

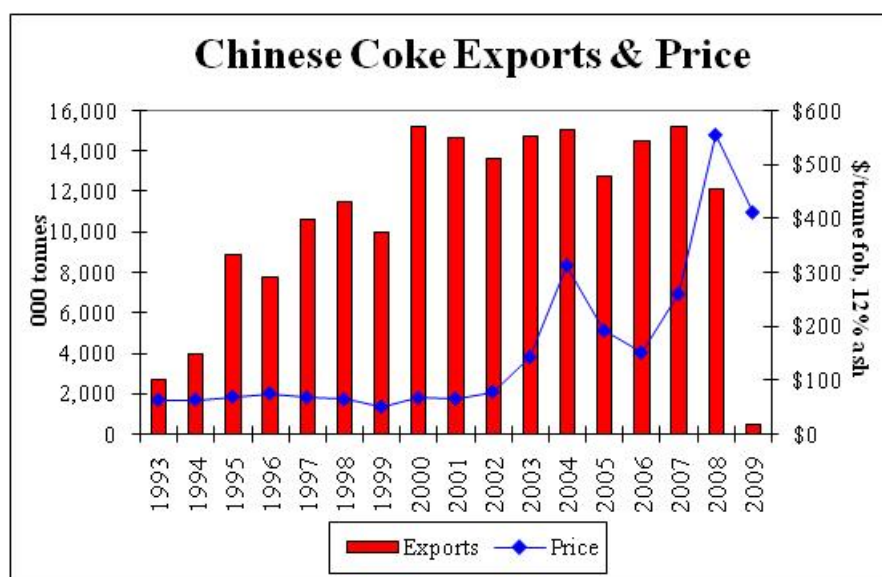
Coke Market Survey

Annual Report

November 2009

Key Points

- ❖ **Following the dramatic collapse in the coke market at the end of last year, prices showed a steady increase from the second quarter.** European blast furnace coke prices reached \$280-300/tonne c&f by October, an increase of \$100/tonne from six months earlier; and in the same month Indian import prices were \$320-340/tonne cfr, also rising significantly since the second quarter. Volumes for coke trade remain low, however, and we do not expect the market conditions to recover fully until 2011.
- ❖ **In August 2008, the export tax on Chinese coke was increased from 25% to 40%, effectively pricing it out of international markets.** As such, Chinese coke pricing remains largely irrelevant to discussions of the international market. On a nominal level, blast furnace coke prices have been at more than \$400/tonne fob this year, but as the chart shows, Chinese coke exports are only likely to be around 0.5m tonnes in 2009. There is a belief among market observers - both in China and elsewhere - that the export tax will remain in place for the foreseeable future. In the ten years or so to 2008, Chinese coke accounted for around half of world trade, so its continued absence would have severe long-term implications for the world market.
- ❖ Annual coke production figures by country have been updated for 2008, and estimates made for the current year. These data were either sourced direct from producers or steel associations, so the use of estimates was mostly avoided. World coke production was measured as 542m tonnes in 2008, just 0.3% down on the previous year. It is worth noting that almost 11m tpy of coke capacity outside China has been permanently closed in the past year, equivalent to around 4% of non-Chinese coke capacity; this may also impact the coke market in years to come.



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Executive Summary (cont'd)

