DALIAN COMMODITY EXCHANGE

IRON ORE FUTURES TRADING MANUAL

DCE

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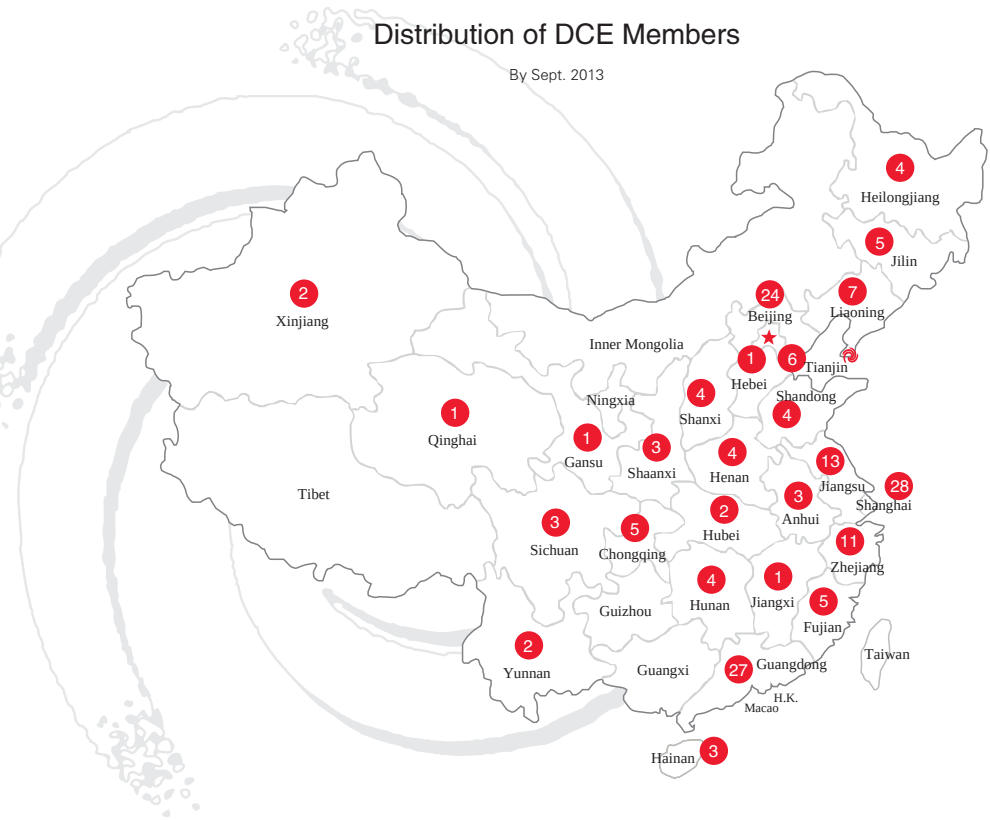
By Sept. 2013



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I. Overview of Iron Ore

Iron ore refers to the ore that has use value, contains iron element or iron compounds, and is almost exclusively used as the raw material for iron and steel production. Steel is the pillar industry of the national economy, and the iron ore is the most important raw material for iron and steel production. It takes about 1.6 tons of iron ore to produce 1 ton of cast iron, and iron ore accounts for more than 60% in the cast iron cost. Therefore, the iron ore is also an important raw material closely related to the national economy.

According to different physical forms, the iron ore is divided into raw ore, lump ore, fine ore, ore concentrate, sintering ore, and pellet ore etc. The lump ore is a high grade ore that can be directly put into furnace; fine ore and ore concentrate can only be put into blast furnace after artificial agglomeration. Where, the fine ore is the main raw material to produce sintering ore, and ore concentrate is the main raw material to produce pellet ore. Based on the requirements of the spot market, the fine ore is selected as the subject matter for futures trading of iron ore.

In recent years, the steel industry has been rapidly developing in China, and the demand for iron ore is greatly increased, driving the iron ore output to constantly increase in China. The raw iron ore output in China was 218 million tons in 2001, which was increased year by year in the following years. By 2005, it reached 420 million tons with the year-on-year growth of 35.6%, which almost doubled that in 2001. According to statistics, at present, China is the largest consumer country, the largest importing country and the second largest producing country of iron ore in the world. In 2012, China had the raw iron ore output of 1.31 billion tons, equivalent to 440 million tons of ore concentrate, consumed about 1.05 billion tons of iron ore, and imported 740 million tons of iron ore.

In recent years, the annual price negotiation system of iron ore is collapsed, and the trade price violently and frequently fluctuates along with market changes, so enterprises have strong demand for risk avoidance. Since 2010, the price fluctuates between RMB600-1,400/ton, with the maximum fluctuation of more than RMB700/ton, the maximum increase of more than 70% and the maximum drawdown of nearly 40% within a year. Dalian Commodity Exchange (DCE) pushes forward futures trading of iron ore following the financialization trend of iron ore, so as to facilitate spot enterprises' management of market price fluctuation risks, improve the iron ore pricing system, and lay the foundation for China to obtain the pricing power in international trade in the future.

II. Overview of Production, Consumption and Circulation of Iron Ore

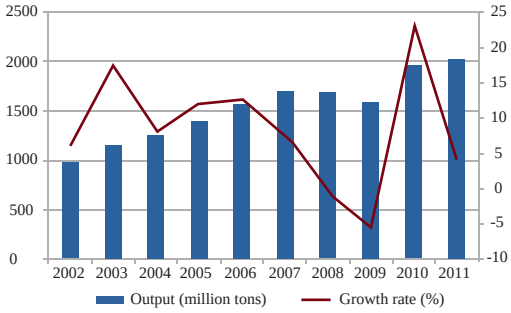
(I) Overview of Production, Consumption and Trade of Iron Ore in the World

1. Production of Iron Ore in the World

(1) The iron ore output is on the rise in the world as a whole.

After 2000, rapid development of the iron and steel industry in the world, especially in Asia, drove the iron ore consumption in the world to significantly increase, thereby promoting the global iron ore production. In 2002-2011, the overall output was on the rise, and was increased by 1.05 billion tons. The annual growth was about 105 million tons, and the average annual growth rate was 8.49%. Especially from 2003 to 2007, the average annual growth rate was morethan 10%. In 2011, the global iron ore output was 2.04 billion tons.

Figure 1: Global iron ore output trend in 2002–2011



Source: IISI, Steel Statistical Yearbook

(2) Iron ore production is centralized in the world.

South America, Asia and Oceania provide the main sources of global iron ore in recent years, and the countries producing iron ore in these regions mainly include Brazil, China, India and Australia. In 2002-2011, the annual growth rate of iron core (raw ore output) was more than 20 million tons in Australia and China, and more than about 10 million tons in Brazil and India. Sum of the annual growth in the above 4 countries is more than 90% of the global growth. It is clear that the iron ore production is centralized in the world.

