

IRON ORE PORT STOCK INDEX (IOPI)

November 29, 2018		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	Price	Change	Change %	MTD	YTD <sup>2</sup>	Low <sup>2</sup>	High <sup>2</sup>	Price	Change	Change %	MTD	YTD <sup>2</sup>	Low <sup>2</sup>	High <sup>2</sup>
IOPI62	62% Fe Fines	546	5	0.9%	585	505	443	603	69.99	0.82	1.2%	75.31	67.26	61.36	77.89
IOPI58	58% Fe Fines	375	-5	-1.3%	408	357	304	419	46.88	-0.58	-1.2%	51.41	46.30	40.67	52.71
IOPI65	65% Fe Fines	694	5	0.7%	745	657	541	784	89.98	0.86	1.0%	96.90	88.51	75.83	101.71

IRON ORE SEABORNE INDEX (IOSI)

November 29, 2018		CFR Qingdao, USD/dry tonne						
Index	Fe Content	Price	Change	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>
IOSI62	62% Fe Fines	65.20	-0.45	-0.7%	73.27	68.85	62.95	86.20
IOSI65	65% Fe Fines	83.85	-1.65	-1.9%	94.58	94.23	83.20	101.50

MARKET COMMENTARY

Most traders held their port stock quotes stable though the iron ore DCE Futures turned bullish. Total transactions remained low due to lukewarm demand from mills. Some mills say they plan to conduct maintenance due falling profit margins and newly bearish market expectations. According to SMM, weak downstream demand lowered the composite and seasonally adjusted Purchasing Managers' Index (PMI) for steel below 50 in November. The index dropped 7.21 on the month and 4.62 on the year and stood at 48.55. Seasonally adjusted, the index stood at 48.06, down 4.51 on the month and 4.66 on the year, potentially taking support away from ferrous prices.

IRON ORE PORT LUMP INDEX (IOPLI)

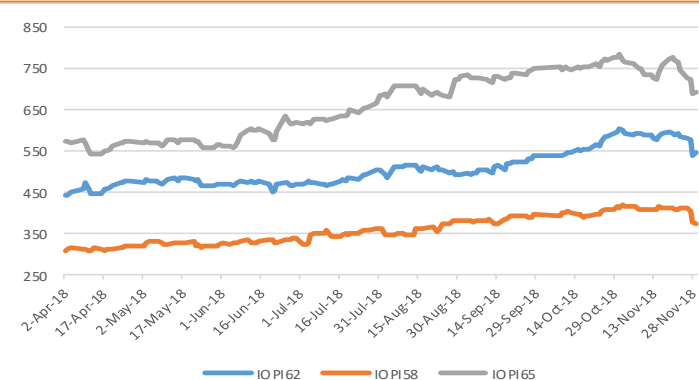
Week Ending November 23		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>
IOPLI62	62.5% Fe Lump	780	-9	-1.1%	772	642	565	789	97.44	-1.06	-1.1%	96.28	82.80	76.63	98.50

IRON ORE DOMESTIC CONCENTRATE SPOT PRICE ASSESSMENTS AND COMPOSITE INDEX

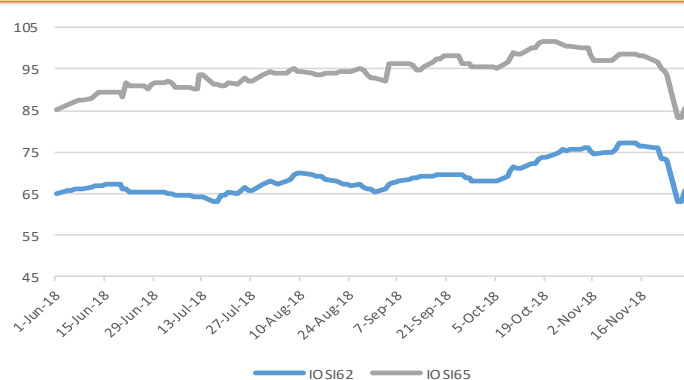
Week Ending November 23, 2018				RMB/tonne (excluding tax) <sup>4</sup>				USD/tonne (excluding tax) <sup>4</sup>			
Province	Region	Product	Basis	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>
Hebei	Hanxing	66% Fe Concentrate	Dry	713	-0.4%	579	718	102.84	-0.2%	83.51	103.56
Hebei	Qian'an	65% Fe Concentrate	Dry	805	-1.2%	630	815	116.10	-1.1%	90.86	117.55
Liaoning	Anshan	65% Fe Concentrate	Wet	555	-1.8%	445	565	80.05	-1.6%	64.18	81.49
Shandong	Zibo	65% Fe Concentrate	Dry	815	0.0%	620	815	117.55	0.2%	89.42	117.55
Week Ending November 23, 2018				This week	Change %	Low <sup>5</sup>	High <sup>5</sup>				
China Mines Concentrate Composite Index RMB/WT				672.30	-0.6%	534.50	676.26				

