

IRON ORE PORT STOCK INDEX (IOPI)

November 27 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	577	-3	-0.5%	590	505	443	603	74.06	-0.41	-0.6%	75.92	67.23	61.36	77.89
IOPI58	58% Fe Fines	406	-6	-1.5%	412	357	304	419	50.99	-0.82	-1.6%	51.85	46.29	40.67	52.71
IOPI65	65% Fe Fines	725	-2	-0.3%	751	656	541	784	94.02	-0.29	-0.3%	97.67	88.50	75.83	101.71

IRON ORE SEABORNE INDEX (IOSI)

November 27 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	62.95	-0.05	-0.1%	74.14	68.91	62.95	86.20
IOSI65	65% Fe Fines	83.20	0.00	0.0%	95.68	94.38	83.20	101.50

MARKET COMMENTARY

Sixty-four vessels carrying 9.26 million mt of iron ore are likely to arrive at major Chinese ports during November 23-29, down 170,000 mt from that during November 16-22, SMM data showed. Arrivals at ports in Shandong province are expected to rise steadily, while that at ports in Tangshan will remain at lows, SMM learned. For the same period, iron ore shipments departing Australian ports will increase 340,000 mt to 15.36 million mt on resumption of the Port Hedland. Iron ore shipments leaving Brazilian ports are likely to fall 190,000 mt to 8.08 million mt during the period

IRON ORE PORT LUMP INDEX (IOPLI)

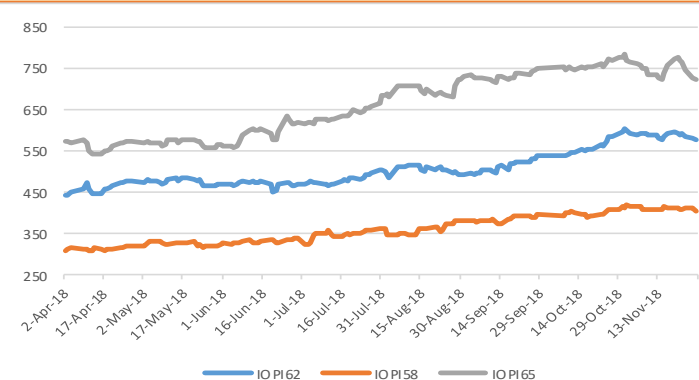
Week Ending November 23		FOT Qingdao (inc. 16% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 16% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <sup>3</sup>	Price	W-o-W	Change %	MTD	YTD <sup>3</sup>	Low <sup>3</sup>	High <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

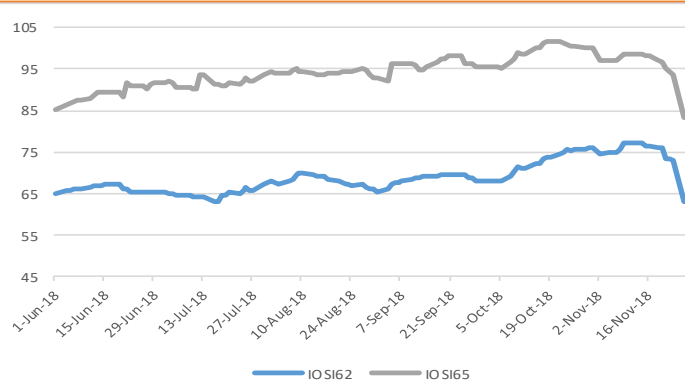
Week Ending November 23, 2018				RMB/tonne (excluding tax) <sup>4</sup>				USD/tonne (excluding tax) <sup>4</sup>			
Province	Region	Product	Basis	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>
Hebei	Hanxing	66% Fe Concentrate	Dry	713	-0.4%	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 = 6.9463 <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 27 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	590	577	505	64.29	63.41	65.25	72.55	75.92	74.28	67.23
IOPI58	58% Fe Fines	349	363	385	401	412	407	357	44.14	44.86	45.84	50.47	51.85	51.18	46.29
IOPI65	65% Fe Fines	638	701	732	760	751	755	656	82.19	85.29	92.13	99.05	97.67	98.34	88.50