Table 1: Production situation of iron ore in top 10 countries ranked according to the iron ore output except China in 2002–2011

Unit:million tons

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Brazil	225.10	245.60	270.52	292.40	318.63	336.53	346.00	305.00	372.00	391.00
Australia	187.22	212.00	234.70	257.53	275.09	299.06	349.80	393.90	432.80	487.90
India	86.40	99.10	120.60	142.71	180.92	206.94	223.00	218.60	212.00	196.00
Russia	84.35	91.37	96.98	96.76	103.90	104.95	99.27	92.05	99.06	103.80
Ukraine	58.90	62.50	65.54	68.57	73.10	77.43	71.81	65.83	79.17	81.19
United States	51.50	48.48	54.70	54.30	52.90	52.40	53.60	26.50	49.50	53.60
South Africa	36.48	38.09	39.27	39.54	41.33	41.56	49.00	55.40	56.90	52.90
Canada	30.90	33.32	28.26	30.13	34.97	34.10	32.10	33.00	37.50	37.10
Sweden	20.28	21.50	22.27	23.26	23.30	24.71	23.80	17.70	25.30	26.10
Venezuela	20.89	19.20	20.02	21.18	22.10	20.65	21.50	14.90	14.00	16.00
Total	802.02	871.16	952.86	1026.38	1126.24	1198.33	1269.88	1261.68	1378.23	1445.59
Whole world	986.14	1159.23	1252.05	1400.64	1576.74	1699.14	1692.67	1594.86	1868.90	2042.15
% of the top 10 countries	81.33	75.15	76.10	73.28	71.43	70.53	75.02	79.11	73.74	70.79

Source: IISI, Steel Statistical Yearbook

(3) The three major mines have obvious supply advantages.

Three largest iron ore production companies in the world include the Australian Rio-Tinto, BHP Billiton and Brazil VALE, which totally produced 680 million tons of iron ore in 2012 with the year-on-year growth of 2.4%. Where, the output of VALE was 320 million tons with the year-on-year decrease of 0.84% ; that of BHP Billiton was 161 million tons with the year-on-year growth of 7.7%; that of Rio-Tinto was 199 million tons with the year-on-year growth of 2.4%.

Table 2: Iron ore output of 3 major manufacturers in 2004–2012

(Unit: million tons)

Manufacturer	2004	2005	2006	2007	2008	2009	2010	2011	2012
VALE	211.27	233.85	264.15	295.93	293.37	229.34	309.46	322.60	319.90
BHP	84.22	96.75	97.07	99.42	112.26	125.11	128.06	149.40	160.80
RIO	107.80	124.50	132.80	144.70	153.40	171.50	184.63	191.77	199.00
Total	403.32	455.16	494.07	540.02	559.06	525.95	622.15	663.77	679.70
Proportion in the global output （%）	34%	35%	29%	31%	31%	33%	33%	32.5%	36%

Source: Annual report disclosed by each company

2. Iron ore Consumption in the World

(1) Iron ore consumption is increased year by year in the world.

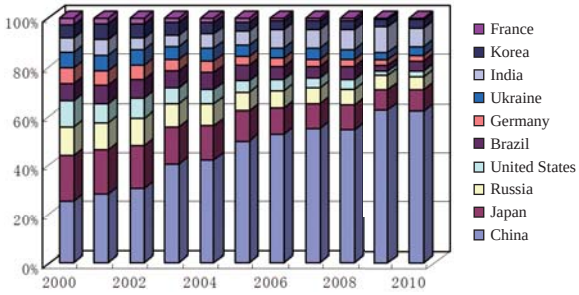
In 2001-2012, the global iron ore consumption was increased by 88.0%, with the average annual growth rate of 5.9%, where the iron ore consumption in China was increased by about 4.2 times with the average annual growth rate of 13.8%; the iron ore consumption growth in India was also very fast before 2008 with the average growth rate close to 8%, but almost stagnated after 2009.

In 2001-2012, the iron ore consumption growth in other 9 countries except China was slowed down, and the average annual growth rate in recent 5 years is only 0.96%; the average annual growth rate of iron ore consumption is 0.5% in other countries except China around the world.

(2) The demand in China is the main driving force.

As can be seen from the changes of the proportion of the apparent consumption of iron ore in the top 10 countries of the world ranked according to the cast iron output in the global consumption in 2000-2011 in the figure below, the consumption of iron ore jumped by 35.3 percentage points to 53.6% in China in 2010; that in Japan, the United States and Russia was significantly decreased by 6.3%, 5.5% and 4.1% respectively; that in Germany was decreased by 2.6% from 5.0% to 2.4%, that in Ukraine was decreased by 1.8%, and that in South Korea was decreased by as little as about 1 percentage point, while the proportion of Indian consumption in the aggregate consumption of the world was increased slightly by 2.2%.

Figure 2: Changes of the proportion of the apparent consumption of iron ore in main countries in the global consumption in 2000–2011

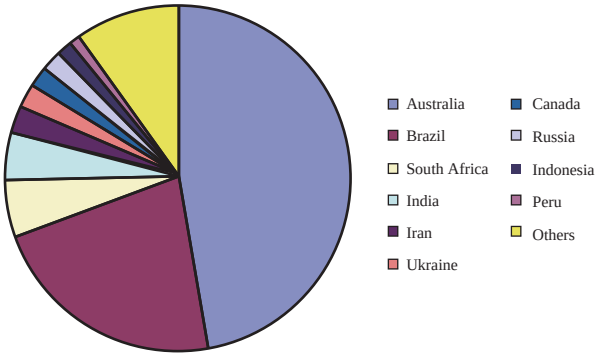


Source: IISI, Steel Statistical Yearbook

(3) Import sources are different in each country of the world.

Each country has different sources of iron ore. Japan depends on import of more than 99% of iron ore, 61% of which was imported from Australia, 21% from Brazil, 8% from India and 4% from South Africa. South Korea, Germany and Italy also depend on import of almost 100% iron ore mainly from Brazil and Australia; the United States depends on import of about 50% iron ore mainly from Australia, Brazil, India, South Africa and Venezuela; the iron ore in Russia, Ukraine, India and Brazil mainly comes from themselves. In 2012, China provided 37.3% iron ore consumed by itself, and depended on import of 62.7% iron ore, 47.2% of which came from Australia, 22.1% from Brazil, 4.4% from India and 5.4% from South Africa.

Figure 3: Distribution of countries exporting iron ore to China in 2012



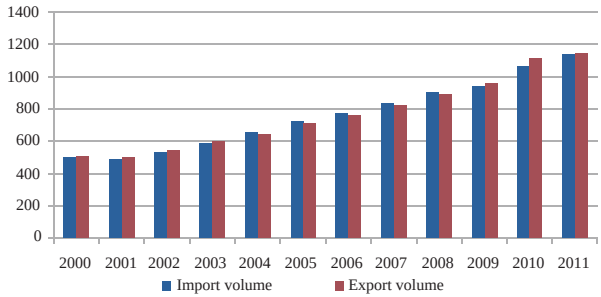
Source: General Administration of Customs of the People's Republic of China

3. Iron Ore Trade in the World

As can be seen from the total export and import volume, the export volume is practically equivalent to the import volume in the world. From 2001 to 2011, the total import volume of iron ore in the world was increased by 127.4%, with the average annual growth rate of 7.8%.

