

IRON ORE PORT STOCK INDEX (IOPI)

December 05, 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	548	7	1.3%	543	506	443	603	71.16	1.43	2.1%	70.04	67.31	61.36	77.89
IOPI58	58% Fe Fines	389	-2	-0.5%	390	358	304	419	49.40	0.06	0.1%	49.24	46.36	40.67	52.71
IOPI65	65% Fe Fines	691	7	1.0%	689	657	541	784	90.73	1.57	1.8%	89.83	88.53	75.83	101.71

IRON ORE SEABORNE INDEX (IOSI)

December 05, 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	69.05	0.65	1.0%	67.73	68.80	62.95	86.20
IOSI65	65% Fe Fines	86.35	0.40	0.5%	85.27	94.01	83.20	101.50

MARKET COMMENTARY

Physical iron ore port stock quotes rose today, inline with increased transaction activity. Seaborne Platforms were busy, with Jimblebar Fines trading at index -US\$ 7.00/t on Corex and BRBF, PBF fines bid/offer activity. Mills continue to look for low grade material, and SSF inventories at port continue to fall. Current Jimblebar Fines inventories at major ports dropped 14.5% from early November. Iron ore prices in North China may face more pressure given recent increasing arrivals of iron ore and the production cuts in Tangshan.

IRON ORE PORT LUMP INDEX (IOPLI)

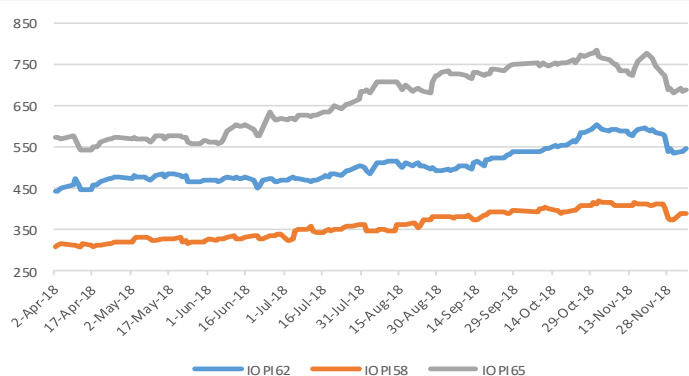
Week Ending November 30		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>
IOPLI62	62.5% Fe Lump	769	-11	-1.4%	771	646	565	789	95.94	-1.50	-1.5%	96.21	83.19	76.63	98.50

IRON ORE DOMESTIC CONCENTRATE SPOT PRICE ASSESSMENTS AND COMPOSITE INDEX

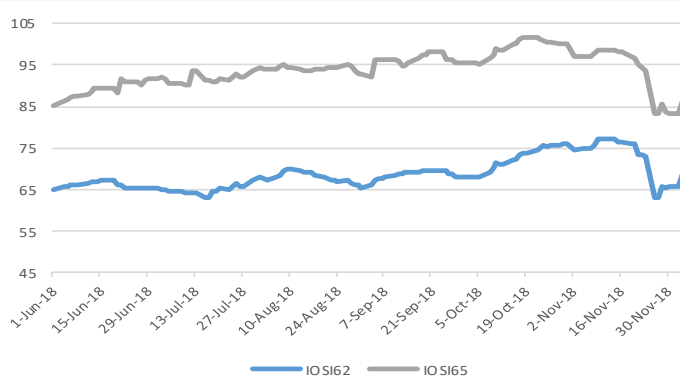
Week Ending November 30, 2018				RMB/tonne (excluding tax) <sup>4</sup>				USD/tonne (excluding tax) <sup>4</sup>			
Province	Region	Product	Basis	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>
Hebei	Hanxing	66% Fe Concentrate	Dry	695	-2.5%	579	718	100.07	-2.7%	83.37	103.38
Hebei	Qian'an	65% Fe Concentrate	Dry	700	-13.0%	630	815	100.79	-13.2%	90.71	117.35
Liaoning	Anshan	65% Fe Concentrate	Wet	555	0.0%	445	565	79.91	-0.2%	64.07	81.35
Shandong	Zibo	65% Fe Concentrate	Dry	740	-9.2%	620	815	106.55	-9.4%	89.27	117.35
Week Ending November 30, 2018				This week	Change %	Low <sup>5</sup>	High <sup>5</sup>				
China Mines Concentrate Composite Index RMB/WT				626.41	-6.8%	534.50	676.26				