<sup>1</sup> Exchange rate applied: RMB/USD = 6.9353 <sup>2</sup> Since March 1 <sup>3</sup> Since June 1  
<sup>4</sup> Weekly exchange rate applied: RMB/USD 6.9208 <sup>5</sup> Last 12 months

IRON ORE PORT INDEX, FOT QINGDAO (RMB/WT)



IRON ORE SEABORNE INDEX, CFR QINGDAO (USD/DMT)



IRON ORE PORT STOCK INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

November 29, 2018		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD <sup>2</sup>	July	August	September	October	MTD	QTD	YTD <sup>2</sup>
IOPI62	62% Fe Fines	482	505	513	564	585	576	505	64.29	63.41	65.25	72.55	75.31	74.04	67.26
IOPI58	58% Fe Fines	349	363	385	401	408	405	357	44.14	44.86	45.84	50.47	51.41	50.98	46.30
IOPI65	65% Fe Fines	638	701	732	760	745	752	657	82.19	85.29	92.13	99.05	96.90	97.89	88.51

IRON ORE SEABORNE INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

November 29, 2018		CFR Qingdao, USD/dry tonne						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD <sup>3</sup>
IOSI62	62% Fe Fines	65.09	67.89	68.79	72.31	73.27	72.75	68.85
IOSI65	65% Fe Fines	91.90	94.04	96.48	98.97	94.58	96.93	94.23

FREIGHT RATES

November 27 2018		FREIGHT RATES - DRY BULK US\$/wet tonne				
Route	Designation	Change	Change %	Low <sup>5</sup>	High <sup>5</sup>	
W. Australia - Qingdao	C5	8.63	-0.28	-3.16%	5.109	10.002
Tubarao - Qingdao	C3	17.86	-0.15	-0.85%	12.705	24.76

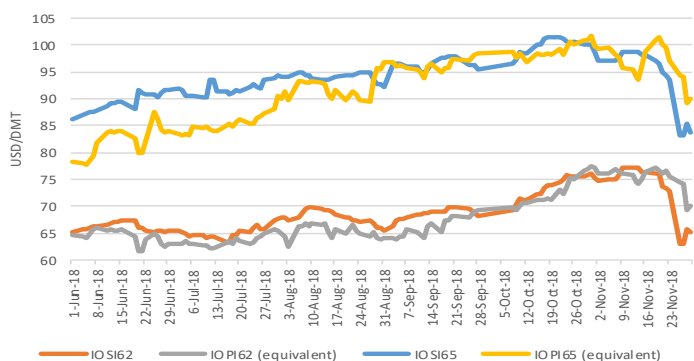
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending November 23		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD <sup>3</sup>	July	August	September	October	MTD	QTD	YTD <sup>2</sup>
IOPLI62	62.5% Fe Lump	613	652	695	720	772	750	642	78.18	81.74	87.49	89.65	96.28	93.44	82.80

