ALTO CAPITAL RESEARCH

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Research Note **26th November 2013**

Magnetic Resources NL (MAU)

Speculative Buy

Price: 13.0¢

Mkt Cap: $14.1m

Summary Information:

Capital Structure:

Share Price	$0.13
Fully Paid Shares	87.8
Partly Paid Shares	20.4
Total Shares	**108.2**
Market Capitalisation	**$14.1**
Cash (Sep 2013)	$1.0m
Enterprise Value	**$13.1m**
Unlisted Options	17.0m
52 week Low/High	6.5¢ / 16.0¢

Directors:

Managing Director	George Sakalidis
Executive Director	Gavin Fletcher
Non-Exec Director	Eric Lim

Major Shareholders:

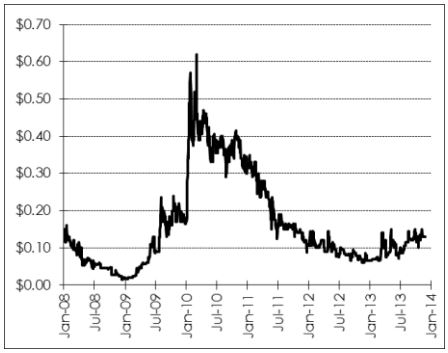
UOB Kay Han Private Ltd	7.1%
Han Siang Chan	6.6%
George Sakalidis	6.1%
Choon Koong Lim	5.6%
Ava Cartel SDN BHD	5.3%

Top 20 Shareholders hold 65% of the issued stock

Metallurgical Test Results:

	DTR	DTR	DTR	Bulk
Grind	201µ	145µ	105µ	150µ
Yield	37.2	35.3	34.0	37.2
Fe	64.3	66.9	68.0	65.8
SiO_2	7.65	4.70	3.33	6.07
Al_2O_3	1.32	1.27	1.22	1.27
P	0.008	0.004	0.003	0.005
S	0.09	0.08	0.07	0.095

Share Price:



Summary:

Magnetic Resources NL (ASX:MAU) is an Australian company, headquartered in Perth, Western Australia, focused on the exploration and development of magnetite iron ore projects in the Yilgarn Craton of Western Australia.

The company holds a number of tenements prospective for magnetite style iron ore deposits including Ragged Rock, Jubuk, Kauring, and Jitarning.

MAU's lead project is the Ragged Rock prospect near Northam, which has returned outstanding initial drilling and metallurgical test results. Ragged Rock will be the sole focus of this report.

This report contains four sections, 1) Key Ingredients for a successful Magnetite Project, 2) Work completed to date on Ragged Rock, 3) Preliminary financial assumptions, thoughts and recommendations, and 4) Reference data.

Key Points:

- The Ragged Rock Magnetite prospect located between Northam and York is shaping up as a very interesting magnetite project, with very positive drilling and metallurgical results to date.
- Results from the first 19 RC drill holes at Ragged Rock has identified a cumulative strike length of 5km of Banded Iron Formation (BIF), with the majority of drill holes intersecting high-grade, coarse grained magnetite.
- Initial DTR test work, conducted on 20+ samples, returned excellent metallurgical results at a grind size of 75 microns, resulting in the conclusion that a grind size greater than 75 microns could be used (magnetite projects globally average a grind size between 32 and 45 microns).
- A 923kg bulk sample was trialled through a pilot plant at a grind size of 150 microns, producing a concentrate grade of 65.8% Fe with SiO_2, Al_2O_3, P and S all within the "Metal Bulletins" concentrate specification ranges. A phosphorus grade of 0.005% is extremely encouraging as low P ores are keenly sort by the Chinese.
- The coarse grind size, clean concentrate, and availability of suitable infrastructure are all positive indications that the Ragged Rock prospect has the ability to become a viable magnetite project.
- We believe there are 2 initial operating scenarios available to MAU depend on the availability of capital, 1) medium scale (2mtpa of product), and 2) smaller scale (0.5mtpa of product) to prove the viability of the project.
- As with all resource projects, the ability to source the required capital to progress the project is the key risk going forward.