<sup>1</sup> Exchange rate applied: RMB/USD = 6.8476 <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

December 05, 2018		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD <sup>2</sup>	August	September	October	November	MTD	QTD	YTD <sup>2</sup>
IOPI62	62% Fe Fines	505	513	564	564	543	572	506	64.29	63.41	65.25	72.55	70.04	73.69	67.31
IOPI58	58% Fe Fines	363	385	401	401	390	403	358	44.14	44.86	45.84	50.47	49.24	50.76	46.36
IOPI65	65% Fe Fines	701	732	760	760	689	746	657	82.19	85.29	92.13	99.05	89.83	97.11	88.53

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

December 05, 2018		CFR Qingdao, USD/dry tonne						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD <sup>3</sup>
IOSI62	62% Fe Fines	67.89	68.79	72.31	72.91	67.73	72.28	68.80
IOSI65	65% Fe Fines	94.04	96.48	98.97	94.05	85.27	95.90	94.01

FREIGHT RATES

December 4 2018		FREIGHT RATES - DRY BULK US\$/wet tonne				
Route	Designation	Change	Change %	Low <sup>5</sup>	High <sup>5</sup>	
W. Australia - Qingdao	C5	8.04	0.52	6.96%	5.109	10.002
Tubarao - Qingdao	C3	15.15	0.23	1.56%	12.705	24.76

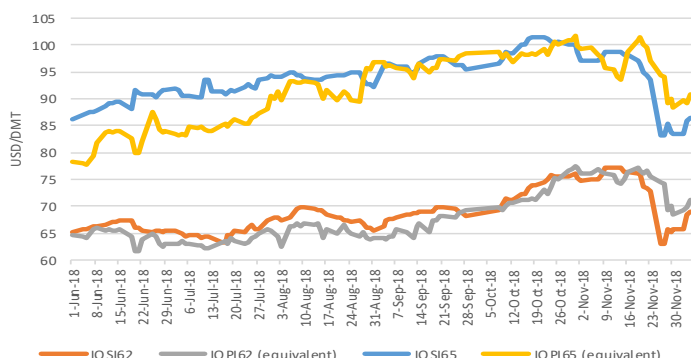
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending November 30		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD <sup>3</sup>	August	September	October	November	MTD	QTD	YTD <sup>2</sup>
IOPLI62	62.5% Fe Lump	652	695	720	771	771	752	646	81.74	87.49	89.65	96.21	96.21	93.75	83.19

Daily Iron Ore Index Report

December 05, 2018

IRON ORE INDEX COMPARISONS



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



IRON ORE BRAND SPOT PRICE ASSESSMENTS

December 05, 2018	PORT STOCK INDEX (RMB/WT)			December 05, 2018	SEABORNE INDEX (USD/DMT)		
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	510	6	-38	Roy Hill	61.77	0.65	-7.28
SIMEC Fines	441	8	-107	SIMEC Fines	55.12	0.65	-13.93
PB Fines	529	7	-19	PB Fines	67.97	0.65	-1.08
Newman Fines	530	3	-18	Newman Fines	71.25	0.65	2.20
MAC Fines	523	20	-25	MAC Fines	62.72	0.65	-6.33
Jimblebar Blended Fines	460	-5	-88	Jimblebar Blended Fines	53.50	0.65	-15.55
Carajas Fines	683	6	135	Carajas Fines	86.37	0.65	17.32
Brazilian SSF	506	7	-42	Brazilian SSF	69.05	0.65	0.00
Brazilian Blend Fines	554	7	6	Brazilian Blend Fines	72.30	0.65	3.25
RTX Fines	438	7	-110	RTX Fines	57.50	0.65	-11.55