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

November 27 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	74.14	73.11	68.91
IOSI65	65% Fe Fines	91.90	94.04	96.48	98.97	95.68	97.53	94.38

FREIGHT RATES

November 26 2018		FREIGHT RATES - DRY BULK US\$/wet tonne				
Route	Designation	Change	Change %	Low <sup>5</sup>	High <sup>5</sup>	
W. Australia - Qingdao	C5	7.95	0.95	13.57%	5.109	10.002
Tubarao - Qingdao	C3	16.73	0.97	6.17%	12.705	24.76

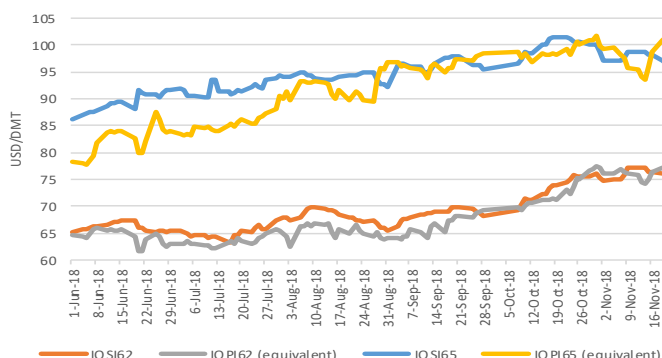
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

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 27 2018

IRON ORE INDEX COMPARISONS



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



IRON ORE BRAND SPOT PRICE ASSESSMENTS

November 27 2018	PORT STOCK INDEX (RMB/WT)			November 27 2018	SEABORNE INDEX (USD/DMT)		
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	538	-3	-39	Roy Hill	55.67	-0.05	-7.28
SIMEC Fines	470	-3	-107	SIMEC Fines	49.02	-0.05	-13.93
PB Fines	556	-4	-21	PB Fines	61.87	-0.05	-1.08
Newman Fines	566	-3	-11	Newman Fines	65.24	-0.05	2.29
MAC Fines	538	-3	-39	MAC Fines	56.62	-0.05	-6.33
Jimblebar Blended Fines	493	-3	-84	Jimblebar Blended Fines	47.40	-0.05	-15.55
Carajas Fines	714	-3	137	Carajas Fines	82.16	-0.05	19.21
Brazilian SSF	532	-3	-45	Brazilian SSF	65.14	-0.05	2.19
Brazilian Blend Fines	577	-3	0	Brazilian Blend Fines	67.51	-0.05	4.56
RTX Fines	454	-3	-123	RTX Fines	51.40	-0.05	-11.55

November 27 2018	PORT STOCK INDEX (RMB/WT)		
	Price	Change	Diff to IOPI58
SSF	347	-6	-59
FMG Blended Fines	402	-6	-4
Robe River	387	-6	-19
Western Fines	377	-6	-29
Atlas Fines	362	-6	-44
Yandi	453	-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%	7.75	0.00
	High Fe Grade Al 2.25-4%	77.00	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%	31.00	0.00				
1% Silica	High Fe Grade Si <4%	5.00	0.00	1% Silica	High Fe Grade Si <4%	2.25	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	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