The Key Ingredients for a Successful Magnetite Project

Geology, Location, and Metallurgy are the three critical factors that determine the viability of magnetite projects

There are a number of factors that need to align in order for a magnetite iron ore project to have any chance of being economically successful. We have outlined what we believe to be the 3 key items below:

Geology

The geology generally should be fairly simple, as the mining side of a magnetite operation should be more akin to a quarrying operation than a highly selective mining operation. Key factors to look out for include:

The coarser grained the ore the better

- The crystallinity of the magnetite (particle size), the coarser the grain size the better, as this should reduce the grind size required to liberate the magnetite particles from the surrounding groundmass.
- The grade of the iron mineralisation within the host rock, the higher the Fe content the better as it will generally reduce the quantity of ROM ore required to be processed to produce the final product (global averages generally fall in the 25% to 35% Fe range, however can be up to +40% Fe).

High contaminant levels can kill a project before it even starts

- The level of contaminants contained in the ore, as high levels of a contaminant can render a deposit worthless.
- Dimension of the magnetite ore bodies, generally the wider and longer the better, as this will reduce the strip ratio (strip ratios typically are less than 3.0)
- Shallow weathering profile, as weathered magnetite is problematic to process, if the weathering profile is large (+25 to 50m), a large pre-strip will be required (increases the strip ratio).
- Resource should be greater than 50mt of ROM.

Location

The location of a deposit is crucial to its economic viability, there are a number of large deposits that are considered "stranded", i.e. for one reason or another it is too costly to get the final product to customers. Key factors to look out for include:

Infrastructure availability is critical to avoiding large capital investments

- Access to transport and export facilities, the cost to build railways and ports suitable for loading of bulk carriers can run into the billions of dollars.
- Ability to access power at a reasonable price, as power is one of the major cost components of a magnetite project due to the requirement to crush and grind the ore to a suitable size enabling the magnetite to be liberated.
- Availability of sufficient quantities of fresh water, as fresh water is a key component in the processing circuit, without water it doesn't matter how good a deposit is.

Metallurgy

Metallurgy is where most projects encounter a problem

The more complex the metallurgy the more likely that the project will experience problems. It doesn't matter how large a deposit is or how good the location, if the metallurgy doesn't work the project is worthless. Key factors to lookout for include:

- At a minimum, the project should have evidence from DTR (Davis Tube Recovery) results, from which the following are key items.

Grind Size is critical and results in the most challenges likely in an operational environment

- "Grind Size", refers to the particle size the ore needs to be ground to so that the magnetite can be efficiently liberated from the silica groundmass, the larger this number the better, as a smaller number means a smaller grind size, resulting in higher power consumption. Under 50 microns the material can present numerous processing challenges in the separation, flotation and filtration stages. Grind sizes generally range from 150 microns down to 25 microns, and are typically between 32 and 45 microns.
- The higher the "Mass Yield" the better as it indicates the proportion of final product that can be produced from the ore.

The Bond Work Index is important due to crushing and grinding being a major cost factor.

- Hardness of the ore "Bond Work Index", expressed in kilowatt hours per tonne (kwh/t), the smaller this number the better as it shows how much power is used in crushing and grinding.
- Contaminant levels (phosphorous and sulphur in particular) must fall within the standard specifications, or significant price penalties may apply.

How does the Ragged Rock Prospect Stack-up

Geology

The geology at Ragged Rock appears to be fairly straight forward at this stage, with the key factors being:

The grain size is very coarse for a magnetite which is a very positive factor

- The crystallinity of the magnetite is excellent, being very coarse grained (visible to the naked eye).
- The head grade of the iron within the host rock appears to average around 30%, which corresponds well to other global magnetite operations.
- Contaminant levels are all within normal ranges of other global operations.

No issues with contaminant levels

- Mineralisation dips between 30 – 50 degrees, lenses are at least 20m wide (with several lenses per section), and is reported to have a cumulative strike of 5km. Nothing at this stage to be concerned about.
- Weathering profile is generally 8-10m (up to 20m), indicating only limited overburden removal required.

8-10m average weathering profile

- No resource available yet, however company has reported a geological exploration target of 100 - 270mt at between 20 – 40% Fe at Ragged Rock, and estimated >500mt in undefined targets within 15km of Ragged Rock.

Overall, there is nothing on the geology front that raises any concerns, in fact the coarse grained nature of the ore is a large positive.

