

HALLGARTEN & COMPANY

Coverage Update

Christopher Ecclestone
ceccestone@hallgartenco.com

MP Materials

(NYSE: MP)

Strategy: SHORT

Price (USD)	\$33.29			
12-Month Target Price (USD)	\$22.00			
Upside to Target	-34%			
High-low (12 mth)	\$10.80 - \$51.77			
Market Cap (USD mn)	6,429.8			
Shares O/S (millions)	193.1			
	FY20	FY21e	FY22e	FY23e
Consensus EPS		\$0.58	\$0.76	n/a
Hallgarten EPS (USD)		\$0.42	\$0.46	\$0.55
Actual EPS (USD) pro-forma	-0.15			
P/E	n/a	79.6	71.6	60.5

MP Materials

Riding the Wave of Higher REE Prices

- + Higher Rare Earths prices since late 2020 have boosted sales income at MP and driven a sharply higher bottom line in the first half of 2021
- + Cash-on-hand of nearly \$1.2bn gives the company a massive war chest for a hostile acquisition (or can afford to make a lot of mistakes in implementing Stages II & III)
- + The Biden Administration has shown a commitment towards carrying on the Trump approach to reviving a Rare Earths supply chain independent of China
- + MP hopes to morph Mountain Pass from being a mere quarry supplying ore to China, and attempt to produce value-added Rare Earth products
- + Progress is being made in the construction of the Stage II (value-added) at Mountain Pass
- ✗ Appearance of Energy Fuels (UUUU) as a monazite sands processor removes MP's novelty value as sole US REE producer
- ✗ Those with long memories in the Rare Earth space will remember the fate of Molycorp at the start of the decade which collapsed due to various limitations
- ✗ Rare Earth prices are still at a mere fraction of what they were at the start of the decade
- ✗ Shifting to a model of upgrading ore and then selling to US (or non-Chinese) buyers involves replacing Shenghe as the (almost) sole offtaker of MP's current sales of REE ore

Wild Ride

The price progression of MP Materials since listing has been a wild ride indeed. From the mid-teens it soared to over \$50 and then rather rapidly gave up the heights due to a combination of insider selling and shorters targeting the name. Shorters had a field day as the stock was clearly overvalued, as we stated in our last commentary on the company.

The current Short Interest in the stock is around 15.5mn shares and has been rising of late. The Days to Cover ratio is 4.9. The value of the Short interest to cover is \$581mn. This represents 13.42% of the float.

Certainly the rise in Rare Earth prices from the second half of 2020 backfilled and underpinned, slightly, what was a ritzy valuation but still the stock had gotten way ahead of itself on valuation with it being valued by the market as if it had achieved its Phase III goals when, in fact, it had only completed its Phase I targets. But as we all well know REE investors constantly display the adage of the triumph of hope over experience.

In this review we shall look at the latest earnings, the progress towards meeting Stage II goals and the arrival of new (real) challengers on the landscape.

Left at the Altar

In our last research piece on MP we mused upon the possible M&A moves by the company. The rise in the stock price almost “put a gun against the head” of management to use a massively overvalued stock price to repeat history with a “logical” transaction with, almost, the same cast of characters.

For MP to achieve its vaunted Stage III it needs to bolt on value-added processing of Rare Earths. With China (and to a much lesser extent, Japan) dominating the midstream and downstream of the magnet supply chain the only target that gives MP a slamdunk is Neo Performance Materials (TSX:NEO). Such a deal would be “cheap” particularly compared to what Molycorp paid for a relatively smaller Neo Materials (which did not include Silmet back then). Such a deal would also be within MP’s financial scope without a debt blow-out or big share issuance.

A move on Neo would also look to be potentially earnings accretive for MP, considering that Neo’s earnings were battered by the virus crisis and relatively slack markets for Rare Earth magnets (until late last year) but have now turned around dramatically.