Coke Imports by Country

Region	Coke Imports (Million tonnes) <i>As % of Demand</i>			Outlook
	2007	2008	2009	
Europe	12.49	12.02	6.26	<p>Europe is the most important market for imported coke in the world, both in volume terms and expressed as a percentage of their total demand. Imports by European countries (<i>including those from other European countries</i>) were marginally lower in 2008 at 12.0m tonnes. In 2009, however, imports are likely to almost halve compared to the previous year. Germany remains the major user of imported coke in Europe, accounting for around one-third of the total. Almost 40% of Germany's total imports come from Poland; other sources include China, Czech Republic and Spain. Import demand by Austria is likely to increase in the next few years, as its iron output is being pushed up. With the closure of Carsid's coke plant in Belgium in late 2007, an additional 0.7-0.8m tpy of coke will be imported from Russia in the future. Imports by Italy continue to decline with the restart of batteries at Taranto. Due to lack of coke capacity, Serbia continues to import up to 1m tpy of coke, a major part coming from Bosnia and Ukraine. Coke capacity in Romania and Bulgaria closed permanently in 2009, leading to demand for imports.</p>
	22.8%	23.3%	18.0%	
FSU / CIS	3.43	2.72	1.11	<p>Kazakhstan and Ukraine have become important markets for imported coke. Kazakhstan takes coke mainly from China and Russia, Ukraine from Poland and Russia. In 2009, however, Ukraine's requirements for imported coke will be minimal; in 2008 it imported 1.20m tonnes. There has been rising demand for coke in Georgia for manganese alloys production.</p>
	6.4%	5.6%	3.2%	
North America	3.03	4.99	0.95	<p>The United States is the main market in this region. Investment in additional coke capacity at Haverhill in 2008 (0.50m tpy), US Steel's Granite City site in 2009-10 (0.67m tpy) and AK Steel's Middletown site in 2011 (0.55m tpy) should reduce US import requirements considerably. The main US coke-short plants are US Steel's Fairfield and Severstal's Sparrows Point facilities, neither of which have any coke capacity. In Canada, US Steel Canada seems to be the major importer of coke. Sicartsa remains the main user of imported coke in Mexico. China, Japan and Colombia have been the major suppliers to North America. In 2008 there was some supply from Egypt, Poland and Ukraine to Canada and the US.</p>
	13.7%	22.3%	6.2%	

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Coke Production (cont'd)

EUROPE	Coke Production, Million metric tonnes (dry basis)			Comments
	2007	2008	2009	
Poland (cont'd)				
Przyjazn Dabrowa Gornicza Capacity: 2.62m tpy No of Batteries: 4 Average Battery Age: 15.9 yr	2.70	2.59	1.60	More than 80% of its production is exported via Polski Koks. An annual contract for 600,000 tpy was made with ArcelorMittal in 2005 (to last until 2010). At the start of 2004, the Przyjazn plant passed into the control of a limited liability company, Koksownia Przyjazn, owned jointly by Jastrzebska Coal Holding Co (46%), Polish Railways (38%) and State Treasury (8%). Coke battery #5, with a capacity of 0.73m tpy, was completed in the first quarter of 2007. At the start of 2008, battery #1 was taken down for a rebuild, but this work was frozen in 2009. The remaining three existing batteries will then be rebuilt sequentially. The capacity of each battery will be increased from 0.63m tpy to 0.70m tpy. The total capacity of Przyjazn will reach 3.70m tpy by around 2016, when all five batteries should be operating.
Walbrzych Victoria Capacity: 0.62m tpy No of Batteries: 5 Average Battery Age: 27.3 yr	0.51	0.52	0.35	Walbrzych operates as an independent company but is ultimately owned by the Polish state. Walbrzych's Chrobry plant (0.25m tpy capacity) closed in 2000. The Victoria plant's greater distance from the Polish coal mines compared to other coke plants – 250 km compared to 70 km average for the other cokeries – is a cost disadvantage. The Victoria plant is the only regular producer of foundry coke in Poland. It exports 60% of its coke production.

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Coke Production (cont'd)

FSU / CIS	Coke Production, Million metric tonnes (dry basis)			Comments
	2007	2008	2009	
Russia (cont'd)				
Severstal Cherepovets Capacity: 4.87m tpy No of Batteries: 8 Average Battery Age: 27.8 yr	4.37	3.99	3.00	Severstal overhauled its #3 battery in 2006. Batteries #4 and #7 will be repaired in the future. Battery #7 was put on hot idle in November 2008.
Urals Steel Novotroitsk Capacity: 2.51m tpy No of Batteries: 5 Average Battery Age: 28.9 yr	1.77	1.76	1.70	Acquired assets of the bankrupt Nosta steel plant in 2003. Battery #3 rebuilt in 2004. One battery of the five is on stand-by.
Zapsibmetcombinat Novokuznetsk Capacity: 3.58m tpy No of Batteries: 5 Average Battery Age: 27.0 yr	3.61	3.63	3.20	Reconstruction of #1 battery was completed in 2005, increasing the capacity by 750,000 tpy. However, battery #3 was closed permanently in 2009; its capacity was 0.65m tpy.
Ukraine Total Capacity: 27.37m tpy Average Battery Age: 20.1 yr	19.41	18.49	13.65	One business entity, Metinvest based in Donetsk, holds shares in five coke plants, accounting for around 45% of Ukrainian production. Evraz of Russia acquired three coke plants from Tekhnologia and Privatbank in 2007. Donetsk Koks closed its Rutchenkov plant in early 2008, following the shutdown of the Smolyninovka foundry coke plant in 2006.
Alchevsk Koks Alchevsk Capacity: 3.60m tpy No of Batteries: 6 Average Battery Age: 16.6 yr	3.04	3.14	2.75	Supplies the Alchevsk and Dneprovsk steel plants. Battery #10 was restarted after a rebuild in 2006. Six batteries are idle. Alchevsk Koks is owned by the Industrial Union of Donbass (DIU).
ArcelorMittal Krivoi Rog Capacity: 3.96m tpy No of Batteries: 7 Average Battery Age: 12.9 yr	2.84	2.49	1.90	Batteries #3 and #4 were reconstructed in 2004-2006, adding 1.1m tpy to the capacity. Reconstruction of battery #7 (0.8m tpy) has been halted, and will not be completed in 2009.