Location

The location of Ragged Rock is considered excellent at this stage as it is located within 10km of two railways, close to two population centres, and has availability of grid power, with the key factors being:

Project located within 10km of 2 railways

- Transport and export facilities available, with spare capacity on the Avon–Albany railway, and spare capacity in excess of 2mtpa available at the Albany Port.

Two population centres nearby (Northam & York)

- Grid power available, which will significantly reduce power costs and remove the need to build a dedicated power house.

Fresh water encountered in a number of the exploration drill holes

- Water is not expected to be an issue, with fresh water encountered in 5 of the 11 stage 1 drill holes covering the area of immediate focus.
- No camp or FIFO costs, as Northam and York are both within 15km.

Overall, the location is rated excellent, with only minor costs expected to upgrade existing infrastructure.

Metallurgy

This is where Ragged Rock really impresses, through MAU having conducted a fair amount of metallurgical test work already. A high Fe, low impurity concentrate is producible at a very coarse grind size (compared to other global magnetite projects), with all test work to date (DTR and pilot plant) producing similar, repeatable results, with the key factors being:

Metallurgy results to date are exceptional

- Produces an excellent Fe concentrate at a coarse grind size of 150 microns, at both the DTR level and via the 923kg small scale pilot plant test.
- Mass Yields greater than 35% produced in the pilot plant and DTR tests.

Produces a clean, very low phosphorous concentrate at a grind size of 150µ

- No "Bond Work Index" data available, however due to the coarse grind size it is expected to be low compared to other global magnetite operations.
- Contaminant levels in concentrate all fall with the standard specifications, with P particularly exciting at well below the 0.02% specification base.

Metallurgical data to date indicates the Ragged Rock project has exceptional metallurgy properties.

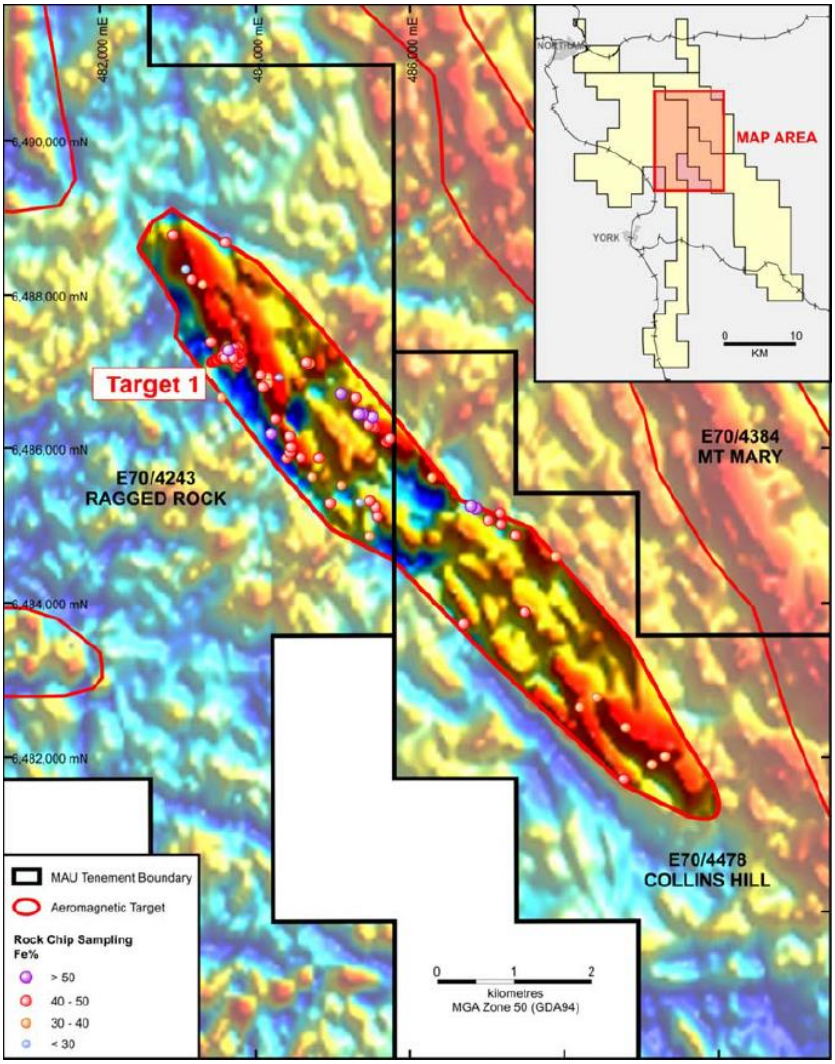
Ragged Rock is shaping up as a very exciting magnetite project, with fantastic metallurgical properties and a location second to none.