For the three months ended 30th of June 2021, consolidated revenue was US\$135.1mn compared to \$67.7mn in 2Q20, an increase YoY of \$67.4 million or 99.5%. Neo reported a net income of US\$13mn, or \$0.34 per share. Adjusted Net Income totaled \$14.1mn, or \$0.37 per share. Volumes in the quarter of 4,063 tonnes improved by 59.6% YoY.



As at the 30th of June 2021, Neo had cash and cash equivalents of US\$59.6mn plus restricted cash of \$4.2mn.

We have long liked the potential of Neo Performance and hence its position in our Model Resources Portfolio, particularly due to it being a key chess piece in the global REE “game”. But we have also lashed it for being essentially trapped in the “grip of the Panda” and at the beck and call of its Chinese raw material suppliers (who would also long-term aim to eliminate it).

Neo’s alliance with Energy Fuels frankly threatens MP’s claim to be the only producer of Rare Earths in the US. Thus a move by MP Materials on Neo makes sense as it effectively knocks Energy Fuels out of the game (until it can find a replacement for Neo).

The magnet business of Neo, called Magnequench, has been dramatically better in 2021. For the first six months of 2021, revenue in the Magnequench segment was US\$132.8mn, compared to \$68.8 million in the six months ended 30th of June 2020 representing an increase of \$64mn or 93%. Volumes for the six months increased to 3,234 tonnes, compared to 2,295 tonnes in the same period in 2020; an increase of 40.9%. This business in particular would be a key bolt-on to satisfy MP’s Stage III ambitions.

With MP having a massive war chest and Neo playing the blushing maiden, the icebreaker may be an unsolicited and, dare we say, hostile bid from MP.

Production & Earnings

Since the second half of 2020, MP Materials has shown strong results. The table on the following page shows the progression of revenues/earnings in recent years and our projections going forward.

In the second quarter of FY21, MP’s revenues more than doubled YoY to \$73.1mn, these were up 22% sequentially. The company trumpeted strong sales volumes in-line with record production levels, though it seems for the moment that China’s Shenghe will take all it can from Mountain Pass. The more cynical might note that the more MP mines now the less resource/reserve it will have for the future. Perish the thought.

The sales numbers were not exactly eye-popping as the first half of FY20 and FY20 sales similar volumes of REE ore sold.

The real motor for the improved bottom line though was higher prices, in particular the company cited growing NdPr demand driving a 137% YoY increase in realized price.

We must take our hats off to the financial performance where the adjusted EBITDA was up nearly sixfold YoY to \$46.4mn and up 41% sequentially.

We do not see higher volumes or higher revenues in the second half of FY21. We posit a slightly higher bottom line in FY22 but that could be made undone if China stamps on REO prices to reassert control of the markets. MP will not be immune because with every advance with Stage II, the commitment of Shenghe to the ongoing prosperity of MP grows weaker. Estimates for FY23 lie in the laps of the gods as insufficient information is given on how the Stage II output will be sold/marketed and to whom.

MPM Financials

US\$ mns

	FY18	1H19	2H19	FY19	1Q20	2Q20	2H20	FY20	1Q21	2Q21	FY21e	FY22e
Revenues	67.418	25.447	47.964	73.411	20.719	30.39	83.20	134.31	59.97	73.12	270.09	284.00
Operating costs	76.302	36.589	44.442	81.031	18.073	25.02	20.71	63.80	38.26	40.65	164.00	183.00
Operating Result	-8.884	-11.142	3.522	-7.62	2.646	5.371	62.49	70.51	21.71	32.47	106.09	101.00
Shenghe settlement						66.62		66.62				
Interest expense	5.42	1.846	1.566	3.412	1.154	1.07	3.14	5.01	0.80	2.64	2.30	-1.30
Other expense (Income)	-0.839	-2.385	-1.893	-4.278	0.082	0.16	0.49	0.25	0.06	3.50	4.20	2.80
	-13.465	-10.603	3.849	-6.754	1.925	-62.16	58.86	-39.461	20.61	33.33	99.59	99.50
Income tax expense	0.001	0.001	0.00	0.001	0.00	0.34	-17.97	-17.64	4.49	6.16	18.92	8.40
	-13.466	-10.604	3.849	-6.755	1.925	-62.50	76.83	-21.83	16.12	27.17	80.67	91.10
Fully Diluted					66.556	68.095		149.308	168.922	193.145	193.00	196.00
EPS					0.029	-0.92		-0.15	0.10	0.14	0.42	0.46
REO Sales (in tonnes)	13,378	8,408	18,413	26,821	8,321	10,297	19,749	38,367	9,793	9,877	38,000	41,000
Realised price REO per tonne	\$3,382	\$2,998	~\$2600	\$2,793	\$2,544	\$3,093		\$3,311	\$5,891	\$7,343	\$6,700	\$6,500