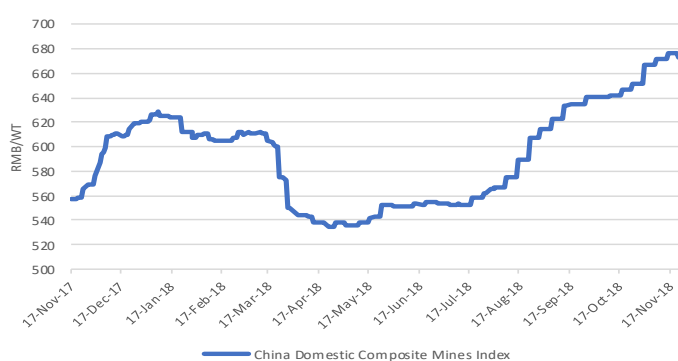
Daily Iron Ore Index Report

November 29, 2018

IRON ORE INDEX COMPARISONS



CHINA DOMESTIC COMPOSITE MINES INDEX (RMB/Wet Tonne, including VAT)



IRON ORE BRAND SPOT PRICE ASSESSMENTS

November 29, 2018	PORT STOCK INDEX (RMB/WT)			November 29, 2018	SEABORNE INDEX (USD/DMT)		
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	508	5	-38	Roy Hill	57.92	-0.45	-7.28
SIMEC Fines	438	5	-108	SIMEC Fines	51.27	-0.45	-13.93
PB Fines	525	5	-21	PB Fines	64.12	-0.45	-1.08
Newman Fines	531	5	-15	Newman Fines	67.40	-0.49	2.20
MAC Fines	508	5	-38	MAC Fines	58.87	-0.45	-6.33
Jimblebar Blended Fines	465	7	-81	Jimblebar Blended Fines	49.65	-0.45	-15.55
Carajas Fines	678	5	132	Carajas Fines	82.52	-1.59	17.32
Brazilian SSF	500	5	-46	Brazilian SSF	65.20	-1.39	0.00
Brazilian Blend Fines	547	5	1	Brazilian Blend Fines	68.45	-1.01	3.25
RTX Fines	425	7	-121	RTX Fines	53.65	-0.45	-11.55

November 29, 2018	PORT STOCK INDEX (RMB/WT)		
	Price	Change	Diff to IOPI58
SSF	317	-4	-58
FMG Blended Fines	372	-3	-3
Robe River	356	-5	-19
Western Fines	345	-5	-30
Atlas Fines	331	-5	-44
Yandi	422	-6	47

IRON ORE INDEX NORMALISATION DIFFERENTIALS

Port Stock Index Product Differentials (RMB/wet tonne)				Seaborne Index Product Differentials (USD/dry tonne)			
	Applicable range	Value	Change		Applicable range	Value	Change
1% Fe	High Grade Fe 60 - 63%	13.00	0.00	1% Fe	High Grade Fe 60 - 63%	3.50	0.00
	High Grade Fe 63 - 64%	48.00	0.00		High Grade Fe 63 - 64%	2.25	0.00
	High Grade Fe 64 - 65%	48.00	0.00		High Grade Fe 64 - 65%	2.25	0.00
	High Grade Fe 65 - 65.5%	48.00	0.00		High Grade Fe 65 - 65.5%	2.25	0.00
	Low Grade Fe	18.00	0.00				
1% Alumina	High Fe Grade Al <2.25%	31.00	0.00	1% Alumina	High Fe Grade Al <2.25%	6.00	-0.75
	High Fe Grade Al 2.25-4%	74.00	-3.00		High Fe Grade Al 2.25-4%	0.50	0.00
	Low Fe Grade Al <2.25%	77.00	-3.00				
	Low Fe Grade Al 2.25-4%	31.00	0.00				
1% Silica	High Fe Grade Si <4%	5.00	0.00	1% Silica	High Fe Grade Si <4%	2.00	-0.25
	High Fe Grade Si 4-6.5%	38.00	0.00		High Fe Grade Si 4 - 6.5%	3.00	0.00
	Low Fe Grade	7.00	0.00				
0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	4.00	0.00	0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	0.25	0.00
	High Fe Grade 0.115%<P<0.15%	9.00	0.00		High Fe Grade 0.115%<P<0.15%	2.75	0.00
	Low Fe Grade 0.09<P<0.1%	4.00	0.00				