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Metallurgical Coal Exports & Pricing (cont'd)

Exporter	Metallurgical Coal Exports, Million metric tonnes			Comments
	2007	2008	2009	
New Zealand	1.8	1.9	2.0	<p>In 2008, Solid Energy NZ exported almost 1.6m tonnes of both hard and semi-soft coking coals to India, Japan and South Africa. Hard grades are mined at Stockton, and semi-soft grades at Spring Creek, both on South Island.</p> <p>ROA Mining Co has been exporting minor quantities of coking coal from South Island since 2001.</p> <p>In 2009, a metallurgical coal mine started up at Pike River, South Island. First shipment will be in 2010, one year behind schedule. The main shareholder is New Zealand Oil & Gas. Two Indian companies are also involved as investors, Gujarat NRE Coke and Saurashtra Fuels. The capacity will be around 1m tpy of low-ash, hard coking coal.</p>
Poland	3.2	1.9	1.0	<p>Exports of coking coal from Poland originate from the state-owned producer Jastrzebska Spolka Weglowa (JSW).</p> <p>Exports of Polish coking coal are made by direct by JSW and via trading company Weglokoks. Markets are mainly in eastern Europe.</p> <p>JSW has a potential production of 9.70m tpy of hard coal and 0.77m tpy of semi-soft. Other coal producers are Kompania Weglowa (2.80m tpy) and Budryk (0.55m tpy), all semi-soft.</p> <p>Availability of hard coal from JSW is expected to decline to 8.5m tpy by 2015 and to 7.6m tpy by 2020.</p>

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Coke Demand (cont'd)

Blast Furnace Iron Production (cont'd)

LATIN AMERICA	Capacity, Million tpy	Comments
Chile		
Cia Siderurgica Huachipato Talcahuano	1.20	Two blast furnaces. One was idled at the end of last year, then restarted in July 2009. In 2008, 66,000 tonnes of coke were imported from China; no imports are likely in 2009. Huachipato sources coke via its controlling company, CAP. There is a plan to add a 2.1m tpy blast furnace to replace of the two existing units, and so increase iron-making capacity to around 2.8m tpy from 2013 at the earliest. This investment would lead to higher coke imports until a new battery can be built.
Colombia		
Acerias Paz del Rio Cundinamarca	0.34	One blast furnace. No coke imports. Expansion activity has been centred on raising electric arc rather than blast furnace capacity. Brazilian steelmaker Votorantim won control of the company in 2007.
Paraguay		
Acero del Paraguay Villa Hayes	0.19	One small blast furnace. Uses charcoal as reductant.
Peru		
Siderperu Chimbote	1.00	One blast furnace, closed for most of 2009. No coke capacity, so Siderperu imports all its requirements. Peru imported 262,000 tonnes of coke from Colombia in 2008, a similar level to the previous two years. Siderperu has an agreement with Coquecol to supply all its coke requirements until 2013. Gerdau of Brazil holds 83% of Siderperu. Blast furnace was halted in February 2009.
TOTAL – LATIN AMERICA	51.98	

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Coke Demand (cont'd)

Summary by Country (cont'd)