Rare Earth Pricing

Rare Earth prices have come to the party over the last year and given a mighty tailwind to the stock's market cap. It should be remembered that Rare Earth prices have had a tendency to disappoint in the last 10 years and are entirely at the discretion of the Chinese.

As the table below shows NdPr has been the outperformer of the Lanthanide group. The drag on the performance are the components that Mountain Pass has in most abundance, Lanthanum, Cerium and Europium. This should not be ignored because currently MP gets paid by the Chinese for all it produces and needs not concern itself what to do with the Cerium but its strategy from vending this component in particular (when Stage II becomes functional) has not been articulated.

Product	Aug/18/2021	YTD %	YOY %	Since 1/2017
Rare earth carbonate	\$7.63	119.01%	151.46%	133.40%
Lanthanum oxide	\$1.39	-7.18%	-9.62%	-29.34%
Cerium oxide	\$1.34	-12.52%	-12.64%	-26.23%
Neodymium oxide	\$95.51	22.24%	108.43%	153.71%
Praseodymium oxide	\$99.36	78.92%	132.23%	110.34%
Terbium oxide	\$1,286.30	15.81%	96.06%	207.82%
Dysprosium oxide	\$409.00	37.61%	55.09%	134.49%
Europium oxide	\$29.65	-7.82%	-7.64%	-48.35%
Yttrium oxide	\$5.39	71.68%	83.51%	72.53%
Gadolinium oxide	\$39.05	43.21%	60.72%	286.58%
Erbium oxide	\$31.19	21.93%	29.93%	25.51%
Samarium oxide	\$2.31	31.16%	29.54%	27.18%
Neodymium-Praseodymium Oxide	\$94.59	51.51%	124.55%	151.25%
Lanthanum metal	\$4.31	-1.21%	4.23%	0.60%
Praseodymium metal	\$129.40	49.50%	41.68%	93.54%
Neodymium metal	\$119.00	24.78%	103.29%	142.59%
Neodymium-Praseodymium Alloy	\$118.23	51.32%	118.74%	141.02%
Mischmetal (La-Ce)	\$4.54	5.94%	6.15%	7.81%
DyFe alloy	\$403.60	37.22%	54.88%	122.32%
Holmium Oxide	\$144.80	56.23%	132.41%	218.80%
Exchange rate US\$ 1 = RMB	¥6.49	0.55%	7.00%	5.65%
E & OE	https://giti.sg			

Source: Rare Earth Observer

At MP, some surprisingly ritzy REE price rise projections predicated the prospectus's bottom line projections (which presumably) underpinned the valuation. In our humble view the latest price rises are due to Chinese price manipulation rather than real demand increases. Those that live by fleeting REE price rises, can also die by them. At this point the shades of Molycorp rattle their chains...

In our view we would expect the Chinese to, during what remains of this year, attempt a spoiler of the

external evolution of the Rare Earth industry by pulling back prices and thereby removing the heat from under many of the wannabes. Investors should not be surprised to see REO prices manipulated as much as 20% lower to take the wind out of the sails of putative producers.