Work Completed to Date

Ragged Rock

A substantial amount of geological mapping and geophysical interpretation work has been completed

A substantial amount of geological mapping and geophysical interpretations have been completed on the Ragged Rock project, located approximately 100km NE of Perth, between Northam and York (see diagram below).



The geological mapping and the 19 RC drill holes completed to date have outlined multiple course grained, crystalline, moderately dipping BIF horizons with substantial potential for large tonnage deposits.

19 drill holes have been completed to date

While there is insufficient drilling data to define a JORC compliant resource, the company has used geological field mapping, geophysical interpretations of magnetics data, and the 19 drill holes completed to date to report a geological exploration target of 100 - 270mt at between 20 – 40% Fe at Ragged Rock, and >500mt in 15 targets within 15km of Ragged Rock.

Geological exploration target of 100 – 270mt at Ragged Rock

Substantial metallurgical work has been completed to date on the Ragged Rock prospect (see next page), with all indications suggesting a premium concentrate product can be produced at a course grind size (150 micron).

>500mt exploration target from 15 targets with 15km of Ragged Rock

An independent conceptual economic study was completed late last year which produced a positive economic assessment on the project, however we believe the study was too harsh with its assumptions, particularly on the Capex front. The study also used a grind size of 75 microns, which has now been increased to 150 microns, which should result in a substantial reduction in both capital and operating costs.

Metallurgical Test Work

Phase 1

Phase 1 test work involved testing over 20 composite drill samples using the Davis Tube Recovery (DTR) method from the Phase 1 drilling program representing mineralised sections.

DTR returned high quality concentrate results at a grind size of 75 microns

All the DTR test work was conducted at a 75 micron grind size and returned consistently high Fe grades (+68%) and low impurity concentrates.

The results suggested that it may be possible to achieve a high grade concentrate at a coarser grind size than the 75 micron used for the Phase 1 test work.

Phase 2

The main goal of the Phase 2 test work was to determine an appropriate grind size that would consistently produce a high purity, low contaminant concentrate, as a sufficiently coarse product could be sold into the premium sinter market.

923kg bulk sample created from exploration drilling samples

A bulk sample was created by carefully selecting representative samples from the Phase 1 and 2, 19 hole drill program, with samples selected to replicate the expected ore feed of a potential processing plant in the future. The drill samples were fully mixed to create a bulk sample of 923kg.

A representative head sample was taken from the bulk sample and split into 5 identical samples and tested via the DTR (Davis Tube Recovery) method at various grind sizes around the target grind size of 150 microns, to determine ore quality.

DTR work carried out at various coarse grind sizes (201µ down to 105µ)

Head Bulk Sample Analysis

Fe	SiO_2	Al_2O_3	P
30.9%	44.55%	4.64%	0.051%

The results of the 5 samples tested are shown in the table below.

Concentrate Analysis at various Grind Sizes

Grind Size (microns)	Mass Yield (%)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)	S (%)
201	37.2	64.3	7.65	1.32	0.008	0.09
168	36.1	65.6	6.25	1.30	0.006	0.08
145	35.3	66.9	4.70	1.27	0.004	0.08
122	35.3	68.0	3.62	1.23	0.004	0.07
105	34.0	68.0	3.33	1.22	0.003	0.07

All sizes produced low contaminant concentrates, with good mass yields

The results obtained were extremely encouraging for the following reasons:

- High mass yields to final product averaging >35%. This has the benefit of reducing the amount of ore feed to final saleable product.
- High quality product consistently achieved even at very coarse grind sizes, suggesting the product can be readily sold into the sinter feed market.
- SiO_2 and Al_2O_3 levels within specification for benchmark Fe concentrate.
- Very low phosphorous values at all grind sizes
- Sulphur levels within specification limits

Bulk Sample Pilot Plant Trial

Pilot plant trial of the bulk sample was conducted at a grind size of 150µ

Based on the results from the Phase 2 test work a grind size of 150 microns was selected for a pilot plant trial of the bulk sample described above.