December 05, 2018	PORT STOCK INDEX (RMB/WT)		
	Price	Change	Diff to IOPI58
SSF	348	3	-41
FMG Blended Fines	391	1	2
Robe River	363	-6	-26
Western Fines	376	5	-13
Atlas Fines	361	3	-28
Yandi	446	-1	57

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	15.00	0.00				
1% Alumina	High Fe Grade Al <2.25%	34.00	0.00	1% Alumina	High Fe Grade Al <2.25%	6.00	0.00
	High Fe Grade Al 2.25-4%	68.00	0.00		High Fe Grade Al 2.25-4%	0.50	0.00
	Low Fe Grade Al <2.25%	80.00	0.00				
	Low Fe Grade Al 2.25-4%	20.00	-5.00				
1% Silica	High Fe Grade Si <4%	2.00	0.00	1% Silica	High Fe Grade Si <4%	2.00	0.00
	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	2.00	-2.00				
0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	2.00	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%	5.00	0.00				

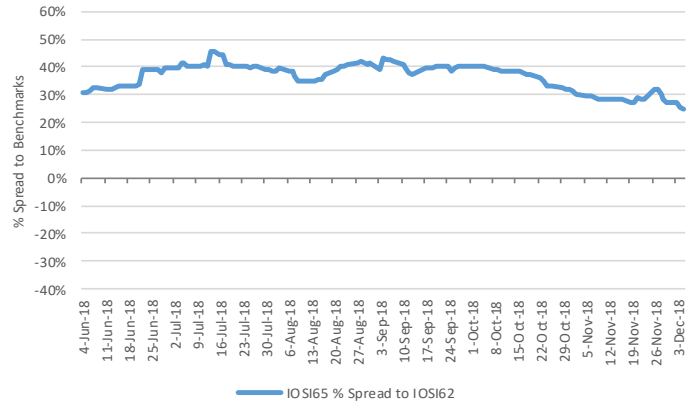
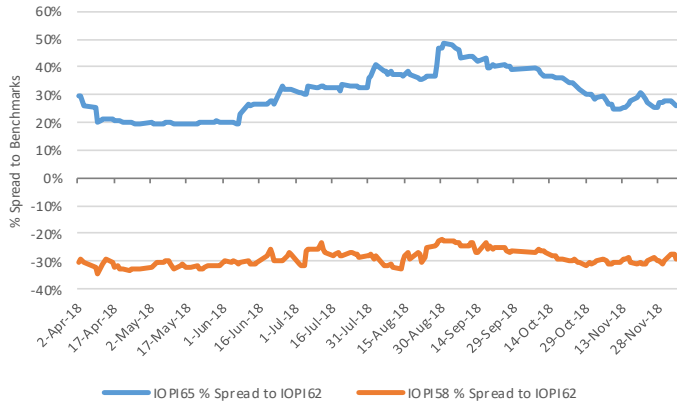
Port Stock Differentials to Qingdao Port (RMB/wet tonne)

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	-20.00	0.00	Lianyungang	0.00	0.00	Rizhao	0.00	0.00
Caofeidian	0.00	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	-20.00	0.00	Tianjin	-15.00	0.00

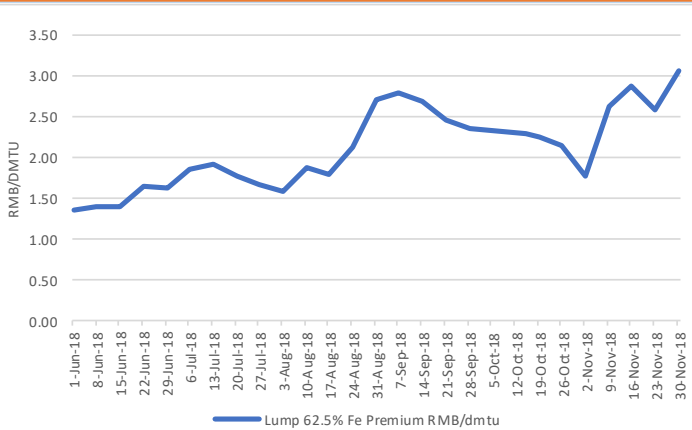
IRON ORE INDEX PREMIUMS/DISCOUNTS

December 05, 2018		PORT STOCK INDEX (RMB/WT)	
Fe Content	Spread to IOPI62	% Spread to IOPI62	
58% Fe Fines	-159	-29.01%	
65% Fe Fines	143	26.09%	