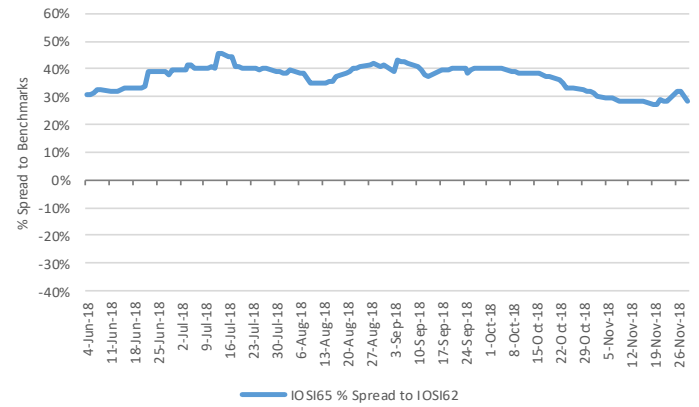
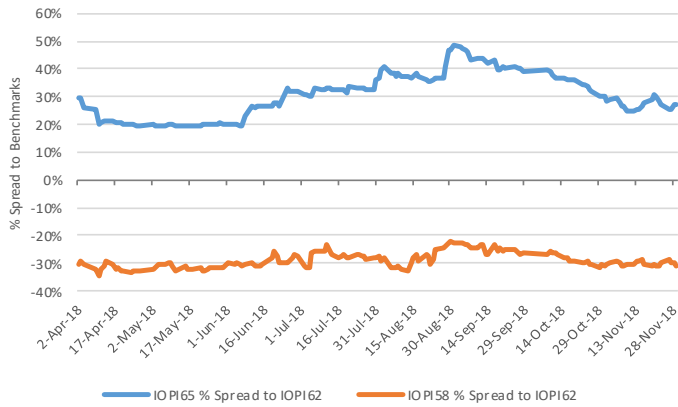
Port Stock Differentials to Qingdao Port (RMB/wet tonne)

Port	Value	Change	Port	Value	Change	Port	Value	Change	Port	Value	Change
Bayuquan	-40.00	0.00	Fangcheng	-5.00	0.00	Lanshan	0.00	0.00	Qingdao	0.00	0.00
Beilun	5.00	0.00	Jiangyin	-15.00	0.00	Lianyungang	0.00	0.00	Rizhao	0.00	0.00
Caofeidian	-5.00	0.00	Jingtang	-5.00	0.00	Majishan	0.00	0.00	Shekou	0.00	0.00
Dalian	-40.00	0.00	Lanqiao	0.00	0.00	Nantong	-15.00	0.00	Tianjin	-15.00	0.00

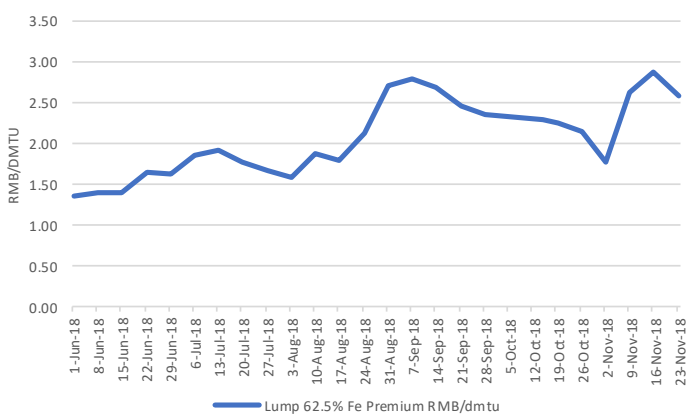
IRON ORE INDEX PREMIUMS/DISCOUNTS

November 29, 2018	PORT STOCK INDEX (RMB/WT)	
Fe Content	Spread to IOPI62	% Spread to IOPI62
58% Fe Fines	-171	-31.32%
65% Fe Fines	148	27.11%