The bulk sample was processed through a pilot scale crushing, grinding and magnetic separation flow sheet producing over 300kg of the following product.

Pilot plant trial produced over 300kg of concentrate for a mass yield of 37.2%

Pilot Scale Concentrate Analysis (150 microns)

Mass Recovery	Fe	SiO_2	Al_2O_3	P	S
37.2%	65.8%	6.07%	1.27%	0.005%	0.095%

Metallurgical Test Work (cont.)

Pilot plant produced a low contaminant concentrate with exceptional P levels

The Bulk sample pilot scale result compares very closely to the laboratory scale DTR tests and provides a very high degree of confidence that a high quality concentrate can be produced in a full scale processing facility at a coarse grind size of 150 microns.

Sinter Test Work in China

150kg concentrate sample sent to China for sintering test work

Approximately 150kg of the 300kg concentrate generated from the pilot scale test work has been despatched to a highly reputable University in China where sintering test work is being carried out.

Preliminary Financial Assumption

Take care using these assumptions

This section must not be relied on in any detail, and assumptions are based on Alto Capitals historical information and rules of thumb. Assumptions may be out by as much as 100%, and should only be used as a rough guide.

Operating Costs (based on 2mtpa of concentrate production)

Base case scenario of 1mtpa used

Mining costs are based on a strip ratio of 1.5 : 1 (Waste : Ore) and a ratio of 3 tonnes of ROM to produce 1 tonne of concentrate (Mass Recovery of 33%). Therefore total movement ~ 15.0mtpa

Transport and Port costs are based on rule of thumb figures of $0.03/t per km for rail freight (450km), $1.00/t to load onto rail, $1.25/t to unload rail, and Port charges of $12.00/t.

FOB cost at port of Albany ~$70/t

	Material	ROM	Concentrate
Mining	$1.30/t	$3.25/t	$9.75/t
Milling		$9.75/t	$29.25/t
Admin / Other			$3.00/t
Mine Gate			**$42.00/t**
Load & Transport			$15.75/t
Port			$12.25/t
Total FOB cost			**$70.00/t**

Capital Costs (based on 2nd hand 2mtpa concentrator equipment)

Capital costs based on 2nd hand equipment.

2nd hand concentrator plant consists of 6mtpa primary and secondary crusher, SAG mill, two ball mills, and a magnetic separator circuit (buy, move, construct), rail siding and loading facility between Northam and York, unloading, port facilities at Albany Port, other items and contingency reserve of 15%.

Capital cost estimated at ~A$145m.

Item	Capital
Concentrator plant	$75.0m
Rail siding and infrastructure (York)	$15.0m
Albany Port Infrastructure	$20.0m
Other	$16.0m
Contingence	$19.0m
Total	**$145.0m**

Capital costs are the least reliable of our estimates, and may increase by as much as 50%.

US$147.50/t Spot price for 66% concentrate at present

Sale Price (premium fines product)

Long-term forecast of US$105/t

Fines product containing greater than 62% Fe, generally receives a price premium ranging between US$2.50 - US$5.00/t per Fe% above 62%. Current 66% concentrate price ~US$147.50/t landed in China, with our long term forecast being ~US$105/t landed in China.

Final Thoughts

Ragged Rock is shaping up as one of the better global high quality magnetite projects

MAU's Ragged Rock magnetite project is shaping up as one of the better global high quality magnetite projects, with metallurgy looking exceptional, no major hurdles regarding its location, and simple geology.

The outstanding metallurgy and coarse grain size at Ragged Rock makes the project a stand out compared to other Australian magnetite projects, and therefore should not be compared to them.

We believe the product from Ragged Rock will be suited for sale into the premium fines market, with test work currently being carried out in China on a 150kg sample produced from the pilot plant trial.

A smaller 0.5mtpa option is possible if sourcing investment capital proves challenging

If a suitable investor cannot be found to fund the 2mtpa concentrate option, we believe the company should proceed with a smaller operation (~500.000tpa), to commence with and provide the certainty potential investors may require in the current investment environment, stepping up in size at a later date. We believe this option could be achieved at a significant reduction in capital outlay (<$50m).

A capital raising is likely in the near future

The company is likely to undertake a capital raising in near future as its cash reserves are currently under $1m, and the company will require funds to conduct further drilling to define a JORC resource at Ragged Rock.