Mountain Pass Evolution

Stage I – Mission Accomplished

Utilizing technical assistance from Shenghe and MPMO’s own engineers, changes were implemented in the milling, flotation and tailings management processes. Management also implemented a new, reagent scheme that improved mineral recovery and enabled operation at lower temperatures. These changes enhanced flotation reliability, throughput, recovery and production as well as tailings facility reliability and throughput at significantly lower cost per processed ton.

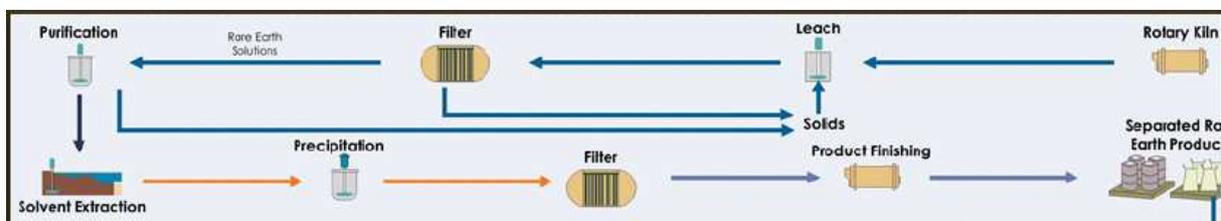
The prospectus claimed that the company has consistently achieved “greater than 3.1x” the production volume of Rare Earth concentrate versus Molycorp’s performance using the same capital equipment. They ascribe this to Molycorp’s insufficient concentrate production driving downtime throughout the facility. The new approach supposedly has produced approximately 94% up time.

Stage II – The Rubber Hits the Road... Slowly

The second stage II of the optimization plan is focused on advancing from concentrate production to the separation of individual REOs. This is undoubtedly the part where there can be “many a slip twixt cup and lip”.

The project is in motion already with engineering, procurement, preliminary construction, and other recommissioning activities underway. Management claims that this stage involves upgrades and enhancements to the existing facility process flow to produce separated Rare Earth oxides “more reliably... at significantly lower cost”

The Stage II optimization plan includes the reintroduction a roasting circuit, reorienting the plant process flow, increasing product finishing capacity, improving wastewater management, and making other improvements to materials handling and storage.



Roasting of bastnäsite concentrate was pioneered at Mountain Pass in 1966 and continued to be practiced until 2008. Under the prior owner’s operation, this practice was discontinued in order to maximize production of Cerium. The reintroduction of the oxidizing roasting circuit could allow

subsequent stages of the production process to occur at lower temperatures, and with significantly lower volumes of materials and reagents, supporting lower operating and maintenance costs and higher uptime. Management expects that this will allow it to be a “low-cost producer” of NdPr (which represents a majority of the value contained in the ore).

The company argues that one of the unique attributes of bastnäsite is the ability to convert the trivalent form of Cerium in the mixed Rare Earth concentrate to tetravalent Cerium, which has a low propensity to dissolve, enabling Cerium to be separated expediently along with other insoluble gangue elements, without selective extraction.

Rightly, they claim that the removal of low-value Cerium early in the separations process allows for up to a 40% reduction in the mass of material to be separated and finished, thus significantly reducing the energy, reagents, and wastewater required to produce the higher-value NdPr.

The company claims that its Stage II optimization plan will materially increase the recovery of NdPr from concentrate, increase NdPr production and lower the cost of production, in each case, as compared to the prior owner’s operations.



The currently idled natural gas-powered combined heat and power (CHP) facility includes two 15MW natural gas-fired turbines (that are each capable of producing up to 12MW at the complex’s altitude and subject to weather conditions) to produce electricity and steam.



