35 tonnes of scandium each year.

With current scandium production estimated between 25-35 tonnes per year as such, this type of demand would immediately double the current supply requirement.

## **Scandium**

Scandium is an element, sometimes classified as a rare earth metal, and currently, there are no primary scandium mines. Supply comes from the by-product of other mineral extractions from deposits in China, Russia, and more and recently, Australia.

Scandium is not traded on any metal exchange and the price is negotiated between buyer and seller. According to the most recent USGS data sheet on scandium, over the past five years, the price for scandium-oxide has averaged \$4,560 per kilogram.

Scandium and other “critical metals” were thrust into the spotlight last year when President Trump signed an Executive Order addressing the threat to the United States’ supply chain from relying on “critical minerals” from “foreign adversaries”, specifically identifying China. The 35 mineral commodities deemed critical under the definition included aluminum, gallium, graphite, lithium, manganese, niobium, the rare earth elements group, and scandium.

## **Crater Lake Property – Scandium & Rare Earth Metals**

The 100%-owned Crater Lake Project is located 200 kilometres northeast of Schefferville, Quebec, and covers 2,780 hectares (approximately 6,900 acres). The project hosts three zones of

mineralization (Boulder, TG Zone (TGZ), and STG), determined by scandium-rich outcrops, boulders, and recent drilling.

Highlights from the summer drill program included Hole #CL20037 from the TGZ that returned intervals grading up to 253 grams per tonne (g/t) Scandium Oxide ( $\text{Sc}_2\text{O}_3$ ) over 29.14 metres (m), including 9.3 m grading 299 g/t  $\text{Sc}_2\text{O}_3$  and 21.69 m grading 271 g/t  $\text{Sc}_2\text{O}_3$  including 9.16 m grading 299 g/t  $\text{Sc}_2\text{O}_3$ .

Importantly, the true thickness of the scandium mineralized zone is estimated to be up to 110 m and is open at depth and along strike.

The company sees major positive factors with the project, including:

- The resource is exposed at the surface, so it is amenable to a low-cost open-pit operation.
- The deposit is high grade relative to its peers and could reduce the CapEx to develop the mine and the OpEx to run the mine.
- The preliminary metallurgy showed strong scandium mineral recoveries.
- The project is in the mining-friendly jurisdiction of Quebec and supported by Quebec's recently launched \$90 million "critical minerals" development fund and Plan Nord, Quebec's economic development strategy to develop natural resource extraction in northern Quebec.
- The deposit is located in close proximity to the 9 aluminum smelters and one alumina refinery in Quebec.

### **Final Comment**

Look for the definition drill results, 43-101 Resource Report, and the PEA to potentially lift the stock price higher this year.

---

# Scandium International CEO on making end-user ready products

March 21, 2018 – “Scandium is different. We can make products that go directly to the end-user. There is a shorter supply chain and we are much more in control of that.” states George Putnam, CEO, President and Director of Scandium International Mining Corp. (TSX: SCY), in an interview with InvestorIntel’s Peter Clausi.

**Peter Clausi:** I have not talked to you since May. We were chatting before this and I mentioned that scandium was a rare earth. You told me I am wrong. Tell me about that.

**George Putnam:** Scandium is actually a light transition metal. The difference that we see is that if you are in the rare earth business you are going to make a concentrate and you are going to need a refining capability downstream to actually get your product to the end-user. Scandium is different. We can make products that go directly to the end-user. There is a shorter supply chain and we are much more in control of that.

**Peter Clausi:** Your CAPEX must be less than.

**George Putnam:** The rare earth guys tend not to own the refinery that is downstream of them. I would say it is simpler and it is more direct. That is the biggest different for scandium. It is a plus.

**Peter Clausi:** Right. When we talked in May you were looking at signing a couple of letters of intent and moving the projects along. You have since done that. Tell me about that.

**George Putnam:** Right. We are now focused on finding customers and signing sales contracts. This is what the first start of a sales contract looks like, a letter of intent to do some study and do some work on efficacy of scandium and understand what that value is to customers. That is when we know whether they are a true customer or not. It is important to note that the LOIs represent folks we are working with who are happy to have a public disclosure. We have got two kinds of programs underway. There is another set of programs that is very secretive because the customers, the potential customers, want it to be. We can tell you what we can tell you about and we will work with either type.

**Peter Clausi:** Given what scandium does, one would expect the military and aerospace to be involved in some way. Scandium makes metals lighter with more strength basically.

**George Putnam:** Right.

**Peter Clausi:** You were showing me some anodized pieces yesterday.

**George Putnam:** Yes. We think there is a real finish advantage, an anodization finish advantage to aluminum-scandium alloys. That may be the key element that brings some customers to the table. Not strength, not other properties, anodization. That finish is so important.

**Peter Clausi:** It would then resist oxidization or what we like to call rust.

**George Putnam:** Right. It would be more durable and it would be better looking for a very long time.

**Peter Clausi:** Right. You have a property in Finland. You have done some work on, but the majority of your scandium would be coming out of your property in Australia...to access the complete interview, [click here](#)

Disclaimer: Scandium International Mining Corp. is an advertorial member of InvestorIntel Corp.