Figure 4: Total import and export volume of iron ore in the world in 2001–2011

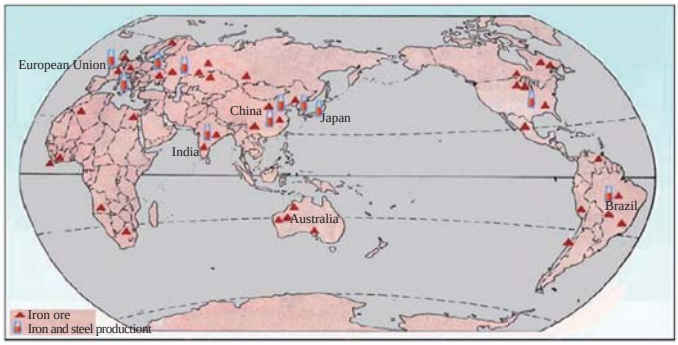
Unit: million tons



Source: IISI, Steel Statistical Yearbook

Global steel production distribution is inconsistent with the iron ore resources distribution. Major steel producing countries, such as Japan, South Korea, the U.K., and Italy, completely depend on import of iron ore; China needs to import large amounts because its steel production scale is more than the support of its own iron ore resources; the supply and demand of iron ore in Russia is practically balanced; Brazil, India, Australia can not only meet their own domestic demand for iron ore, but also export large amounts. The world iron ore trade forms a pattern of exporting from Australia, Brazil and India etc. to China, Japan and the European Union countries etc.

Figure 5: Global iron ore and main steel producing area distribution map



Source: Compiled by relevant data

(II) Overview of Production, Consumption and Trade of Iron Ore in China

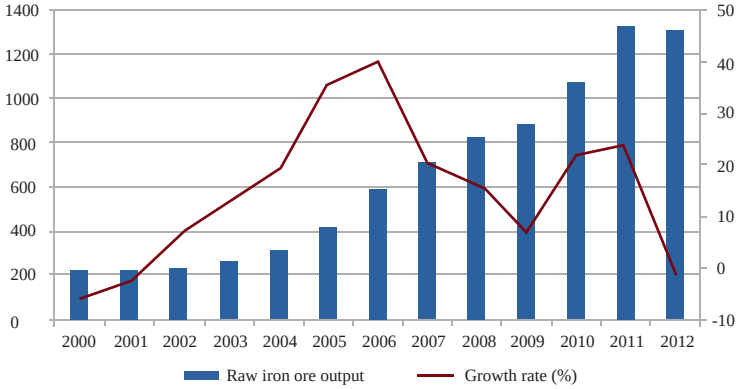
1. Production of Iron Ore in China

(1) The iron ore output is ever increasing. In recent years, the steel industry in China has rapidly developed, and there is substantially increased demand for iron ore, driving the iron ore output in China to be constantly increased.

The raw ore output in China was 218 million tons in 2001, decreased by 2.5% compared with that in 2000. After that, it was increased year by year. By 2005, it reached 420 million tons with the year-on-year growth of 35.6%, which almost doubled that in 2001. In the "11th Five-year Plan", the average annual growth rate of iron ore output exceeded 20%. The raw iron ore output reached 1.31 billion tons in 2012.

Figure 6: Raw iron ore output in China in 2000–2012

Unit: million tons



Source: Metallurgical Mines' Association of China (MMAC)

(2) Output in the Bohai Rim Region is the largest.

From the perspective of different regions, the raw iron ore output in the Bohai Rim Region is the largest (720 million tons), and is close to 55% of the total output of China. If Shanxi and Inner Mongolia near the Bohai Rim Region are considered, the output in this region will account for more than 60% in the national output. The proportion of output in southwest region and other areas of North China is also higher (respectively more than 10%). The output in Yangtze River Delta Region and coastal areas of South China is low (less than 50 million tons), and its proportion in the total output of China is less than 3.5%.

Table 3: Details of raw iron ore output in various regions of China in 2012

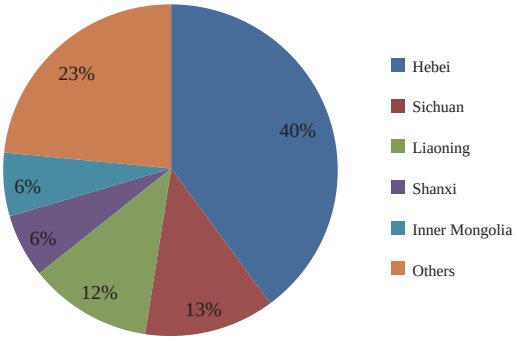
Region	Output (million tons)	Proportion in the national output (%)
Bohai Rim Region	720	54.96
Yangtze River Delta Region	46	3.49
Coastal areas in South China	44	3.38
Other areas in North China	174	14.06
Other areas in South Central China	67	5.12
Southwest China	190	14.51
Northwest China	58	4.40

Source: China Iron and Steel Association (CISA)

(3) Iron ore production areas are centralized.

From the perspective of different provinces, iron ore is not exploited in Tianjin, Shanghai, Ningxia and Tibet due to restrictions by resources, but is produced in all other areas. Where, the output in Hebei and Sichuan is high, and is respectively 520 million tons and 160 million tons. In addition, the output in Liaoning, Shanxi and Inner Mongolia is also high, and is respectively 150, 81.3 and 80.49 million tons. The iron ore output in Hebei, Liaoning, Sichuan, Inner Mongolia and Shanxi accounts for about 77% of the total output in China. As shown in the figure, the proportion of output in Hebei is the highest (40%); followed by Sichuan (12.4%); the proportion of output in Liaoning, Shanxi and Inner Mongolia is respectively 11.8%, 6.2% and 6.1%.

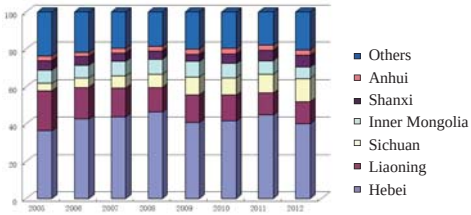
Figure 7: Regional distribution of raw iron ore output in China in 2012



Source: National Bureau of Statistics of the People's Republic of China

From the proportion over the years, the output in Hebei and Liaoning is high, and is more than 50% of the total output. The iron ore output in Sichuan is increased rapidly in recent five years, and that in other provinces and cities is not significantly changed. The iron ore production areas are centralized in China.

Figure 8: Proportion of iron ore output in various provinces and cities of China in 2005–2010



Source: China Iron and Steel Association (CISA)

(4) Concentration degree of iron ore production is low in China.

Most iron ore producers in China are small mining enterprises, and the concentration degree of iron ore production is low. According to the statistics of Metallurgical Mines' Association of China, as of December 2011, there were a total of 1,596 mining enterprises registered in China. The sum of output in top 10 producers, which are all state-owned enterprises, is less than 18% of the total output.