Salt Crystallizer Foundation



Concentrate Dryer



Crystallizer Vapor Effect



Concentrate Filter Press Structure

Management plans to restart the CHP facility in 2021, producing low-cost electricity and steam while enhancing the reliability and redundancy of utility supplies. The investment in the CHP and required water pre-treatment asset restart is at a low-cost of ~\$7mn and should generate annualized run-rate savings. When fully operational management claims that its cost of electricity will be approximately half the cost of electricity from the grid per MW consumed, not including the value of the steam produced.

The Mountain Pass site also is equipped with the aforementioned chlor-alkali facility to manufacture reagents used in Rare Earth separation and processing. Following completion of the Stage II optimization plan, management intends to bring this facility back on-line. They claim that this would further integrate operations, yield additional cost savings and supply redundancy, while enhancing the project's sustainability profile. The restart of the chlor-alkali facility is currently anticipated in 2023, subject to the timing of a capital plan, operational preparations and any permitting or other regulatory obligations. Reagents produced from the chlor-alkali facility would be used in the leach, solvent extraction, brine neutralization and finishing processes.

MPMO holds the necessary permits to operate the facility, including conditional use and minor use permits from San Bernardino County, California, and an associated environmental impact report, all of which were issued in 2004, which allow continued operation of the Mountain Pass facility through 2042. It also holds numerous other permits and approvals, including permits to operate from the Lahontan Regional Water Quality Control Board for groundwater treatment. They warn though that they may have to obtain new permits, including, air permits issued by the Mojave Desert Air Quality Management District and construction and occupancy permits issued by San Bernardino County to complete the Stage II optimization project.

Then there is the chatter that Stage II start-up at Mountain Pass is delayed further. We recall that it was first supposed to be the beginning of this year and then, for the longest time, the beginning of next year. Now it could likely be later in 2022, although MP is still saying they'll hit their projected run-rate by the end of next year (e.g. ~20k tpa ctd, after dropping out the Ce via oxide precipitation, with didymium oxide at 6,075 ctd tpa).

Stage III – Blue Skies?

This phase is what management calls the “Downstream Expansion Opportunity”. For those with longer memories this strategy used to be called “buying Magnequench, Silmet and Neo Materials”. The old Molycorp thought it could buy this element of the value chain (and not reinvent the wheel) and it was not wrong in this. Silmet was certainly far from being modern, or even efficient, but it worked. Neo Materials was a very strategic chess piece indeed (in fact it was most of the non-Chinese half of the chess board once Solvay/Rhodia-STER was out of the equation). So how, without going shopping for these businesses (which it can pick up in one fell swoop by buying Neo Performance) does it make this jump to control the “mine to magnets” without reminding investors that we have “been there, done that”?

The company claims that it wants to facilitate the “restoration of the full magnetics supply chain to the U.S.”. It hopes it will then be in a position to integrate further downstream into the business of upgrading NdPr into metal alloys and magnets, ultimately expanding MP Materials’ presence as a global source for Rare Earth magnetics. Hmmmm.... Noble words, indeed.

This downstream integration would be completed either via building a captive magnet production operation or investing in this capability via an acquisition, partnership or joint venture.

One needs to follow the trail of bread crumbs to try and work out which way the corporate thought process is going currently. In their June quarter earnings call, the CEO said they would be identifying their selected Stage III (e.g. metal/alloy and magnet making) site by the end of this year. Based upon the hirings the company has made so far (e.g. two ex-Veloxint PhD’s and more recently the Technical Manager at LCM), one might surmise that they will be installing, at least initially, a small electrolysis facility. Given the environmental and likely permitting issues with RE fluorides, one might posit that this facility will not be in California.

Hares & Tortoises

It goes without saying that the “resurgent” Rare Earths space is largely populated by do-nothings as production is the farthest thing from their minds. But from this heaving mass a few real actors are emerging.