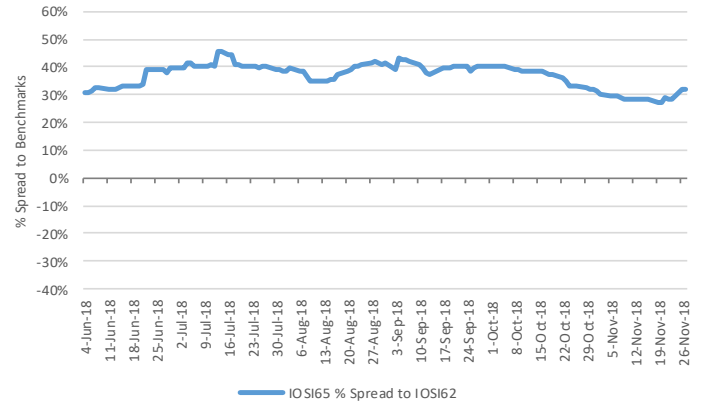
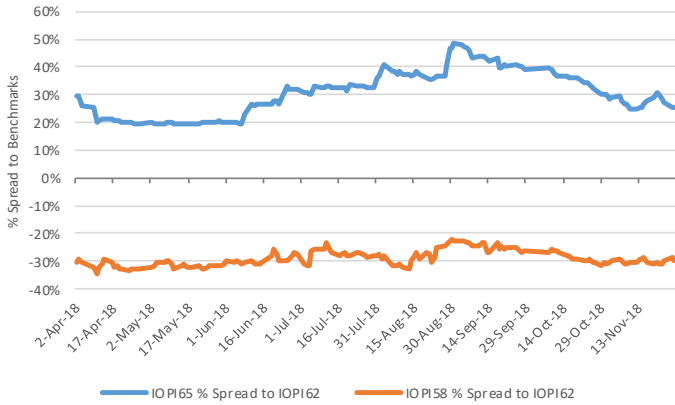
Daily Iron Ore Index Report

November 27 2018

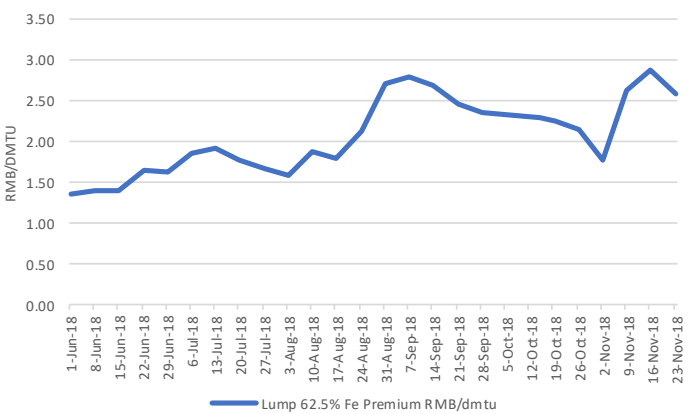
IRON ORE INDEX PREMIUMS/DISCOUNTS

November 27 2018	PORT STOCK INDEX (RMB/WT)	
Fe Content	Spread to IOPI62	% Spread to IOPI62
58% Fe Fines	-171	-29.64%
65% Fe Fines	148	25.65%

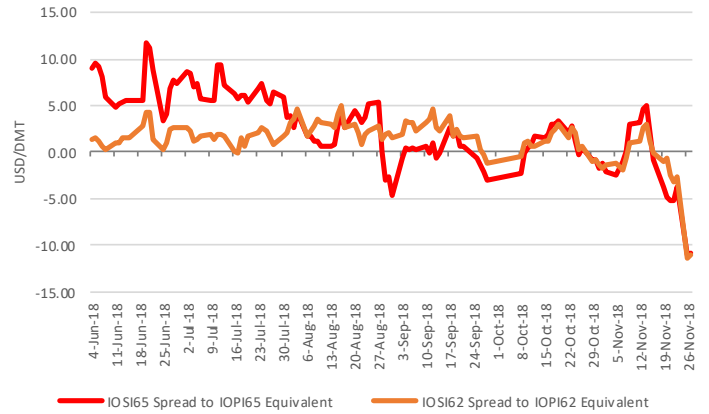
November 27 2018	SEABORNE INDEX (USD/DMT)	
Fe Content	Spread to IOSI62	% Spread to IOSI62
65% Fe Fines	20.25	32.17%



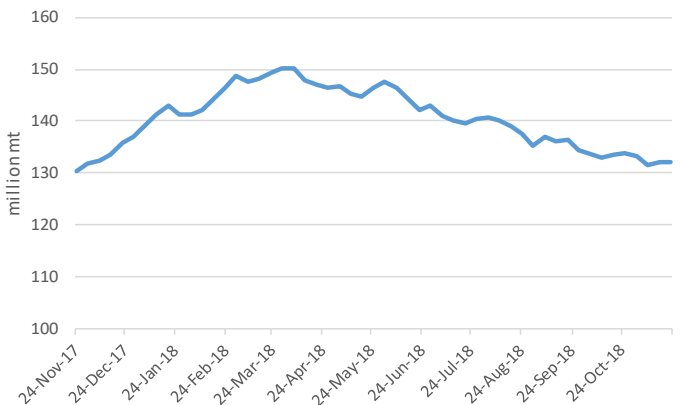
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (62.5% FE LUMP—62% FE FINES)