Table 4: Top 10 iron ore producers in China in 2010

Unit: million tons

	Province	Raw ore output	Ore concentrate output
Anshan Iron & Steel	Liaoning	45.6	15.6
Hebei Iron & Steel	Hebei	26.4	5.7
Baotou Iron & Steel	Inner Mongolia	24.5	8.5
Panzhihua Iron & Steel	Sichuan	20.9	7.9
Taiyuan Iron & Steel	Shanxi	19.2	5.9
Benxi Iron & Steel	Liaoning	17.7	6.5
Shougang Group	Hebei	13.0	4.6
Magang (Group) Holding Co., Ltd.	Anhui	9.5	2.4
Sichuan Tranvic Group	Sichuan	8.5	2.0
Baosteel Group	Shanghai	7.5	4.0
Total		192.8	63.1
Proportion in the total output of China (%)		18.3%	17.1%

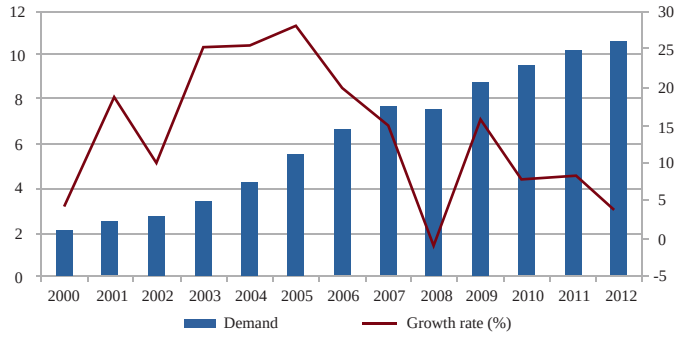
Source: China Iron and Steel Association (CISA)

2. Iron Ore Consumption in China

(1) The iron ore demand is increasing year by year in China.

Iron and steel enterprises are final consumers of iron ore, and the steel productivity distribution determines the iron ore consumption pattern. From the perspective of historical situation, the iron ore demand is gradually increasing in China. In 2008, the cast iron output was 469 million tons in China, and the demand for iron ore was about 750 million tons. By 2009, the cast iron output was increased to 544 million tons, and the demand for iron ore was about 870 million tons with the year-on-year growth of 15.9%. The iron ore output in China was also increased with the increase of the consumption all the time. But in 2010, the iron ore consumption growth rate in China was obviously slowed down. On the one hand, the restricted steel productivity reduced the demand for iron ore; on the other hand, the constantly increasing iron ore price also increased the risks of hoarding and speculation of iron ore, and inhibited the speculative demand.

Figure 9: Iron ore demand trend in China in 2001–2009



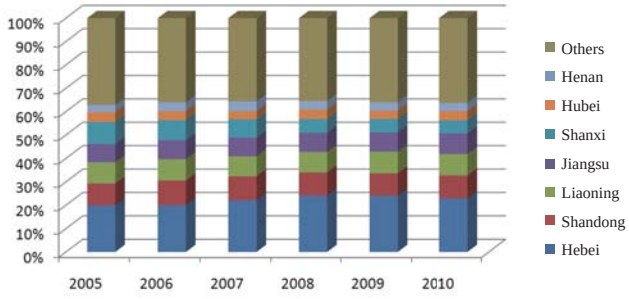
Source: Metallurgical Mines' Association of China (MMAC)

(2) Demand for iron ore in China is centralized.

From the perspective of cast iron output, the cast iron output is high in Hebei. The iron and steel output was more than 100 million tons in Hebei in 2012, and the cast iron output in Shandong, Liaoning and Jiangsu is more than 50 million tons in recent two years. There is main demand for iron ore in these provinces.

From the perspective of proportion in various provinces and cities, in recent five years, the proportion of cast iron output in Hebei, Shandong, Liaoning, Jiangsu, Shanxi, Hubei and Henan is practically stable with a little change, and the sum of proportion in other provinces and cities is decreased by 1%. From the perspective of overall proportion, the output in the top 7 provinces and cities ranked according to the cast iron output accounts for about 64% of the total output, suggesting that the demand for iron ore in China is also centralized.

Figure 10: Proportion of cast iron output in various provinces and cities of China



Source: Statistical Yearbooks of China over the years

(3) Demand for iron ore is centralized in the Bohai Rim Region.

From the perspective of regions, the cast iron output in the Bohai Rim Region is 296 million tons, accounting for 45.1% of the total output of China; the cast iron output in the Yangtze River Delta Region is close to 100 million tons, accounts for 16.1% of the total output, which is ranked the second, though only about 1/3 of that in the Bohai Rim Region; the cast iron output in North China and other areas of South Central China accounts for more than 10%, and the cast iron output in Northwest China, coastal areas in South China and Southwest China is low (less than 10%). From the perspective of the regional demand, the demand for iron ore is also centralized in the Bohai Rim Region.

Table 5: Cast iron output in various regions of China in 2012

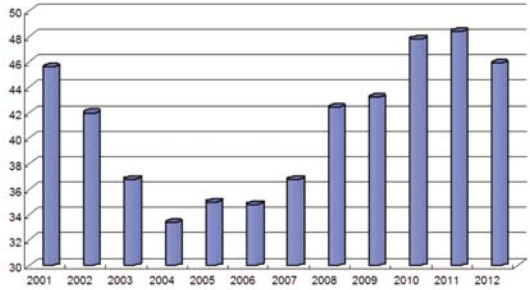
Region	Output (million tons)	Proportion in the total output of China(%)
Bohai Rim Region	296	45.07
Yangtze River Delta Region	106	16.12
Coastal areas in South China	29	4.36
Other areas in North China	70	10.64
Other areas in South Central China	83	12.55
Southwest China	43	6.57
Northwest China	31	4.70

Source: SteelHome.com

(4) Output of key steel mills is increased significantly.

As can be seen from the figure below, during the "11th Five-year Plan", the proportion of output of the top 10 iron and steel enterprises in the total output of China is increased significantly by more than 13% from less than 35% in 2006 to 48.26% in 2010. The concentration degree of steel industry in China is improved, suggesting that the government policy for regulating the steel industry is highly effective.

Figure 11: Proportion of output of top 10 iron and steel enterprises in China



Source: SteelHome.com

3. Iron Ore Trade in China

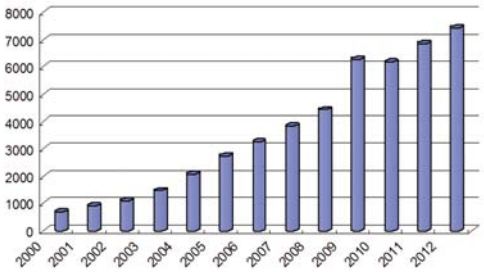
(1) Rapid growth of import volume of iron ore in China

China is biggest iron and steel producer in the world. As its iron ore cannot meet the demand of iron and steel production due to output and grade etc., China needs to import a large amount of iron ore.

In 2001, China imported iron ore of 92.39 million tons, which was increased by 32.04% than the previous year. By 2002, the iron ore imported by China was more than 100 million tons, reaching 111 million tons with the year-on-year growth of 20.67%. Since then, the import volume of iron ore in China has always remained high with the annual growth rate of over 30%. In 2010, the import growth of iron ore in China was somewhat slowed down, slightly lower than that in 2009, and terminated the rapidly rising trend since 2000, followed by the slowly rising trend. During this period, the average annual growth rate of import volume of iron ore in China was 21.8%. The constantly rising import volume also allows the iron ore import dependency of China to be constantly improved. The iron ore import dependency of China was about 63% in 2012.