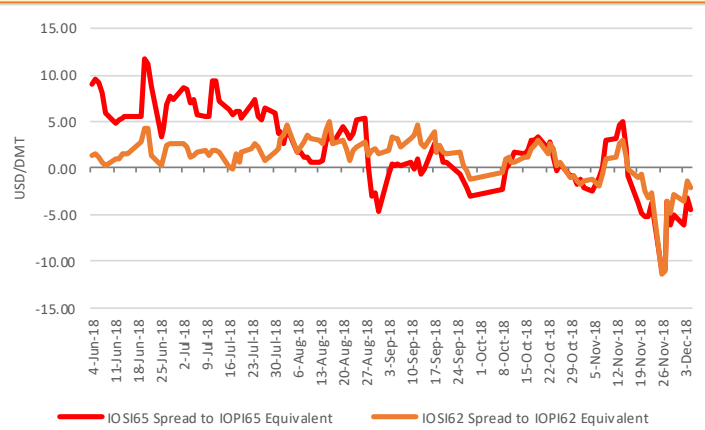
December 05, 2018		SEABORNE INDEX (USD/DMT)	
Fe Content	Spread to IOSI62	% Spread to IOSI62	
65% Fe Fines	17.30	25.05%	



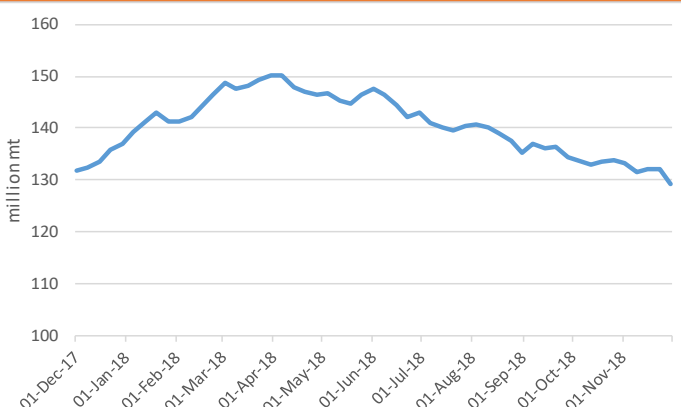
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (62.5% FE LUMP—62% FE FINES)



