

MP Materials is riding the rare earths tonnes per year train

written by | July 27, 2022

[MP Materials Corp.](#) (NYSE: MP) emerged from the Chapter 11 of MolyCorp and is the only producing rare earths mine in the USA. At one time the in the 1990s it was producing upwards of 40% of the world's rare earths. MP has a current market cap of US\$5.6 billion, which puts it slightly ahead of [Lynas Rare Earths Ltd.](#) (ASX: LYC), which is the biggest producer of separated rare earths outside of China. Combined their market caps exceed the annual revenue of separated rare earths globally.

MP has made some interesting news this year. Q1 revenues of US\$166.3 million which is 50% of their revenues from all of 2021. This is due to the high pricing of Neodymium (Nd) and Praseodymium (Pr) in Q1 of this year. Based on Roskill's report of 2015, MP's content of NdPr is 16.3% of the total volume. This may vary a little but it is likely to be the two elements that set the pricing for their concentrate as the balance of the materials are of little value. Looking at a basket price, NdPr will account for 93-94% of the total value, assuming all elements were sold which is doubtful as the Chinese have lots of the remaining elements, especially Cerium and Lanthanum. Gross margins in Q1 2022 were 88%, up from 81% in 2021, but I expect this will fall for the balance of the year as NdPr prices are now 20-25% lower than Q1 peaks. Either way, MP is poised to improve its Net Income to US\$168.4 million. MP has done a good job in their sales price to China for their concentrate. I calculate they are getting somewhere in the range of 40-50% of market value, which is high versus traditional pricing for

concentrate which I have seen at 25-30%.

In April a definitive [supply agreement](#) was announced between MP Materials and GM to supply rare earth alloy and magnets for GM's EV program. This is significant as it would restore NdPr rare earth metal, alloy and magnet production. The USA does produce Samarium Cobalt magnets but these are typically used in military applications. There is no indication on what technology will be used to produce the metal, which in China is a messy process. Planned capacity is 1,000 metric tonnes of NdFeB magnets. This will require 280-300 tonnes of NdPr. The previous Molycorp plant was designed to produce 20,000 tonnes of REO of which NdPr would account for over 3,000 tonnes.

This does leave the question as to where MP will sell the remaining NdPr. Europe has one metal/alloy producer and one magnet producer, and Japan is the other logical market, but Lynas owns 80% of the Japanese market and has a shorter supply line. What is left is China. Also to supply other US car producers MP would have to expand capacity, and it is not clear what limits or exclusivity GM has with MP Materials.

The challenge is that the original plant was designed as a single train of 20,000 tonnes per year. Nowhere in China is there a single train much larger than 5,000 tonnes per year (TPY). Lynas built four 5,500 TPY trains. This allows flexibility should there be issues like reduced demand during COVID where one or two trains can be shutdown to allow matching with demand, or if one train has operational issues. I would expect that MP, with the input from [Shenghe Resources](#) (a related party of MP whose ultimate parent is Shenghe Resources Holding Co., Ltd., a rare earth company listed on the Shanghai Stock Exchange, and as of its [March 31, 2022 quarterly report](#), a buyer of MP's rare earth concentrate that accounted for more than 90% of MP's product sales), will reconfigure the plant to be more

flexible. Also MP, like anyone else, will not go from zero to 20,000 TPY overnight. There will be a qualification process and time to acquire accounts so multiple trains makes sense as one penetrates a market as they can be brought on as the business grows.

The other news was that the US Department of Defense (DOD) granted MP \$35 million to build a heavy rare earths at Mountain Pass. I find this interesting as Mt. Pass has 98.6% of its content in light rare earths. This would mean at a run rate of 20,000 TPY the total output of the heavy rare earths would be 280 TPY. The only real valuable heavy rare earths are Terbium (Tb) and Dysprosium (Dy) which would total about 10 TPY combined. At today's pricing, which for Tb is high, in my opinion, this plant would generate revenues of \$10-11 million per year.

Overall MP has been doing well – selling concentrate to China. What will happen to profits as they move downstream only time will tell.