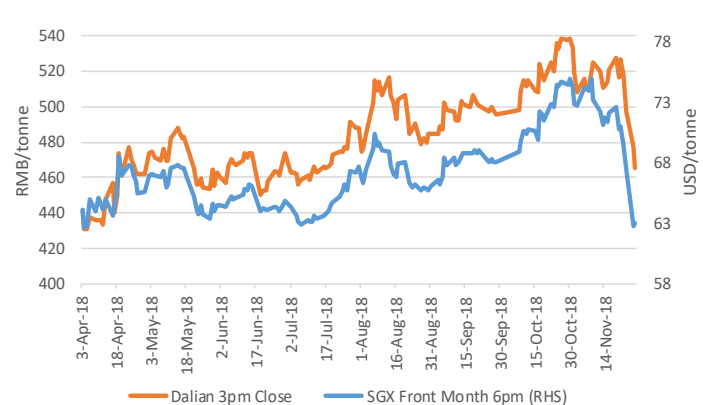
IRON ORE SEABORNE TO PORT STOCK SPREADS



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>

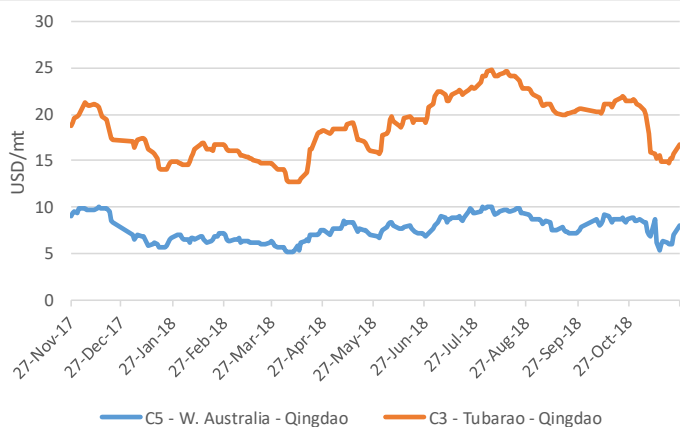
IRON ORE FUTURES CONTRACTS

Closing Date	DCE		SGX		
	27 Nov 3pm close	Change	27 Nov 6 pm	Change	Change %
Contract	11901		Dec'18		
Closing Price	465.5	-12.0	63.00	0.21	0.33%
Vol traded ('000 lots)	109.37	10.0	19.61	-6.38	-24.54%
Open positions ('000 lots)	46.69	-10.2	128.71	1.29	1.02%
Day Low	459.0	-18.5	62.92	0.38	0.61%
Day High	476.0	-18.0	63.93	-3.09	-4.61%