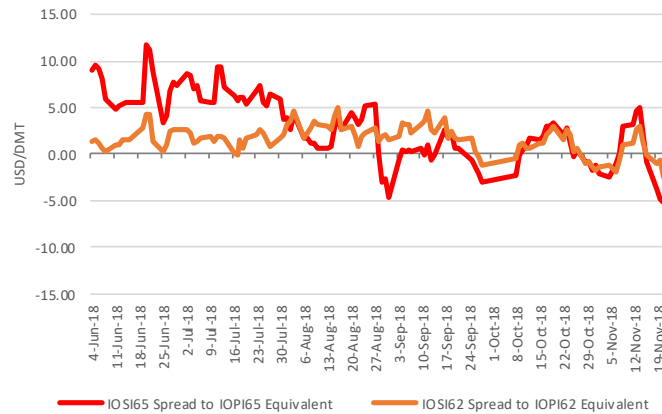
November 29, 2018	SEABORNE INDEX (USD/DMT)	
Fe Content	Spread to IOSI62	% Spread to IOSI62
65% Fe Fines	18.65	28.60%



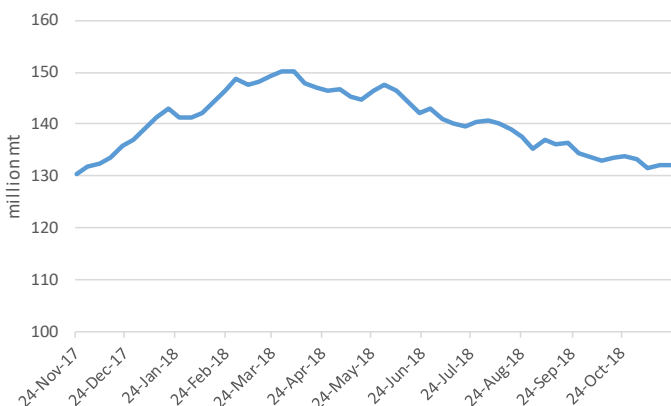
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (62.5% FE LUMP—62% FE FINES)



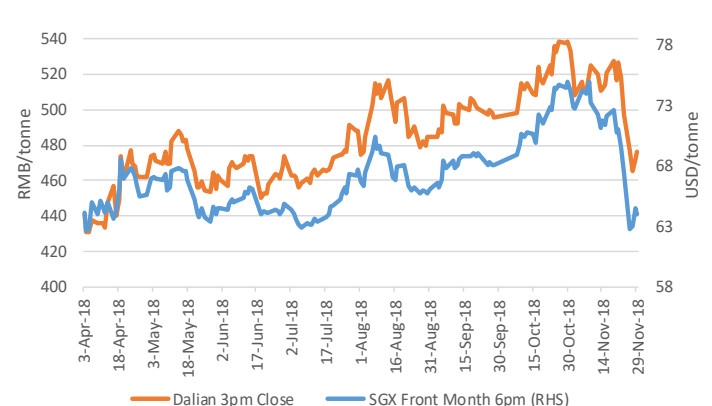
IRON ORE SEABORNE TO PORT STOCK SPREADS



TOTAL IRON ORE INVENTORIES AT CHINA PORTS



FUTURE TRADING—FRONT MONTH CLOSING PRICE



IRON ORE PORT INVENTORIES

Week Ending November 23, 2018 (million tonnes)				
Province	This week	Change %	Low <sup>4</sup>	High <sup>4</sup>
Jingtang	13.83	-1.21%	13.47	19.00
Qingdao	17.30	-1.14%	15.60	19.97
Caofeidian	19.20	-1.03%	16.70	25.30
Tianjin	10.05	1.52%	8.50	11.00
Rizhao	15.40	-0.65%	14.04	19.00
<b>Total (35 Ports)</b>	<b>132.14</b>	<b>0.06%</b>	<b>128.70</b>	<b>150.04</b>