Figure 12: Import volume of iron ore in China in 2000–2012

Unit: billion tons



Source: General Administration of Customs of the People's Republic of China, The Chinese Academy of Industry Economy Research

(2) Import proportion of iron ore in China is stable and tends to be diversified.

From the perspective of the import proportion, the proportion of iron ore imported to China is stable. Since 2007, the volume and amount of iron ore imported by China from the top 5 countries ranked according to the volume of iron ore exported to China have always accounted for about 88% of the total import volume. In particular, the total proportion of Australia and Brazil over the years is over 60%. The Indian ore accounted for over 20% in 2007. But limited by the export policy, the proportion of Indian ore is decreased to less than 5% in recent years. In 2012, the proportion of Australian iron ore was increased by as much as about 4%. From the perspective of the scope of countries, China imported from increasing number of countries, showing that the sources of iron ore imported by China are gradually diversified.

Table 6: Top 5 countries ranked according to the volume and amount exported to China in 2009–2012

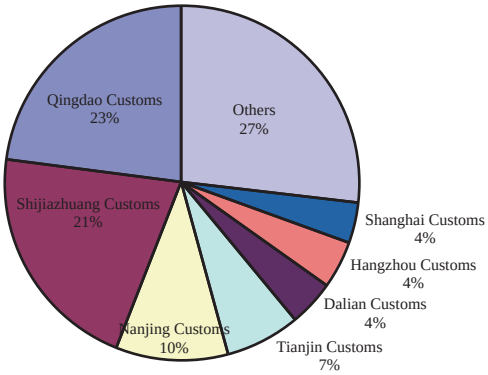
Year	Country	Export volume (million tons)	Export amount (US$ million)	Proportion of volume (%)	Proportion of amount (%)
2009	Australia	26.2	20083	41.71	40.05
	Brazil	14.2	12882	22.64	25.69
	India	10.7	7625	17.10	15.21
	South Africa	3.3	2831	5.33	5.65
	Ukraine	1.4	1235	2.21	2.46
	Total	55.9	44656	88.99	89.06
2010	Australia	26.5	34609	42.89	43.58
	Brazil	13.1	17820	21.15	22.44
	India	9.7	11255	15.61	14.17
	South Africa	3.0	4117	4.78	5.18
	Iran	1.5	1781	2.35	2.24
	Total	53.7	69581	86.78	87.61
2011	Australia	29.6	49672	43.15	44.19
	Brazil	14.2	25722	20.70	22.88
	India	7.3	9663	10.64	8.60
	South Africa	3.6	6404	5.25	5.70
	Iran	1.6	2377	2.33	2.11
	Total	56.3	93838	82.07	83.48
2012	Australia	35.1	44905	47.24	46.97
	Brazil	16.4	22630	22.07	23.67
	India	3.3	3681	4.44	3.85
	South Africa	4.0	5528	5.38	5.78
	Iran	1.7	1815	2.29	1.90
	Total	60.5	78559	81.42	82.17

Source: Mysteel.com

(3) Imported iron ore is mainly centralized in the Bohai Rim Region.

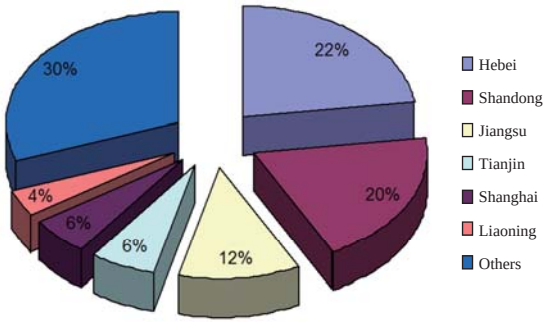
From the perspective of import customs, over 50% of imported iron ore is declared to customs in the Bohai Rim Region, showing that the Bohai Rim Region is the most important region for China to import iron ore. Besides, iron ore imported to China is often unloaded in ports of these customs.

Figure 13: Proportion of iron ore imported from various customs



Source: Mysteel.com

Figure 14: Proportion of imported iron ore in various provinces and cities in 2012



Source: Mysteel.com

As can be seen from the provinces importing iron ore in 2012, the proportion of import was higher than 19% in Hebei and Shandong, slightly lower but still more than 11% in Jiangsu, and more than 5% in Shanghai and Tianjin. The total proportion of the top 5 provinces in the total import volume was 66%. As can be seen from the situation over the years, the overall proportion of the top 5 provinces and cities is stable, but the proportion of some provinces and cities fluctuates.

As can be seen from the proportion of imported iron ore in various provinces and cities in 2008-2012, the proportion of import in Hebei, Shandong and Jiangsu was still high, and was slightly increased, while the ranking of other provinces and cities was basically stable. As can be seen from the change trend in 2008-2012, provinces importing more iron ore had higher steel productivity.

Table 7: Proportion of imported iron ore in the top 5 provinces in 2008–2012

2008		2009		2010		2011		2012	
Province	Proportion of import	Province	Proportion of import	Province	Proportion of import	Province	Proportion of import	Province	Proportion of import
Hebei	17.76	Hebei	17.76	Hebei	17.76	Hebei	17.76	Hebei	17.76
Shandong	17.53	Shandong	17.53	Shandong	17.53	Shandong	17.53	Shandong	17.53
Jiangsu	10.92	Jiangsu	10.92	Jiangsu	10.92	Jiangsu	10.92	Jiangsu	10.92
Shanghai	8.86	Shanghai	8.86	Shanghai	8.86	Shanghai	8.86	Shanghai	8.86
Tianjin	5.76	Tianjin	5.76	Tianjin	5.76	Tianjin	5.76	Tianjin	5.76
Liaoning	5.27	Liaoning	5.27	Liaoning	5.27	Liaoning	5.27	Liaoning	5.27
Others	33.91	Others	33.91	Others	33.91	Others	33.91	Others	33.91

Source: Mysteel.com

(4) International transportation depends on sea transportation, while internal transportation combines a variety of ways.

The international trade of iron ore is basically focused on sea trade, and rail transport and other means account for less than 10%. In 2012, the total volume of global iron ore trade was 1.1 billion tons, and the sea trade volume reached 900 million tons, accounting for 93.8% of the total trade volume of iron ore. The sea trade has become the main mode of the international iron ore trade.

The iron ore produced in China, seldom inter-provincially transported, is generally consumed nearby, and is usually transported by means of short haul, auto for instance. Imported seaborne iron ore is transferred to inland through long-distance transportation tools, such as water transport and train, because the iron ore must be unloaded in port.

(5) Regional flow direction is clear.

As can be seen from the table below, there are surplus iron ore in Hebei, Shandong, Beijing, Shanghai and Inner Mongolia, which are the main places for outflow of iron ore, while Shanxi, Henan, Hubei, Jiangsu, Hunan and Yunnan are short of iron ore, and are the main places for inflow of iron ore. Therefore, China may be divided into three regions according to the latitude:

a. North region: It means the area to the north of Huaihe River and Tongbai Mountain line, which can be further subdivided into Bohai Rim and surrounding areas, other northeast areas, central area and northwest area. This region is mainly intended to unload imported ore through the Bohai Rim port, and transport the ore to steel mills by rail.

b. Yangtze River Delta Region and areas along the Yangtze River: It is mainly intended to import ore using the port near Yangtze Estuary, which is then transported to docks along the Yangtze River through waterway-waterway transit; some ore is transported to inland steel mills by rail via Beilun port or after going ashore.

c. South China: It refers to the area to the south of Nanling, including four provinces, namely Guangdong, Guangxi, Yunnan and Hainan. The ore unloaded in southern coastal ports is mainly transported to steel mills by rail.