Rising demand benefits the only integrated producer of bonded rare earth permanent magnets outside of China

written by InvestorNews | July 27, 2022

[Neo Performance Materials Inc.](#) (TSX: NE0) (Neo) is an almost

totally integrated Western (Canadian) company that processes mixed rare earth concentrates to produce separated individual and specifically blended rare earths to produce rare earth metals, alloys, and “bonded” rare earth permanent magnets. What makes Neo special is that they are the only company in the world that operates dual supply chains inside and outside of China for REE separation and REE advanced materials and end-use products. Neo owns the only operating commercial rare earth separation facility outside of Asia. It’s in Europe (Estonia facility) and it has sales and production centers spread across [10 countries](#) globally.

All of the above makes Neo unique as a Western producer of rare earth materials as well as end-use products, which are critical in the green energy and EV revolution.

Award winning facilities

As announced on [February 22](#) and [March 28, 2022](#), Neo won awards for two of its key factories, the first in Thailand and the second in Estonia. The awards were Gold Medals awarded by EcoVadis for 2021 sustainability performance.

The second announcement [stated](#): “This places Neo’s Silmet facility in Sillamäe, Estonia in the top five percent of all facilities around the world reporting to EcoVadis for its sustainability programs in 2022... The Silmet facility processes mixed rare earth feedstock into a variety of high-purity rare earth specialty materials, including neodymium-praseodymium (NdPr) oxide, which is used by Neo’s Magnequench business unit to produce neodymium-iron-boron (NdFeB) magnetic materials and magnets for automotive, factory automation, home appliance, circulation pump, and other applications.”

This impressive recognition is also very well timed given the surging demand for NdFeB magnets used in many EV motors. Global

electric car sales finished March 2022 with [851,000](#) sales for the month (the second best month ever), 60% higher YoY, with market share of 15%.

The global OEM automotive industry today uses mainly sintered NdFeB rare earth permanent magnets, but the use of bonded type NdFeB in this application is growing rapidly. Neo has pioneered the use of bonded NdFeB magnets in automotive applications with Japanese customer/partner, Honda, and this use is expanding. Neo has agreed with European magnet customers to expand its capacity there and to add sintered NdFeB magnets to its product lines. The EU has encouraged and is financially supportive of this move by Neo.

Prices for rare earths materials and end-user products used in the green economy have been surging the past year, due to demand exceeding supply, and this is reflected in Neo's latest financial results. This supply deficit looks to be baked in for at least the next decade due to the growth of the green economy.

Q4 2021 and Full-Year financial results highlights (in USD)

As [reported](#) on March 10, 2022, Neo achieved the following outstanding financial results:

- “Q4 2021 revenue of \$153.4 million higher by 39.0% YoY; full-year 2021 revenue of \$539.3 million was higher by 55.5% YoY.
- Volumes in the fourth quarter of 3,311 tonnes; full-year volumes expanded by 20.2%.
- Operating income of \$12.7 million in the quarter; \$59.9 million for the year.
- Adjusted Net Income for the quarter of \$16.1 million, or \$0.39 per share, with full-year Adjusted Net Income of \$55.0 million, or \$1.42 per share.
- Adjusted EBITDA for the quarter of \$19.7 million; 2021

Adjusted EBITDA of \$81.9 million was 183.7% higher YoY.

- Cash balance of \$89.0 million after raising \$38.0 million from equity offering and distributing \$12.8 million in dividends to shareholders.”

As shown above, full-year 2021 revenue was 55.5% higher YoY, based on volume growth of 20.2%. Clearly higher-end product prices helped support the stellar results. Neo sums it up well and the general direction the business is heading by stating:

“Neo reported strong year-over-year (YoY) gains in revenue, volumes, operating income, Adjusted EBITDA, and profitability in the year ended December 31, 2021, driven largely by increased demand for products across all three of its operating divisions, higher selling prices for rare earth materials, and continuing progress in several of the Company’s strategic initiatives.”