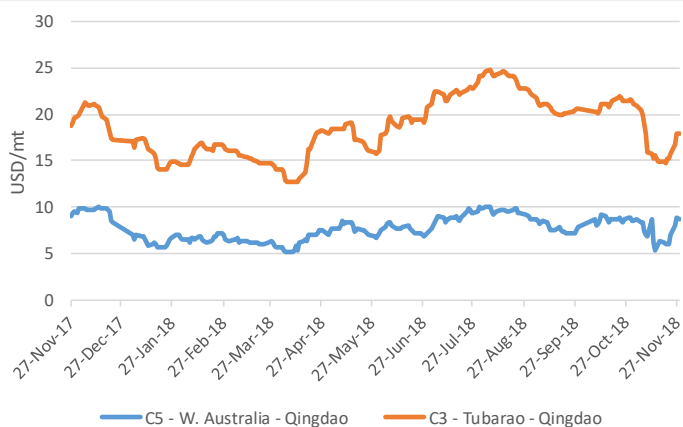
IRON ORE FUTURES CONTRACTS

Closing Date	DCE		SGX			
	29 Nov 3pm close		29 Nov 6 pm			
Contract	11901	Change	Change %	Dec'18	Change	Change %
Closing Price	476.0	4.0	0.85%	63.99	-0.46	-0.71%
Vol traded ('000 lots)	57.31	-28.1	-32.89%	11.39	-4.90	-30.07%
Open positions ('000 lots)	40.27	-3.9	-8.87%	113.41	-6.64	-5.53%
Day Low	471.5	8.5	1.84%	63.99	0.99	1.57%
Day High	478.0	1.0	0.21%	65.09	0.41	0.63%

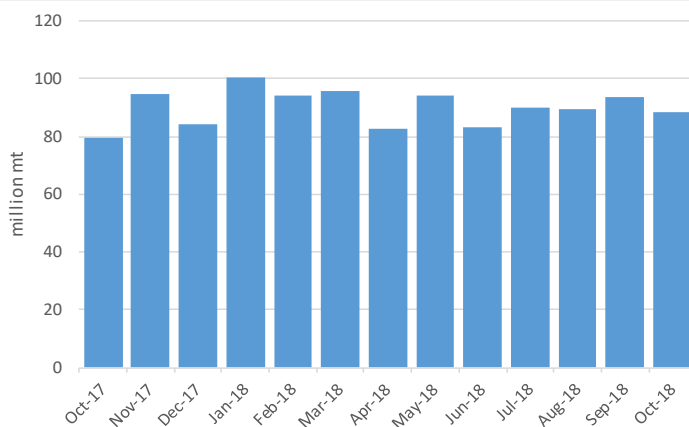
Daily Iron Ore Index Report

November 29, 2018

DRY BULK FREIGHT RATES



TOTAL CHINA IRON ORE IMPORT VOLUMES

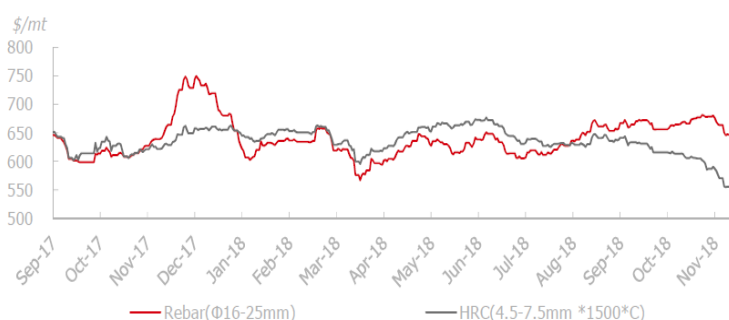


Steel Spot Market Prices - China

Steel Spot Market RMB/tonne

Product	23/11/2018	Change	Change %
ReBar HRB400 φ18mm	4,112.0	-361	-8.07%
Wirerod Q300 φ6.5mm	4,185.0	-457	-9.84%
HRC Q235/SS400 5.5mm*1500*C	3,749.0	-117	-3.03%
CRC SPCC/ST12 1.0mm*1250*2500	4,350.0	-153	-3.40%
Medium & Heavy Plate Q235B 20mm	3,950.0	-213	-5.12%
GI ST02Z 1.0mm*1000*C	4,690.0	-120	-2.49%
Billet Q235 150*150mm	3,330.0	-310	-8.52%