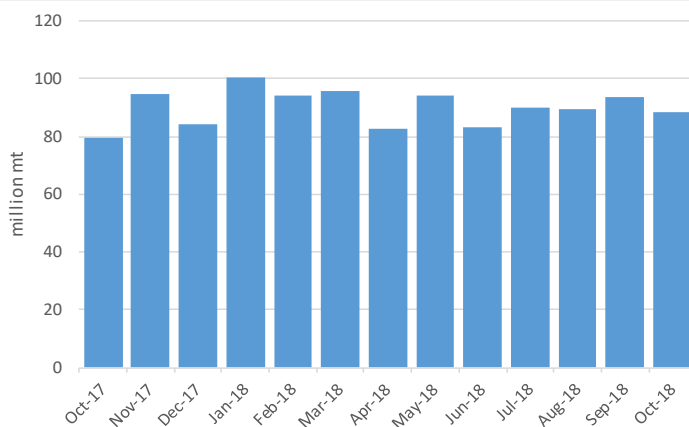
Daily Iron Ore Index Report

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DRY BULK FREIGHT RATES



TOTAL CHINA IRON ORE IMPORT VOLUMES

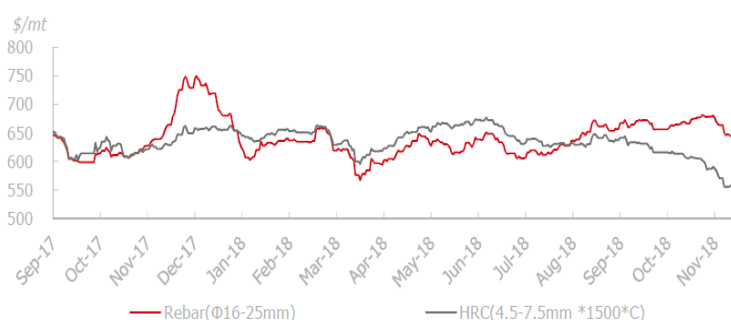


Steel Spot Market Prices - China

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 Ship 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%
Total	8,539	8,734	-195	-2.23%

<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.																			
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	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>																			
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%		<table border="1"> <thead> <tr> <th colspan="3">Data Exclusions*</th> </tr> <tr> <th></th> <th>62%</th> <th>58%</th> <th>65%</th> </tr> </thead> <tbody> <tr> <td>Port Index</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Seaborne Index</td> <td>0</td> <td></td> <td>0</td> </tr> <tr> <td>Lump Index 62.5</td> <td>0</td> <td></td> <td></td> </tr> </tbody> </table>	Data Exclusions*				62%	58%	65%	Port Index	0	0	0	Seaborne Index	0		0	Lump Index 62.5	0		
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	62%	58%	65%																					
Port Index	0	0	0																					
Seaborne Index	0		0																					
Lump Index 62.5	0																							
Pricing Point	Qingdao Port (FOT and CFR respectively)		FOT Qingdao Port		* Number of price submissions for iron ore indices that were excluded from index calculations today as they were anomalous and could not be verified																			
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																					

**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 27 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	61.63%	2.32%	3.56%	0.100%	9.35%	PB Fines 62%	62.00%	2.60%	4.30%	0.090%	10.00%
Newman Fines	62.32%	2.41%	4.09%	0.090%	7.85%	Newman Fines	62.80%	2.20%	4.30%	0.080%	6.40%
MAC Fines	60.76%	2.26%	4.62%	0.090%	7.59%	MAC Fines	61.00%	2.70%	4.70%	0.110%	9.30%
Jimblebar Blended Fines	61.37%	2.85%	4.24%	0.110%	6.82%	Jimblebar Blended Fines	61.79%	2.67%	4.08%	0.115%	7.16%
Carajas Fines	64.78%	1.21%	2.32%	0.080%	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	62.76%	1.52%	4.81%	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%
November 27 2018	SPECIFICATIONS APPLIED FOR 58% BRAND ASSESSMENTS										
	Fe	Alumina	Silica	Phos	Moisture						
SSF	56.45%	3.01%	6.30%	0.050%	9.49%						
FMG Blended Fines	58.31%	2.76%	5.80%	0.070%	7.17%						
Robe River	56.63%	2.88%	1.85%	0.040%	9.09%						
Western Fines	57.57%	2.86%	6.73%	0.060%	7.58%						
Atlas Fines	56.59%	2.55%	7.14%	0.080%	8.46%						
Yandi	57.13%	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

**CONTACT US**

MMI Singapore Office Details: Level 28, Manulife Tower, 8 Cross Street Singapore. Tel: + 65 6850 7629 E: [jarek@mmiprices.com](mailto:jarek@mmiprices.com)

SMM Singapore Office Details: Level 28, Manulife Tower, 8 Cross Street Singapore. Tel: + 65 6850 7630 E: [service.en@smm.cn](mailto:service.en@smm.cn)

SMM Shanghai Office Details: 9th FL, Building 9, Lujiazui Software Park, No.20, Lane 91, Pudong, Shanghai Tel: +86 021 5155 0306 E: [service.en@smm.cn](mailto:service.en@smm.cn)

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