Most prominent of these are MP (though exclusively supplying the Chinese is scarcely helping the West’s resource independence), Energy Fuels (UUUU & TSX: EFR) in league with Chemours (NYSE:CC) with downstream processing in the hands of Neo Performance Materials (TSX: NEO) and finally Vital Metals (reputedly in alliance with REEtech) producing from Nechalacho in the NorthWest Territories. In the short-term the plan is to send output to a provincially funded facility in Saskatoon.

Energy Fuels is the one nipping at the heels of MP and arguably the first to produce a non-Chinese end-product from the US. Its modus operandi is to ship RE Carbonate that it processes from natural monazite sand ore mined in the US state of Georgia by Chemours (NYSE: CC) for both the Rare Earth elements and naturally occurring uranium that the monazite contains.

In July, Energy Fuels and Neo have created the germ of a United States-to-Europe REE supply chain/vector when the first container, with 20 tonnes of concentrate, was shipped from Energy Fuels’ White Mesa Mill in Utah to Neo’s Rare Earth separation facility at Silmet in Estonia. This is what Molycorp had hoped to do a decade ago before it stumbled. In this case the starting ambitions are more humble but the goal is to send an expected 15 containers of mixed Rare Earth carbonate to Silmet. Neo have agreed to buy 840 tonnes of contained total REO from Energy Fuels and additional quantities as they become available. EFR have published guidance for 2021 was 2,000 -3,000 of mixed RE carbonate containing 1,000-1,600 tonnes of TREO.

Energy Fuels has plans in the works to build a separation plant at White Mesa within the next 2-3 years,

and possibly adding metals, alloys, and Rare Earth permanent magnets manufacturing capabilities. As a first step, the company has hired the French firm Carester SAS to produce a scoping study including capital and operating costs for a full Rare Earth separations capability at the White Mesa Mill. Where this leaves NEO is unclear.

As for Vital they are definitely producing ore with mining at Nechalacho having commenced in June and ore being crushed and sorted on site. It will be stockpiled at the mine and then shipped to Saskatoon in Saskatchewan, where Vital is developing a plant to process it into a mixed RE carbonate. The plant is located next to the site of the Saskatchewan Research Council's proposed Rare Earth separation plant. The first shipment is expected this year.

In February of 2021, Vital signed a five-year offtake agreement with Norwegian Rare Earth separation project Reetec for 1,000 tpa of Rare Earth oxide, excluding Cerium, contained in a carbonate product. At the moment Vital is seemingly stockpiling its output, as neither the Saskatoon facility seems ready and REEtech's ambitions are even further behind. Still production is production and someone will eventually line up to buy it.

Risks

It is worth enumerating some of the risks that may be faced:

- A revived period of weakness in Rare Earth prices
- Financing difficulties for expansion into downstream
- Cost over-runs on processing build-out/reactivation
- The metal flow is still controlled largely by China and instead of being a partner Shenghe could very well be converted to a competitor
- Failure of demand to match rising production (i.e. build it and no-one comes)
- Competing projects could crowd the scene and draw away investors' attention from MP
- A deposit in the US more weighted to HREE comes to fruition

Last year we posited that Rare Earth prices were not likely to go down, but there was no guarantee that they are going to go up any time soon. We are now changing that view. The best way forward for the Chinese is to crack the whip over the (re)nascent REE industry outside China is to crack the price whip.

The Chinese have learnt their lesson from 2009-11 and that lesson is that the best way to maintain control and discipline market players is by aggressive predatory pricing. Thus as stated earlier we would not be surprised to see a meaningful markdown of REO prices to instil some "discipline" in the ranks of the West's REE wannabes and confound/derail their development plans.

As for financing, the company's Stage II buildout has room for error, with a very well-padded capital situation, with around \$1.2bn in cash on hand . If (the big "if") it manages to keep within budget it should be able to meet its foreseeable needs. Stage III though is another kettle of fish and an imponderable.