Recommendation

Alto has a Speculative Buy recommendation on Magnetic Resources

We have a **Speculative Buy** recommendation on MAU, however we have not included a price target due to the current volatility in the resource sector (particularly the junior end) and the relatively early stage of the group's projects.

MAU should not be considered a short-term story, with the real value to be generated once a JORC compliant resource has been generated, and progress in sourcing the required capital to construct the project has been secured.

Directors

George Sakalidis
Managing Director

Mr Sakalidis is an exploration geophysicist with over 25 years' industry experience, during which time his career has included extensive gold, diamond, base metals and mineral sands exploration.

Mr Sakalidis has been involved in a number of significant mineral discoveries, including the Three Rivers and Rose gold deposits in Western Australia and the tenement applications over the Silver Swan nickel deposit. He was also instrumental in the design of the magnetic surveys and exploration drilling program that led to the discovery of the large mineral sands resources at Magnetic Minerals Limited's Dongara Project.

Gavin Fletcher
Executive Director

Mr Fletcher is a metallurgist with 16 years' experience in mining in Australia, Africa and Europe. His experience covers all aspects of minerals processing including flow sheet design and test work, construction and project management, commissioning and operations.

He has held senior positions in both major and junior mining companies with the majority of his experience gained in aggressive start-up projects on iron ore, gold and diamonds. Mr Fletcher has a wealth of knowledge in magnetite processing after fulfilling the roles of Commissioning Manager, Process Manager and later Project Manager for the Sydvaranger Magnetite project in Norway.

Recent roles included General Manager of Processing and Metallurgy for UK listed African Minerals, Commissioning and Project Manager for Northern Iron and Principal Process Engineer for FMG. He holds a Bachelor of Science from UNSW, a graduate Diploma in Extractive Metallurgy from Murdoch University and a Diploma in Management from UNSW

Eric JH Lim
Non-Exec Director

Mr Lim is currently a senior executive officer with United Overseas Bank and holds the position Head of Group Entity Reporting and Control. Prior to joining United Overseas Bank, he held positions with Standard Chartered Bank, OCBC Bank, General Electric and a number of executive positions in the US and Asia Pacific region including Finance Director of GE Money Japan and Global Financial Planning and Analyst for GE Commercial Finance (Healthcare Financial Services).

Basic Glossary

Iron Ore Terms

Iron Ore	Basic raw material used to produce steel, normally in the form of Hematite or Magnetite (Fe^3O^4)
Hematite	Chemical Formulae Fe^2O^3, often referred to as "Direct Shipping Ore" (DSO) due to simple crushing and screening process required before it can be used for steel making.
Magnetite	Chemical Formulae Fe^3O^4, and is the most magnetic mineral, the ore generally has a lower iron content than hematite and requires processing to increase the Fe grade before it can be used for steel making.
Itabirite	A metamorphosed formation characterised by layering of iron ore with silica, which does not require the same level of intensive processing required by equivalent quality magnetite ore.
Lump	Coarse iron ore with a Granularity (particle size) of 6mm – 30mm, Lump ore can be feed directly into a blast furnace without additional processing (Hematite major source)
Fines	Fine iron ore with a granularity of 1mm – 6mm, also called sinter feed, requires sintering before feed into a blast furnace (Hematite major source).
Concentrate	Very fine iron ore with a granularity of 0.1mm – 1.0mm (Itabirite and Magnetite major source)
Grind Size	The particle size the ore needs to be ground to so that the magnetite can be efficiently liberated from the silica groundmass. Generally more power is required the finer the grind, most global magnetite operations require a grind size of between 32 and 45 microns (0.032 – 0.045mm), however most Australian operations require a grind size of 25 – 35 microns.
DTR	Davis Tube Recovery test is a standard laboratory scale technique for magnetite that simulates the concentration process
Pellet Feed	Extremely fine iron ore with a granularity of <0.05mm (major source magnetite)
Sintering	An agglomeration of fines and/or concentrate (sinter feed) into sinter in a sinter plant before feed into a blast furnace.
Pelletizing	An agglomeration of concentrate and/or pellet feed into pellets in a pellet plant before feed into a blast furnace.
WMT	Wet Metric Tonne describes a bulk commodity in its natural state, i.e. including its natural moisture (range between 5 – 12% for iron ore).
DMT	Dry Metric Tonne means the natural moisture (as above) is removed from weight, Iron delivered into China is usually quoted per DMT