III. Main Factors Influencing Iron Ore Price

1. Cost

The iron ore cost is influenced by a series of factors, such as mining equipment, labor cost, water and electricity cost required for mining, relevant taxes, and freight etc., which all affect the CIF of iron ore, thereby affecting the ore market price.

2. Policy

Iron ore is an international bulk commodity, and its price is influenced by all kinds of policy factors, such as import and export policy in the country of origin, tariff policy in the importing country, and steel and iron industry development policy in the consumer country, which all affect the iron ore price.

3. Output

The productivity and output fluctuations of iron ore influence the market price. If the mining enterprises stop production or reduce output due to equipment maintenance and natural conditions etc. of the production enterprises, the iron ore price will also change accordingly.

4. International Trade Price

As the iron ore import dependency is high in China and the international ore price is strongly correlated with the domestic price, the changes of the international market price will be transferred to the domestic price, thereby affecting the market price of iron ore.

5. Downstream Demand

The market price of iron ore will also fluctuate with the downstream demand changes. The market price will rise when the downstream consumption grows under short supply, and will fall when the downstream consumption declines under ample supply.

6. Substitute Product Price

The price will decline when the iron ore market price is high and the price of the substitute product such as scrap steel is low.

7. Inventory

Inventory changes will also affect the market price of iron ore. For example, the price will decline when local inventory level rises and traders are willing to sell, and will fall when traders hoard up goods for short of local inventory.

8. Macroeconomic Situation

Healthy and rapid macroeconomic development plays a role in strongly supporting and driving the iron ore market. Macroeconomics affects the iron ore market changes mainly through influencing the needs of the downstream industry. In other words, macroeconomic performance is a barometer of the market demand for iron ore, and has significant influence on the pricechanges. When the macroeconomic operation is good, construction industry, automobile manufacturing industry and other related industries have strong demand for steel, which will drive the demand of iron ore correspondingly, and support to keep its price high.

IV. Measures of Risk Management of Iron Ore Futures Trading

(I) Margin Requirements

The minimum trading margin of iron ore futures contract is 5% of the contract value. The Exchange sets up different levels of margins which are increased with the size of open interest and the time approaching the delivery day.

Table 8: Margins of Iron Ore Futures Contract Approaching Delivery Day

Trading Date	Margins
The tenth trading day of the month immediately preceding the delivery month	10% of contract value
The first trading day of the delivery month	20% of contract value

Table 9: Margins of Iron Ore Futures Contract with Different Sizes of Open Interest

Bi-lateral total open interest of contracts matured in a certain month (N)	Margins
N ≦ 800,000 contracts	5% of contract value
N ＞800,000 contracts	7% of contract value

(II) Price Limits

The price limit of iron ore futures contract is 4% of the settlement price of the previous trading day. When the price limits are touched consecutively, the Exchange will raise the price limit. See Table 10.

Table 10: Levels of Margins When Price Limits are Touched Consecutively

Trading Situation	Price Limit	Margins
1st price limit	4%	5%
2nd price limit	6%	8%
3rd price limit	8%	10%

When three price limits in the same direction are touched consecutively, the same risk control measures as those for coke and coking coal futures trading will be resorted to. When one-sided market in the same direction occurs and an iron ore futures contract touches the price limits on a trading day and the following two trading days (D_N and D_{N+1}, D_{N+2} respectively), i.e., the price limits in the same direction are touched on three consecutive days, if D_{N+2} is the last trading day of the contract, then physical delivery is conducted; if $D_{N+3}$is the last trading day, then the trading on D_{N+3} continues at the price limit and level of margin of D_{N+2}. Except for the two circumstances above, on D_{N+2} the Exchange can decide and announce to take either of the two following measures according to market situation:

Measure I: On D_{N+3}, the Exchange may take one or several of the following measures to avert market risks: increasing some or all members' one-way or bilateral margins with the same or different proportions, suspending new positions of some or all members, adjusting price limits, restricting withdrawing capital, setting a deadline for liquidation, forced liquidation and so on.

Measure II: The Exchange will automatically match the liquidation application, which is unmatched at the close of the market on Day $N+2$ at the price limit. The Exchange may also take other measures flexibly to well attend to the interests of the investors.

(III) Position Limits

The position limit refers to the Exchange-stipulated maximum amount of speculative positions of a certain contract that a member or client can hold, calculated unilaterally. Positions established for the purpose of hedging, which should go through the approval procedures, are exempted from position limit.

Position limits of broker members: (Unit: Contract)

Product	Open interests calculated unilaterally	Broker members
Iron Ore	Open interests≤200,000	Unlimited
	Open interests>200,000	Open interests×25%

The position limits of Non-Brokerage members and clients in ordinary months (from the contract launch day to the 9th trading day of the month immediately preceding the delivery month)

(Unit: Contract)

Product	Open interests calculated unilaterally	Non-Brokerage members	Clients
Iron Ore	Open interests≤200,000	20,000	20,000
	Open interests>200,000	Open interests×10%	Open interests×10%

The position limits of Non-Brokerage members and clients from 10th trading day of the month immediately preceding the delivery month to the delivery month (Unit: Contract)

Product	Trading Date	Non-Brokerage Members	Clients
Iron Ore	From the 10th trading day of the month immediately preceding the delivery month	6,000	6,000
	The delivery month	2,000	2,000

V. Procedures and Relevant Rules for Delivery of Iron Ore Futures

(I) General Delivery Rules

1. Iron ore futures can be delivered through bill of lading or warehouse receipt on par in the form of physical delivery, with the delivery unit of 10,000 metric tons.

2. Physical delivery should be conducted by the members on behalf of the clients, and in the name of the members within the Exchange.

3. No position shall be liquidated by delivery if its holder is a natural person client or the total number of positions in a contract is not an integral multiple of its delivery unit.

4. At the close of the last trading day, all contracts that remain open shall be performed by delivery. The Exchange will match the contracts matured in the delivery month in computerized systems on the principle of “Least Matched Pairs”.

5. The circulation of the VAT invoice: the selling client issues a VAT invoice for the buying client; the invoice is transferred, collected, and verified by both the selling and buying members under the supervision of the Exchange.

(II) Delivery Forms and Workflows

The delivery of iron ore futures can be conducted in the form of exchange of futures for physicals (EFP), one-time delivery and bill of lading delivery.