When reminiscing on the downfall of Molycorp, some part of its fate can be linked to tumbling Rare Earth prices (but the prices of 2009-12 were never based on reality anyway) and the other half of the blame can be apportioned to cost overruns and technical SNAFUs related to Project Phoenix, which turned out to be a flightless bird indeed. Allusions have been made to reactivating the downstream plant and adding value to the ore from Mountain Pass. MPM are arguing they are going to revive much of Molycorp's old kit but NOT have the same problems.

Shenghe and the Chinese have been "inside the tent" for the last few years and thus MP has not been subject to the well-rehearsed Chinese practice of predatory pricing.

On the demand side, if MP can get into the separation business it will have a guaranteed market in the US for its Lanthanum output, but likely be producing more Cerium than would be required by US users. Its Nd/Pr would find buyers in-country, or outside, but ultimately we would see it unable to supply a rip-roaring EV boom with magnet metals, should such a demand surge come to pass. The shortcoming of Mountain Pass as a Rare Earth mine, heavily biased to the light Rare Earths, should not be forgotten.

Finally, there is the issue of competing projects. This is a hot topic of contention. Since we last wrote on MP, the Energy Fuels monazite sands processing deal has been announced and Vital Metals have moved into production at Nechalacho. Competition has arrived...

Conclusion

Let's be frank, the precipitate rise in the stock price of MP Materials, after its listing in late 2020, made this company the most expensive quarry on the planet. Management is now urgently "backfilling" the bloated market cap with real content and value-added. Earnings are on the up, not driven by much higher volumes, but primarily thru higher achieved prices. A gift from the Chinese, for now.

The bulk of the current market cap then would appear to be the blue-sky factor linked to the Stage II developments which, while in train, will not have any revenue effect until 2023. Investors betting on the Rare Earth landscape in 2023 are ignoring the risk that prices will retreat (naturally or with a Chinese push) and what the competitive situation will be (with a number of real initiatives becoming evident from the likes of Energy Fuels, Lynas, Vital Metals and maybe one or two others that might get traction.

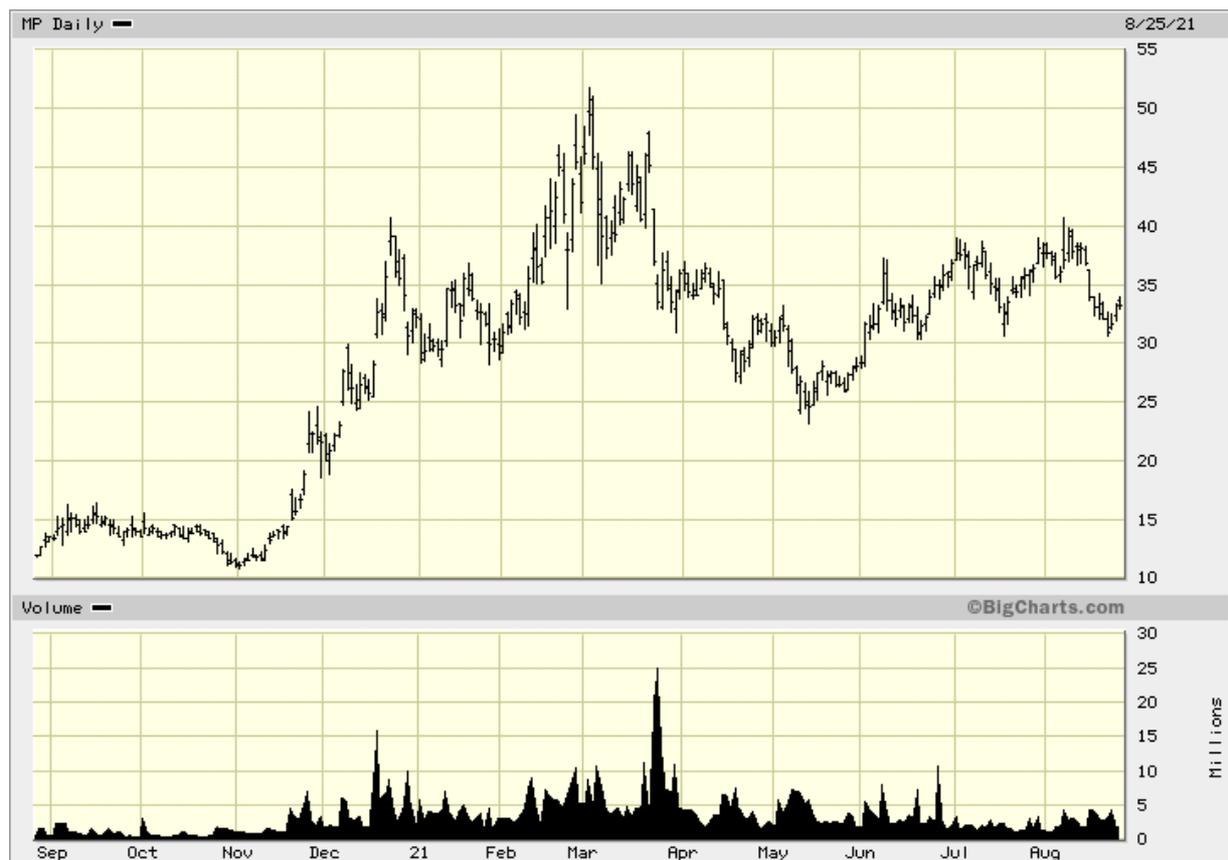
Back in 2020, the prospectus noted that none of the financial projections assumed implementation of the mooted Stage III downstream expansion strategy into the production of Rare Earth metal alloys and finished magnets. The easiest way to achieve Stage III would be an acquisition and the only dynastic marriage that makes any sense is one with Neo Performance Materials, however that group is cozying up to Energy Fuels and only a hostile bid at a high price might thwart deepening relations between