Rebar and HRC spot prices



CHINESE STEEL EXPORT PRICES

China Export Prices USD/tonne

Product	Specification	Export tax (+)/Vate rebate (-)	Change
23/11/2018			
Rebar	BS4449 460B 12-25mm, + chrome	-13%	510 -30
Wire Rod	SAE1008 6.5-10mm +chrome	-9%	530 -35
Hot-rolled coil	SS400/Q235 4.0-10.mm	-9%	500 -25
Cold-rolled coil	SPCC 1.0mm	-13%	550 -25
Medium & Heavy plate	A-level Shipe plate 12-25mm	0%	550 -15
Galvanised	ST02Z/SGCC 1.0mm	-13%	590 -35

Note: Calculation formula for converting export prices of rebar, cold-rolled steel and galvanizing into prices in China's spot market = FOB \* exchange rate \* 1.16 / (1.16 - 0.13); Calculation formula for converting export prices of wire rod and hot-rolled steel into prices in China's spot market = FOB \* exchange rate \* 1.16 / (1.16 - 0.09); Calculation formula for converting export prices of medium-thick plate into prices in China's spot market = FOB \* exchange rate

CHINESE STEEL INVENTORIES

Steel Inventories<sup>3</sup> (unit: 1000 tonnes)

Product	23/11/2018	16/11/2018	Change	Change %
Rebar	3,108	3,207	-99	-3.09%
Wirerod	1,031	1,058	-27	-2.55%
Hot-rolled Coil	2,156	2,208	-52	-2.36%
Medium & Thick Plate	1,096	1,111	-15	-1.35%
Cold-rolled Coil	1,148	1,150	-2	-0.17%
<b>Total</b>	<b>8,539</b>	<b>8,734</b>	<b>-195</b>	<b>-2.23%</b>

<sup>3</sup> SMM statistics cover inventories of major steel products in China's major markets: hot-rolled steel inventories in 33 major cities; rebar and wire inventories in 35 major cities; cold-rolled steel and medium-thick plate inventories in 31 major cities.

CHINESE STEEL MILL PROFITABILITY

SMM Tracking of Steel Mill P&L - Rebar and Hot-rolled Coil (RMB/tonne)

Category	Price	Change (WoW)	Note
MMI (Fe 62%), USD/mt excluding tax	75.58	-0.87	Mmi CFR Equivalent index for 12th October
Coke	2,510	-101	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	2,200	-140	steel scrap (6mm) in Zhangjiagang, excl. tax
Billet Cost	3,164	-66	Q234, incl. tax
Rebar cost - Blast furnace	3,434	-65	calculated based on theoretical weight, incl. tax
Rebar profit - Blast furnace	426	-375	based on Shanghai prices, incl. tax
Hot-rolled coil cost - Blast furnace	3,489	-66	based on actual weight, incl. tax
Hot-rolled coil profit - Blast furnace	241	-24	based on Shanghai prices, incl. tax

Note: 1. Costs in the table are calculated based on today's market prices and factored our management, sales, financial and depreciations fees.

2. The cost refers to average cost in the industry based on SMM's survey of small, medium and large mills in China

## IRON ORE INDEX SPECIFICATIONS, COMPILATION RATIONALE AND DATA EXCLUSIONS

Iron Ore Index Specifications (Port and Seaborne)					Iron Ore Index Compilation Rationale and Data Exclusions			
	65% Fe Fines	62% Fe Fines	58% Fe Fines	62.5% Fe Lump				
Fe %	65.00	62.00	58.00	62.50	MMI iron ore indices are compiled from data provided by companies that are part of the iron ore supply chain and involved in spot market transactions. The indices are calculated using detailed transaction-level data submitted to MMI by these companies. This data is normalised to the appropriate specifications and screened to remove outliers before volume-weighted average prices are calculated from the remaining core set of data.  For more details on MMI's iron ore methodology please download the guide published on our website at: <a href="http://www.mmiprices.com">www.mmiprices.com</a>			
Alumina %	1.40	2.25	2.25	1.50				
Silica%	1.50	4.00	5.50	3.50				
Phosphorus %	0.06	0.09	0.05	0.08				
Sulphur %	0.01	0.02	0.02	0.02				
Moisture %	8.00	8.00	9.00	4.00				
Sizing	Granular size below 10mm for at least 90% of cargo; maximum of 40% below 150 micron			Size below 6.3mm max 15% Size above 31.15mm max 25%	Data Exclusions*			
Pricing Point	Qingdao Port (FOT and CFR respectively)			FOT Qingdao Port	Port Index	62%	58%	65%
Timing (Seaborne)	Loading within 4 weeks, Delivery within 8 weeks			Delivery within 2 weeks	Seaborne Index	0	0	0
Payment Terms	L/C at sight			L/C at sight or CAD	Lump Index 62.5	0		