I did warn investors that this was what we were expecting from Neo with our December 22, 2021 article: [“Neo Performance Materials looks to expand capacity as it rides the tailwind of growing rare earth permanent magnet demand.”](#)

Neo Performance Materials is one of a few Western companies able to process rare earths and make magnets



Source: [Neo Performance Materials website](#)

Closing remarks

Neo Performance Materials occupies a rare and critical position in the Western supply chain to produce rare earths specialty products. Demand for powerful rare earth type magnets used in many consumer goods as well as in wind turbines and EVs is expected to surge this decade.

Neo Performance Materials trades on a market cap of [C\\$546 million](#) and a current PE of [17.6](#). 2022 PE is forecast at [7.82](#).

The next catalyst for Neo will be the Q1, 2022 earning results due out before the market opens on [May 13, 2022](#). Stay tuned.

The U.S. Rare Earths Supply Chain Challenge – Part 4

written by InvestorNews | July 27, 2022

In an ongoing series on how to solve the U.S. rare earths supply chain challenge, 3 Sr Editors from InvestorIntel and well-known Rare Earths Consultants debate on what are the skills needed to create a rare earths supply chain in North America.

Participants include Tracy Weslosky, InvestorIntel's Sr Editor, Publisher and Rare Earths Consultant; Jack Lifton, InvestorIntel's Sr Editor, Host and Rare Earths Advisor; and Alastair Neill, InvestorIntel's Sr Editor and Rare Earths Expert.

Alastair started by saying that there is no facility in the US to convert rare earth alloys to magnets. Jack continued by saying that "the US Department of Defence doesn't want any rare earth permanent magnet from China. The only thing they will accept from China is the raw material which the Chinese do not export. They want extraction, separation, metal making and alloy and magnet making done either in the US or in NATO or SEATO ally countries."

Alastair concluded the discussion by saying, "To achieve this

goal it is going to take a couple of different skill sets. It is one set of skills to get something out of the ground and turn it into a separated oxide. That is completely different from metalization and alloy production and then getting into assembly. So you will need three special types of industries that need to be managed. That is where you have to have someone with a vision to be able to bring that type of team together to be able to manage such a diverse set of skills.”

- To access the complete discussion, [click here](#)
 - To access Part 1 of this rare earths series, [click here](#)
 - To access Part 2 of this rare earths series, [click here](#)
 - To access Part 3 of this rare earths series, [click here](#)
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The U.S. Rare Earths Supply Chain Challenge – Part 3

written by InvestorNews | July 27, 2022

In an ongoing series on how to solve the U.S. rare earths supply chain challenge, 3 Sr Editors from InvestorIntel and well-known Rare Earths Consultants begin the debate on what are the challenges in creating a rare earths supply chain in North America.

Participants include Tracy Weslosky, InvestorIntel’s Sr Editor, Publisher and Rare Earths Consultant; Jack Lifton, InvestorIntel’s Sr Editor, Host and Rare Earths Advisor; and Alastair Neill, InvestorIntel’s Sr Editor and Rare Earths Expert.

Jack starts the debate with: “When you extract rare earths from ore you get a mixture of rare earths and other things that were in the ore that came out in the extract which is usually an acid. The first thing that you have to do is make a pregnant leach solution. What that means is that you put the metal values in the minerals into the solution. Then you separate out those things that are not rare earths or rare earths that you don’t really want for example cerium. Now that solution which is normally a hydrochloric acid extract goes into a separation system which in the US has only been a solvent extraction for light rare earths.”

Alastair added “There are other companies looking at novel ways to separate rare earths in an environmentally friendly process to tackle this and compete with the Chinese. The benchmark is the Chinese separation cost which is about \$2.50 to \$3 a kilogram.”

The experts panel also discussed some of the major problems in the North American rare earths supply chain. The panel discussed that the problem in the North American rare earths space is the absence of rare earth separation facility and metallization capability in North America.

- To access the complete discussion, [click here](#)
- To access Part 1 of this rare earths series, [click here](#)
- To access Part 2 of this rare earths series, [click here](#)