UUUU and Neo.

Achievement of Stage III, (short of buying Neo Performance) is pretty much a *sine qua non* of becoming liberated from China-dependency for both the US economy AND for MP Materials. To achieve the latter the US EV market will have to grow massively and displace China as the taker of MP's NdPr output.

We can't see earnings being dramatically better in the second half of 2021 and there is the danger that they could be the same or lower in 2022, particularly if the Chinese decide to use their pricing power as a cudgel. Prices (and thus earnings) likely to be achieved in Stage II remain an unknown, as do the likely production costs. However to earn enough to underpin the fabulous valuations the company achieved since it listed requires exceedingly bullish estimations of production, efficiency, costs and an absence of competition. We just do not see it happening. Any whiff of lower prices, instituted by the Chinese, will have investors pouring out the doors like escapees from a fire in a cinema.

Therefore we maintain our **SHORT** rating on MP Materials with a 12-month target price of USD\$22.



Important disclosures

I, Christopher Ecclestone, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Hallgarten's Equity Research rating system consists of LONG, SHORT and NEUTRAL recommendations. LONG suggests capital appreciation to our target price during the next twelve months, while SHORT suggests capital depreciation to our target price during the next twelve months. NEUTRAL denotes a stock that is not likely to provide outstanding performance in either direction during the next twelve months, or it is a stock that we do not wish to place a rating on at the present time. Information contained herein is based on sources that we believe to be reliable, but we do not guarantee their accuracy. Prices and opinions concerning the composition of market sectors included in this report reflect the judgments of this date and are subject to change without notice. This report is for information purposes only and is not intended as an offer to sell or as a solicitation to buy securities.

Hallgarten & Company or persons associated do not own securities of the securities described herein and may not make purchases or sales within one month, before or after, the publication of this report. Hallgarten policy does not permit any analyst to own shares in any company that he/she covers. Additional information is available upon request.

© 2021 Hallgarten & Company, Ltd. All rights reserved.

Reprints of Hallgarten reports are prohibited without permission.

Web access at:

Research: www.hallgartenco.com

60 Madison Ave, 6th Floor, New York, NY, 10010