

High Purity, High Grade Manganese Potential for Maxtech

It's official! Today [Maxtech Ventures Inc.](#) (CSE: MVT) ("Maxtech") has confirmed that [it has signed](#) a strategic co-operation agreement with Brazil's Maringá Ferro-Liga S.A. This agreement brings Maxtech closer to its goal of becoming a diversified mining company with a bend towards high grade manganese.

90% of manganese is used in the manufacture of steel, the remaining 10% is used in other chemical and agricultural applications. And it is here where Maxtech is expected to focus its energies. The company aspires to build a vertical mining operation, selling its manganese into high growth markets focused on renewable energy and crop fertility.

As regards renewable energy, high grade, high purity manganese is used as a primary cathode material in lithium ion manganese batteries (NCM batteries). The lithium-nickel-cobalt manganese (NCM) formulation batteries is the next generation of battery cathodes after the lithium-nickel-cobalt-aluminum design (NCA) battery, and offers superior efficiencies, high power and low cost.

As such, we note battery and automotive manufacturing giants, developing their own NMC supplies and formulations. Already 3M has patented its own NMC battery which is used by LG Chem in the Chevy Volt and Nissan Leaf. BMW has also selected the NMC battery, while General Electric has selected a lithium-manganese battery. Tesla meanwhile has signed a five year exclusive agreement with prominent NMC battery researcher, Dr. Jeff Dahn to help reduce the costs of its batteries.

If we consider manganese for crop fertility, its importance

cannot be underestimated. The micro-nutrient market is poised to grow at 8% CAGR to \$7.7bn by 2020. Importantly, manganese cannot be substituted as it is needed chemically for photosynthesis to occur. In a world characterised by a burgeoning population and a decline of arable land, food scarcity is becoming of increasing concern. Experiments conducted in Brazil shows that the addition of a small amount of manganese can increase crop yield by around 30%, and because of this, high purity, high grade manganese like Maxtech offers, could fetch as much as 25-30% premium in the market.

Maxtech has secured in excess of 50,000 ha of potential high-grade manganese claims and has an agreement to jointly explore manganese-specific projects with Brazil's Maringá Ferro-Liga S.A. Brazil is expected to increase its demand for high purity manganese by 4.8% CAGR, translating to an additional demand of 227,000 tonnes for use in fertilizers. As a potential local provider, with a local partner, it stands to reason that Maxtech should benefit from this demand.