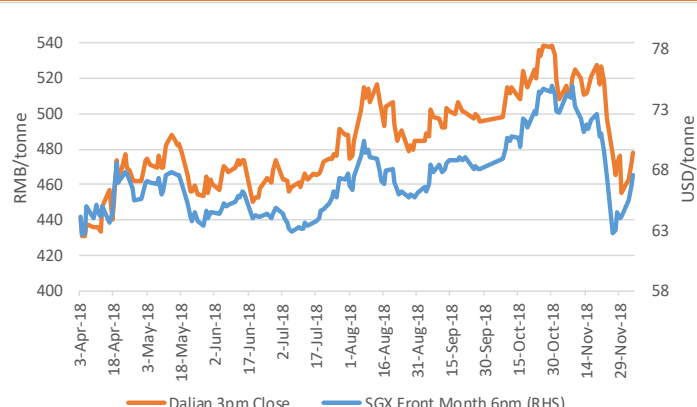
IRON ORE SEABORNE TO PORT STOCK SPREADS



TOTAL IRON ORE INVENTORIES AT CHINA PORTS



FUTURE TRADING—FRONT MONTH CLOSING PRICE



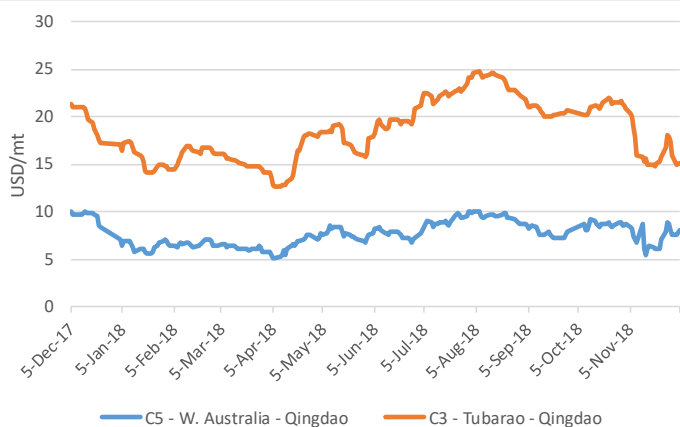
IRON ORE PORT INVENTORIES

Week Ending November 30, 2018 (million tonnes)				
Province	This week	Change %	Low <sup>4</sup>	High <sup>4</sup>
Jingtang	13.29	-3.90%	13.29	19.00
Qingdao	16.90	-2.31%	16.20	19.97
Caofeidian	19.24	0.21%	16.70	25.30
Tianjin	9.90	-1.49%	8.50	11.00
Rizhao	14.82	-3.77%	14.73	19.00
<b>Total (35 Ports)</b>	<b>129.26</b>	<b>-2.18%</b>	<b>129.26</b>	<b>150.04</b>

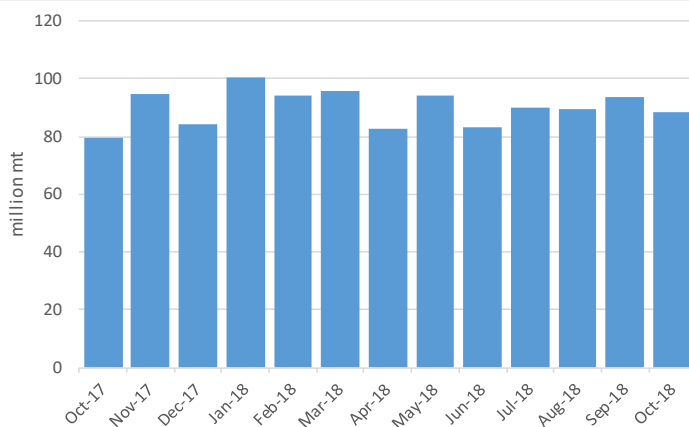
IRON ORE FUTURES CONTRACTS

Closing Date	DCE			SGX		
	05 Dec 3pm close			05 Dec 6 pm		
Contract	11905	Change	Change %	Dec'18	Change	Change %
Closing Price	478.0	6.0	1.27%	67.65	0.93	1.39%
Vol traded ('000 lots)	97.82	12.4	14.53%	8.13	-1.92	-19.12%
Open positions ('000 lots)	51.94	0.3	0.59%	99.65	-4.11	-3.96%
Day Low	467.5	5.5	1.19%	67.00	-1.80	-2.62%
Day High	480.0	8.0	1.69%	67.65	0.84	1.26%

DRY BULK FREIGHT RATES



TOTAL CHINA IRON ORE IMPORT VOLUMES



Steel Spot Market Prices - China

Steel Spot Market RMB/tonne

Product	30/11/2018	Change	Change %
ReBar HRB400 φ18mm	3,914.0	-198	-4.82%
Wirerod Q300 φ6.5mm	3,979.0	-206	-4.92%
HRC Q235/SS400 5.5mm*1500*C	3,756.0	7	0.19%
CRC SPCC/ST12 1.0mm*1250*2500	4,176.0	-174	-4.00%
Medium & Heavy Plate Q235B 20mm	3,750.0	-200	-5.06%
GI ST02Z 1.0mm*1000*C	4,585.0	-105	-2.24%
Billet Q235 150*150mm	3,080.0	-250	-7.51%