1. EFP

Flow Chart of EFP

Time	Flow	Notes
Before 11:30 of the application day	The seller and the buyer apply for EFP by submitting *Application Form of Exchange of Futures for Physicals.*	Applications for EFP by warehouse receipts on par should be submitted with the right amount of payment and receipts. Delivery fees of EFP by warehouse receipts on par will be examined and approved on the very same day upon receiving of the application; Trading fees of EFP by other warehouse receipts are examined and approved within three days upon receiving of the application. The eligible period for EFP is the time from the launch day of the contract to the third to the last trading day (including the very same day) of the month preceding the delivery month.
After the close of the application day	The positions of eligible buying and selling applicants in the opposition directions should be closed out at the negotiated price.	Positions of EFP shall be deducted from the open interests of that very day, and the trading result shall not be counted into the settlement price and trading volume of that very day. The relevant data on EFP can be found among the delivery information on the website of the Exchange.
After the settlement of the approval day	The transfer of goods and payments in EFP by other warehouse receipts shall be negotiated and settled by both trading parties. For EFP by warehouse receipts on par, the Exchange will transfer 80% of the payment to the selling member, and issue *Voucher of Warehouse Receipt On Par* to the buying member; the Exchange shall return the trading margins in full amount after offsetting the contracts of the delivery month held in different directions by the selling and buying parties.	Value-Added Tax invoices shall be handled according to the relevant rules in the *Detailed Settlement Rules of Dalian Commodity Exchange.*

Note: For detailed procedures, see *Detailed Delivery Rules of Dalian Commodity Exchange.*

2. One-time Delivery

Flow Chart of One–time Delivery

Time	Flow	Notes
After the settlement of the last trading day	The Exchange matches the contracts that remain open on the principle of "Least Matched Pairs".	Natural persons shall not be allowed to participate in the delivery; the offsetting positions held under the same trading code shall be closed out at the delivery settlement price; after matching, the members can inquire about the corresponding *Delivery Pair Table* in the Member Service System and in the "data service / statistical data" section of the website of the Exchange.
Before 15:00 of the last delivery day	The buyer shall complete the payment of commodities; the seller shall submit all corresponding warehouse receipts on par and VAT invoices.	The seller shall issue VAT invoices to the buyer whose name is provided in the *Delivery Pair Table* ; prices of commodities traded in the Exchange include taxes, which is also true of prices of packaging materials.
15:00 on the last delivery day	The Exchange shall allocate warehouse receipts, and transfer the payments and warehouse receipts on par of the buyer and the seller who have not defaulted.	The corresponding storage fees of the warehouse receipts on par on the very day shall be paid by the buyer. Defaults shall be handled according to the relevant rules in *Detailed Delivery Rules of Dalian Commodity Exchange.*
After15:00 of the last delivery day	The buyer who hasn't defaulted claims the *Voucher of Warehouse Receipt* with the receiving of payment issued by the settlement department. The seller who hasn't defaulted and who has submitted corresponding VAT invoice gets the full amount of payment.	Sellers who haven't submitted VAT invoices shall be dealt with according to the *Detailed Settlement Rules of Dalian Commodity Exchange.*

Note: For detailed procedures, see *Detailed Delivery Rules of Dalian Commodity Exchange.*

3. Bill of Lading Delivery

Time	Flow	Notes
Application day	The buyer initiates applications for delivery with specifications on the delivery locations, and the Exchange pools and publishes all the applications at the closing of the market. On the following day, the seller submits applications, and the Exchange matches the opposite applications on the principle of "maximum delivery amount".	Natural persons shall not be allowed for application; multiple applications can be submitted and the amount in each application shall be 40,000 metric tons or the integral multiples of it; the applications of the seller can involve two locations; the offsetting prices shall be the settlement prices of that day; the Exchange shall transmit corresponding information on matching.
Notification day	The seller shall send out a notification in advance, and the seller and the buyer shall supply corresponding margins within the time frame stipulated.	The seller shall send out a notification three days ahead of the arrival of shipment at the harbor or the examination and acceptance of the goods at the harbor; within three days after the notification day, the level of margins shall be raised to 20%; the last notification day is the third to the last trading day of the month immediately preceding the delivery month.
Spot delivery	Both the seller and the buyer shall be present to supervise the delivery; a third party quality inspection organization shall be entrusted for moisture testing and quality determination; the tolerance for difference in actual weight is 3%; details of the delivery should be submitted and confirmed based on the weight note of the harbor.	The buyer shall entrust and pay the quality inspection organizations; the weight of commodities is the confirmed full weight after making conversion of the weight of commodities loading out of the warehouse in accordance with the result of moisture testing.
Before the closing of the last trading day	The seller declares the commodities to the customs; the buyer submits the quality inspection report and completes the payment to the stipulated amount; the seller, the buyer and the harbor shall confirm the details of the delivery; the Exchange transfers corresponding payment.	Any objection to the result of the quality inspection on the part of the seller shall be submitted within stipulated time; the Exchange settles the premiums and discounts and the weight tolerance; upon settlement, the Exchange shall transfer 80% of the payment first and the remaining 20% upon receiving of VAT invoices.

Note: For detailed procedures, see *Detailed Delivery Rules of Dalian Commodity Exchange.*

(III) Delivery Expenses

1. The delivery fee for iron ore is 0.5 CNY/MT.

2. The storage fee for iron ore is 0.5 CNY/MT per day.

3. The inspections fee for iron ore is negotiated between the clients and the designated inspection organizations.

4. A price ceiling is implemented for the delivery-in and delivery-out fees of iron ore. The charging standards will be published upon the approval of the Exchange.

(IV) Flow of Warehouse Receipts

Warehouse receipts on par for iron ore are issued by the designated delivery warehouses. In accordance with different natures of the designated warehouses, warehouse receipts on par are categorized into receipts of warehouses and factory warehouses. Warehouse receipts on par of iron ore are collectively cancelled on the last trading day of March each year.

1. Flow of Warehouse Receipts

Intention Report: The seller shall report the intention for delivery to the Exchange through the member and pay a deposit of 20 CNY/MT. Commodities that have been delivered, cancelled and converted to spot goods need no intention report if they are to be delivered again by the same designated warehouse, but a renewed inspection on them is requested.

Warehouse Receipt Registration: Members can register warehouse receipts by the right of the registration documents which are submitted to the Exchange by the delivery warehouse after the inspection of the designated quality inspection organization on the commodities and the examination and acceptance of the commodities by the delivery warehouse.

Warehouse Receipt Delivery: In delivery, the seller submits warehouse receipts and VAT invoices and collects the payment while the buyer submits the payment and collects the warehouse receipts.

Warehouse Receipt Cancellation: Holders of warehouse receipts go through the cancellation procedures in the Exchange and collect the *Notification of Delivery.*

Delivery-out: Three days before the actual day of delivery-out, the owner of commodities shall contact the designated warehouse by virtue of the *Notification of Delivery* for the relevant arrangements.

2. Flow of Factory Warehouse Receipts

Warehouse Receipt Registration: The buyer submits the payment and relevant fees to the factory warehouse, who then issues the Application Form of Warehouse Receipts on Par to the seller. The exchange shall register the receipts after verifying the bank guarantee or cash margin and other items submitted by the factory warehouse.

Warehouse Receipt Delivery: In delivery, the seller submits the warehouse receipts and VAT invoices and collects the payments while the buyer submits the payment and collects the warehouse receipts.