## IRON ORE DOMESTIC CONCENTRATE INDEX CALCULATION METHODOLOGY

The compilation method for price index generally refers to the compilation method of CPI price index and other price indices, breakdown the price data and calculate the average value according to a certain method, taking the vertical axis as the regional composite index (average of different grade index) and the horizontal axis as the grade composite index (average of different regional index), a total composite index for domestic ore can be output ultimately. The process system is also adopted in the calculation i.e. each sub-index can be obtained as well.

## AVERAGE IRON ORE SPECIFICATIONS APPLIED FOR BRAND PRICE ASSESSMENTS

PORT STOCK BRANDS						SEABORNE BRANDS					
November 29, 2018	SPECIFICATIONS APPLIED FOR 62% BRAND ASSESSMENTS						SPECIFICATIONS APPLIED FOR 62% BRAND ASSESSMENTS				
	Fe	Alumina	Silica	Phos	Moisture		Fe	Alumina	Silica	Phos	Moisture
Roy Hill	60.76%	2.35%	4.31%	0.060%	8.58%	Roy Hill	60.70%	2.30%	4.90%	0.055%	8.00%
SIMEC Fines	60.00%	2.30%	6.30%	0.060%	6.00%	SIMEC Fines	60.00%	2.30%	6.30%	0.060%	6.00%
PB Fines	61.59%	2.33%	3.57%	0.100%	9.35%	PB Fines 62%	62.00%	2.60%	4.30%	0.090%	10.00%
Newman Fines	62.29%	2.46%	4.09%	0.090%	7.98%	Newman Fines	62.80%	2.20%	4.30%	0.080%	6.40%
MAC Fines	60.70%	2.28%	4.56%	0.090%	7.49%	MAC Fines	61.00%	2.70%	4.70%	0.110%	9.30%
Jimblebar Blended Fines	61.39%	2.88%	4.17%	0.100%	6.79%	Jimblebar Blended Fines	61.79%	2.67%	4.08%	0.115%	7.16%
Carajas Fines	64.80%	1.21%	2.32%	0.110%	8.20%	Carajas Fines	65.10%	1.50%	1.70%	0.080%	8.50%
Brazilian SSF	62.00%	1.00%	6.50%	0.040%	6.00%	Brazilian SSF	62.00%	1.00%	6.50%	0.040%	6.00%
Brazilian Blend Fines	62.96%	1.44%	4.88%	0.050%	8.56%	Brazilian Blend Fines	62.50%	1.50%	5.00%	0.070%	7.00%
RTX Fines	61.00%	3.10%	4.50%	0.135%	7.50%	RTX Fines	61.00%	3.10%	4.50%	0.135%	7.50%
November 29, 2018	SPECIFICATIONS APPLIED FOR 58% BRAND ASSESSMENTS										
	Fe	Alumina	Silica	Phos	Moisture						
SSF	56.50%	3.04%	6.18%	0.050%	9.43%						
FMG Blended Fines	58.28%	2.72%	5.63%	0.060%	7.26%						
Robe River	56.63%	2.88%	1.85%	0.040%	9.09%						
Western Fines	57.57%	2.82%	6.96%	0.060%	7.45%						
Atlas Fines	56.59%	2.55%	7.14%	0.080%	8.46%						
Yandi	57.09%	1.38%	6.34%	0.030%	9.21%						

## BLOOMBERG TICKERS

PORT STOCK INDICES		
	FOT Qingdao (RMB/wet tonne)	CFR Qingdao Equivalent (USD/dry tonne)
IOPI62	IRCNQ001	IRCNQ004
IOPI58	IRCNQ002	IRCNQ005
IOPI65	IRCNQ003	IRCNQ006

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