Rebar and HRC spot prices



CHINESE STEEL EXPORT PRICES

China Export Prices USD/tonne

Product	Specification	Export tax (+)/Vate rebate (-)	Change
30/11/2018			
Rebar	BS4449 460B 12-25mm, + chrome	-13%	505 -5
Wire Rod	SAE1008 6.5-10mm +chrome	-9%	520 -10
Hot-rolled coil	SS400/Q235 4.0-10.mm	-9%	495 -5
Cold-rolled coil	SPCC 1.0mm	-13%	540 -10
Medium & Heavy plate	A-level Ship plate 12-25mm	0%	540 -10
Galvanised	ST02Z/SGCC 1.0mm	-13%	570 -20

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	30/11/2018	23/11/2018	Change	Change %
Rebar	2,980	3,108	-128	-4.12%
Wirerod	1,002	1,031	-29	-2.81%
Hot-rolled Coil	2,124	2,156	-32	-1.48%
Medium & Thick Plate	1,079	1,096	-17	-1.55%
Cold-rolled Coil	1,155	1,148	7	0.61%
Total	8,340	8,539	-199	-2.33%

<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	69.99	-5.59	Mmi CFR Equivalent index for 12th October
Coke	2,160	-350	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	1,970	-230	steel scrap (6mm) in Zhangjiagang, excl. tax
Billet Cost	2,871	-293	Q234, incl. tax
Rebar cost - Blast furnace	3,140	-294	calculated based on theoretical weight, incl. tax
Rebar profit - Blast furnace	560	134	based on Shanghai prices, incl. tax
Hot-rolled coil cost - Blast furnace	3,196	-293	based on actual weight, incl. tax
Hot-rolled coil profit - Blast furnace	394	153	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
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%	
Pricing Point	Qingdao Port (FOT and CFR respectively)		FOT Qingdao Port	
Timing (Seaborne)	Loading within 4 weeks, Delivery within 8 weeks		Delivery within 2 weeks	
Payment Terms	L/C at sight		L/C at sight or CAD	

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: [www.mmiprices.com](http://www.mmiprices.com)

Data Exclusions*			
	62%	58%	65%
Port Index	0	0	0
Seaborne Index	1		0
Lump Index 62.5	0		

\* Number of price submissions for iron ore indices that were excluded from index calculations today as they were anomalous and could not be verified

**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					
December 05, 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	61.57%	2.32%	3.57%	0.100%	9.47%	PB Fines 62%	62.00%	2.60%	4.30%	0.090%	10.00%
Newman Fines	62.29%	2.48%	4.17%	0.090%	7.99%	Newman Fines	62.80%	2.20%	4.30%	0.080%	6.40%
MAC Fines	60.93%	2.26%	4.38%	0.090%	7.15%	MAC Fines	61.00%	2.70%	4.70%	0.110%	9.30%
Jimblebar Blended Fines	61.32%	2.94%	4.17%	0.120%	7.01%	Jimblebar Blended Fines	61.79%	2.67%	4.08%	0.115%	7.16%
Carajas Fines	64.77%	1.21%	2.32%	0.060%	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	62.98%	1.42%	4.87%	0.060%	8.37%	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%
December 05, 2018	SPECIFICATIONS APPLIED FOR 58% BRAND ASSESSMENTS										
	Fe	Alumina	Silica	Phos	Moisture						
SSF	56.52%	3.03%	6.19%	0.050%	9.41%						
FMG Blended Fines	58.27%	2.70%	5.60%	0.060%	7.40%						
Robe River	56.63%	2.88%	1.85%	0.040%	9.09%						
Western Fines	57.67%	2.81%	7.06%	0.060%	7.43%						
Atlas Fines	56.59%	2.55%	7.14%	0.080%	8.46%						
Yandi	57.30%	1.37%	6.31%	0.040%	9.15%						

**BLOOMBERG TICKERS**

PORT STOCK INDICES		
	FOT Qingdao (RMB/wet tonne)	CFR Qingdao Equivalent (USD/dry tonne)
IOP162	IRCNQ001	IRCNQ004
IOP158	IRCNQ002	IRCNQ005
IOP165	IRCNQ003	IRCNQ006

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