Warehouse Receipt Cancellation: Holders of warehouse receipts go through the cancellation procedures in the Exchange and collect the *Notification of Delivery.*

Delivery-out: The factory warehouse shall deliver the goods out within four days after the issuing day (the issuing day excluded) of the *Notification of Delivery.*

(For details, please refer to *the Measures for the Management of Warehouse Receipts on Par of Soybean Oil, RBD Palm Olein, Coke, Coking Coal, and Iron Ore of Dalian Commodity Exchange)*

(V) Delivery Locations

The delivery warehouses for iron ore are located in the major harbors surrounding the Huanghai Sea and the Bohai Sea such as Qingdao and Lianyungang. The factory warehouses are located near the mines in the hinterland and the harbors, without premiums or discounts based on regions.

Annex 1：DCE Iron Ore Futures Contract

DCE Iron Ore Futures Contract

Product	Iron Ore
Trading Unit	100MT/Contract
Price Quote	CNY/MT
Tick Size	1 CNY/MT
Daily Price Limit	4% of last settlement price
Contract Months	Monthly contracts (12 contracts per year)
Trading Hours	9:00 - 11:30 am, 1:30 - 3:00 pm Beijing Time, Monday - Friday, and other hours noticed by DCE
Last Trading Day	10th trading day of the delivery month
Last Delivery Day	3rd day after the last trading day of the delivery month
Deliverable Grades	DCE Iron Ore Delivery Quality Standards
Delivery Location	The warehouses and delivery locations appointed by DCE
Minimum Trading Margin	5% of the contract value
Delivery Form	Physical delivery
Ticker Symbol	I
Exchange	DCE

Annex 2: DCE Iron Ore Delivery Quality Standard

DCE Iron Ore Delivery Quality Standard

(F/DCE I001-2013)

1. Content and Scope

1.1 The standard herein dictates the quality requirement, testing methods, inspection guidelines and transportation requirements for iron ore delivered at DCE.

1.2 The standard herein refers to mined natural iron ores made into fines and concentrates through crushing and screening that can be used to produce artificial lumps such as sinters and pellets.

1.3 The standard herein applies to iron ore products and substitutes delivered under the iron ore futures contract of DCE.

2. Cited Rules

The provisions of the following rules are incorporated herein by reference. For those rules noted with dates, their amendments (excluding corrections) and revised versions may not be applied to this standard; for those without noted dates, their latest versions shall be applied to this standard.

GB/T 10322.1-2000 Sampling and preparation of samples of iron ore

GB/T 6730.5-2007 Determination of total iron content of iron ore

GB/T 6730.62-2005 Determination of calcium, silicon, magnesium, titanium, phosphorus, manganese, aluminum and barium content of iron ore

GB/T 6730.61-2005 Determination of carbon and sulfur content of iron ore

GB/T 6730.54-2004 Determination of lead content of iron ore

GB/T 6730.53-2004 Determination of zinc content of iron ore

GB/T 6730.36-1986 Determination of copper content by atomic absorption spectrophotometry

GB/T 6730.45-2006 Determination of arsenic content of iron ore

GB/T 6730.69-2010 Determination of fluorine and chlorine content of iron ore

GB/T 6730.49-1986 Determination of sodium and potassium content by atomic absorption spectrophotometry

GB/T 6730.22-1986 Determination of titanium content by diantipyrine methane photometry

GB/T 10322.7-2004 Determination of size distribution of iron ore by sieving

GB/T 10322.5-2000 Determination of moisture content of iron ore of a consignment

Terms and definitions under GB/T 20565 apply to this standard.

3. Terms and Definitions

Terms and definitions under this standard are in accordance with GB/T 20565.

4. Quality Requirements

4.1 Par grade product quality requirements

Target	Quality Standard
Iron (Fe)	=62.0%
Silicon dioxide (SiO_2)	≤4.0%
Aluminum oxide (Al_2O_3)	≤2.5%
Phosphorus (P)	≤0.07%
Sulfur (S)	≤0.05%
Trace elements	Lead (Pb) ≤0.10% Zinc (Zn) ≤0.10% Copper (Cu) ≤0.20% Arsenic (As) ≤0.07% Titanium dioxide (TiO_2) ≤0.80% Chlorine + Fluorine ≤0.20% Potassium oxide (K_2O) + Sodium oxide (Na_2O) ≤0.30%
Grain size	At least 90% are finer than 10 mm and at most 40% are finer than 0.15 mm

4.2 Substitute product quality allowances (premiums and discounts)

Target	Tolerance Zone	Premium/Discount (CNY/MT)
Iron (Fe)	≥60.0% & < 62.0%	Each deduction of 0.1%, discount 1.5
	> 62.0% & ≤65.0%	Each additional 0.1%, premium 1.0
	> 65.0%	Pricing at 65.0%
Silicon dioxide (SiO_2) + Aluminum oxide(Al_2O_3)	≤10.0%	When SiO_2 > 4.0%, each additional 0.1% of SiO_2, discount 1.0; When Al_2O_3 > 2.5%, each additional 0.1% of Al_2O_3, discount 1.0;
Phosphorus (P)	> 0.07% &≤0.10%	Each additional 0.01%, discount 1.0;
	> 0.10% & ≤0.15%	Each additional 0.01%, discount 3.0;
Sulfur (S)	≤0.20%	When > 0.05% & ≤0.20%, each additional 0.01%, discount 1.0
Grain Size	At least 70% are finer than 0.075 mm	0

4.3 Iron ores are priced on dry basis, where the weight of moisture is deducted. The measured moisture rounded up to one decimal place shall be deducted when determining the weight of the delivered physical iron ores (e.g. 6.3% weight should be deducted for 6.32% moisture).

5. Testing Methods and Inspection Guidelines

5.1 Sampling and preparation of samples are subject to the standards in GB/T10322.1-2000;

5.2 Determination of iron content is subject to the standards in GB/T6730.5-2007;

5.3 Determination of silicon dioxide, aluminum oxide and phosphorus contents are subject to the standards of GB/T6730.62-2005;

5.4 Determination of sulfur content is subject to the standards in GB/T6730.61-2005;

5.5 Determination of lead content is subject to the standards in GB/T 6730.54-2004;

5.6 Determination of zinc content is subject to the standards in GB/T 6730.53-2004;

5.7 Determination of copper content is subject to the standards in GB/T 6730.36-1986;

5.8 Determination of arsenic content is subject to the standards in GB/T 6730.45-2006;

5.9 Determination of fluorine content is subject to the standards in GB/T 6730.69-2010;

5.10 Determination of chlorine content is subject to the standards in GB/T 6730.69-2010;

5.11 Determination of potassium oxide content is subject to the standards in GB/T 6730.49-1986;

5.12 Determination of sodium oxide content is subject to the standards in GB/T 6730.49-1986;

5.13 Determination of titanium dioxide content is subject to the standards in GB/T 6730.22-1986;

5.14 Determination of grain size is subject to the standards in GB/T10322.7-2004;

5.15 Determination of moisture is subject to the standards in GB/T10322.5-2000.

6. Transportation Requirements

Iron ore products should be shipped in clean train carriages, vehicle carriages, steamship holds or other means of transport.

7. Additional Note

7.1 DCE is responsible for the interpretation of the standard herein.

IRON ORE FUTURES TRADING MANUAL

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