Steel Making Terms

Blast Furnace (BF)	The most common method used in iron making, where iron ores (sinter, pellets, lump) and coke are feed into the top of the furnace and then removed from the bottom at high temperature as liquid iron (called hot metal "HM").
BOF/BOS	The most commonly used method for crude steel production is the Basic Oxygen Furnace/Basic Oxygen Steelmaking method, where the "HM" from the blast furnace is refined by injection of high purity oxygen which combusts the carbon and silica from the "HM".
EAF	Electric Arc Furnace is the other major method for steel crude production where iron and steel scrap are used as the raw feed materials
DRI	Direct Reduced Iron, or Sponge Iron, DRI is then used as a raw material in the EAF steel making process

Shipping Terms

tdw	Tonnes Dead Weight expresses the maximum carrying capacity of a bulk ship including the weight of the full cargo plus bunker fuel, crew and supplies
Cape Size	A bulk ship that is too big to go through the Suez or Panama Canals and must sail around the Capes of Good Hope and Cape Horn
Suez Max	A bulk ship that can navigate through the Suez Canal, which is up to ~160,000tdw
Panamax	A bulk ship that can navigate through the Panama Canal, which is up to ~75,000tdw
Handysize	A ship up to about 35,000tdw
FOB	Free On Board: Price received at point of loading for export (does not include the cost of shipping and associated costs)
CIF	Cost, Insurance & Freight: Price received for delivery to import port (includes all costs associated with shipping product from export port to import import).
CFR	Cost and Freight. As for CIF, however the seller is not required to procure insurance.

Specifications for 66% Fe Concentrate

Metal Bulletin Iron Ore 66% Fe Concentrate Index Methodology

LONDON
BY CAMERON HUNT

The Metal Bulletin Iron Ore Concentrate Index is a weekly reference price for the iron ore concentrate spot market, and utilises the established and proven Metal Bulletin Index methodology.

The Index is a tonnage weighted calculation of actual transactions that have been normalised to a base specification and delivery point, using the value in use for different materials applied by the market. The Index is structurally designed to balance the influence of all sides of the market, counteracting market distortions, and to exclude incorrect or misreported data. All market data is combined into a single reference price, allowing maximum liquidity, and hence objectivity, in the model.

Metal Bulletin has partnered with Shanghai Steelhome, the leading independent market intelligence, data and consultancy company in the Chinese steel industry. Steelhome supplies daily transaction and price data from its widespread contact base of steel producers and iron ore traders within China. This will be integrated into the MB Index daily model, making it the only Index with access to such data from a major Chinese partner.

The index is based on actual transactions, which are reported to MB or Steelhome by any market participant who is conducting trades on a CFR China spot basis. All origins of material are included, and normalisation curves are developed for different origins and grades of material.

The data is normalised using an in-house developed model based on the value-in-use applied by the market to different material grades, to a single iron content and using the latest freight rates supplied by one of the leading brokers to a single port (Qingdao). The normalisation coefficients have been developed using MB's extensive historical data and history of reporting prices in this market, and are updated every three months to reflect the value-in-use of different products and grades. This allows the market to define the complex relationship between price, chemistry, physical properties, and a number of soft factors.

The details below are the base target specification. Material that differs from the base specification but falls within the target range is normalised to the base specification and port. The base specification has been chosen in consultation with the market to accurately reflect the reality of the physical market.

Neither MB nor Steelhome has any financial interest in the level or direction of the index.

Objectivity

Three sub-indices are created based on data received from producers, traders and consumers. The sub-indices are based on a tonnage weighted calculation of actual transactions normalised for iron content and freight. The final index is the non-weighted average of the three sub-0indices, allowing for equal representation from all sides of the market, and also counters market distortion or cherry-picking of data. Only the final index is published.

MB seeks to utilise at least twelve trades, four for each sub-index, as a minimum to calculate the index. In the event that this is not achievable due to market conditions, assessments from market participants will be included in the index calculation via a defined methodology.

All data points that fall greater than 4% away from the calculated index are excluded, and the index recalculated once. Outliers will be investigated, and attempts to influence the index unfairly will result in the data provider being warned or excluded. Metal Bulletin reserves the right to exclude data points that it believes are an attempt to manipulate the market.

Data is submitted in a secure manner by phone, email, or directly through the website. All correspondence is stored on secure servers. The use of the data is governed by confidentiality agreements as appropriate.

Notes

The normalisation coefficients are updated monthly, with the new coefficients based on data collected over the previous month.

The Index will continue to be published on UK holidays. In the event of technical difficulties or other unforeseen problems, the index will be published from our Singapore office or Shanghai office, as appropriate.

Material in the form of sinter fines, lumps and pellet is excluded. Domestic Chinese material, and material imported by routes other than by sea, for example by train or truck, is also excluded, as is material that has already been delivered and is held on stockpile at the dock.

	MBIOI – Iron Ore Concentrate
Price	US$ per dry metric tonne, CFR China
Fe Content	Base 66%, Range 63% to 70%
Origins	All Origins
Silica	Base: 4.5%, Maximum: 9.0%
Alumina	Base: 0.5%, Maximum: 2.0%
Phosphorus	Base: 0.02%, Maximum: 0.06%
Sulphur	Base:0.03%, Maximum 0.10%
Titania	Base: 0.05%, Maximum 0.3%
Moisture	Base 8.0%/DW, Max 11.0%/DW
Granularity	Base Size >80% <0.15mm <20% <0.05mm Other granularities normalised to base
Trade Size	Minimum 10,000 tonnes
Payment Terms	LC on sight
Delivery Port	Base Qingdao-Rizhao-Lianyungang, normalized for any Chinese mainland sea port
Delivery	Seaborne Imports – Within 8 weeks
Publication	Weekly, Friday at midday London time

Metal Bulletin Iron Ore Index

Recent Iron Ore Prices (4th Nov 2013)

66% Fe, Concentrate, Qingdao is the most relevant benchmark price

Metal Bulletin Iron Ore Index – Daily Market Report

Monday, 04 November 2013

MetalBulletin Iron Ore Index

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Iron Ore Methodology Flowsheet
MB Coking Coal Index Methodology
MB Iron Ore Index Lump Premium
www.mbironoreindex.com

The MBIOI-62 went down today after the massive increase on Friday. The market observed a small number of deals. MBIOI-58 went slightly up. Lump also went down to ¢26.00/dmtu.

Eurozone Manufacturing PMI for October published today was flat in line with expectations.

The most-traded January HRC forward contract on the Shanghai Steel Exchange Center (Dazong) closed at 3,578 yuan ($583) per tonne on Monday, up 16 yuan ($3) per tonne from last Friday's closing price.

62% Fe, CFR Qingdao	$/tonne	Previous	% Change	$ Change
Today's Price	135.93	137.26	-1.0	-1.33
Weekly Average	135.93	132.52	+2.6	+3.41
Monthly Average	136.60	132.70		
Quarterly Average	133.01	133.56		

58% Fe, CFR Qingdao	$/tonne	Previous	% Change	$ Change
Today's Price	119.04	118.88	+0.1	+0.16
Weekly Average	119.04	116.46	+2.2	+2.58
Monthly Average	118.96	116.90		
High Grade Premium	4.50	4.50		

Lump Premium, CFR Qingdao	¢/dmtu	Previous	% Change	¢ change
Today's Price	26.00	28.00	-7.1	-2.00

65% Fe, Pellet, CFR Qingdao	$/tonne 1 Nov-25 Oct	Previous 25 Oct-18 Oct	% Change	$ Change
This week's price	167.08	167.08	0.0	0.00

66% Fe, Concentrate, Qingdao	$/tonne 1 Nov-25 Oct	Previous 25 Oct-18 Oct	% Change	$ Change
This week's price	147.50	146.46	+0.7	+1.04

MBIOI Fe-VIU - Monthly	Nov. 2013	Oct. 2013	% Change	$ Change
This month's price	2.73	2.86	-4.5	-0.13

Coking Coal – Weekly	$/tonne 1 Nov-28 Oct	Previous 25 Oct-21 Oct	% Change	$ Change
MBCCI-Low Vol	160.51	162.34	-1.1	-1.83
MBCCI-Mid Vol	143.98	145.50	-1.0	-1.52

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   Shane Wee

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