Sub-Saharan Africa	Coke Demand, Million metric tonnes			Comments
	2007	2008	2009	
Democratic Republic of Congo	0.08	0.05	0.03	Around 10-15 Chinese-managed cupola-based operations have started up in the last three-four years to smelt copper ore. Coke is supplied either from Zimbabwe or imported from China via Tanzania or South Africa.
South Africa	3.35	3.12	2.48	In 2008 South African coke imports were 353,000 tonnes, of which around 30,000 tonnes (Chinese) was re-exported to central Africa. The sources were China (257,000 tonnes), Zimbabwe (64,000 tonnes) and Australia (31,000 tonnes). In 2009 coke imports are likely to be around 200,000 tonnes. Most of the imported coke is used by the ferroalloys industry, mostly nut coke with low phosphorous. The Meyerton and Cato Ridge manganese alloys plants have been long-term coke importers. Ferrochrome producer Xstrata also took two coke cargoes in 2008, and Sinosteel also imported one cargo for the ferrochrome industry. Xstrata started up another charge chrome plant at Steelpoort in 2006; and in 2007, IFM started a charge chrome plant. Expansions at both these sites are on hold due to the market and power capacity shortages. In 2008 Tata Steel's Richards Bay charge chrome plant entered production; and this year it imported 21,000 tonnes from the United States. Saldanha Steel in the Western Cape has until now imported around 140,000 tpy of nut coke from China for its Corex plant; but in 2009 it sourced coke domestically. Last year it imported 31,000 tonnes from Australia.
Zambia	0.03	0.02	0.03	Demand is for copper smelting. The two smelters are Konkola Copper Mines (Vedanta) and Mopani Copper Mines (First Quantum Minerals). Supplied by Zimbabwe.
Zimbabwe	0.16	0.06	0.02	Ferrochrome production is currently the only demand for coke in Zimbabwe. There are three established plants, the largest of which is Zimasco. There were 26,000 tonnes of coke imports from South Africa in 2008, mainly for Zimasco. There has been no blast furnace production at Ziscosteel since 2007.
Other Sub-Saharan Africa	0.02	0.02	0.02	Some demand exists in other Sub-Saharan African countries, such as Botswana and Malawi. Mainly supplied from Zimbabwe.
Total Sub-Saharan Africa	3.64	3.23	2.53	

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Coke Imports (cont'd)

Estimated Volumes 2001-08 (cont'd) 000 tonnes

	2001	2002	2003	2004	2005	2006	2007	2008
<u>LATIN AMERICA</u>								
Argentina	4	42	46	108	142	45	179	410
Brazil	1,618	2,084	2,544	2,046	1,560	1,501	1,610	1,803
Chile	33	0	32	48	73	0	34	66
Colombia	0	0	0	0	0	0	0	0
Cuba	19	19	21	12	12	10	7	7
Peru	290	168	225	258	285	264	268	262
Venezuela	81	78	59	74	52	35	57	40
Other Latin America	3	3	3	2	1	1	2	1
Total Latin America	2,048	2,395	2,929	2,548	2,125	1,857	2,157	2,590
<i>% Change YoY</i>		<i>17.0%</i>	<i>22.3%</i>	<i>-13.0%</i>	<i>-16.6%</i>	<i>-12.6%</i>	<i>16.1%</i>	<i>20.1%</i>
<u>SUB SAHARAN AFRICA</u>								
DRC	20	30	40	50	60	70	84	50
South Africa	605	564	809	487	301	252	430	353
Zambia	15	15	15	15	20	25	28	29
Zimbabwe	18	20	7	3	18	4	7	27
Other Sub-Saharan Africa	20	20	20	20	20	20	17	17
Total Sub-Saharan Africa	678	649	891	575	419	371	567	476
<i>% Change YoY</i>		<i>-4.3%</i>	<i>37.3%</i>	<i>-35.5%</i>	<i>-27.2%</i>	<i>-11.4%</i>	<i>52.8%</i>	<i>-16.0%</i>
<u>MAGHREB & MIDDLE EAST</u>								
Algeria	64	90	62	0	22	74	111	113
Egypt	113	45	18	14	12	28	31	21
Iran	511	211	342	427	726	649	599	790
Morocco	20	20	20	20	20	23	21	13
Saudi Arabia	0	0	0	0	13	30	27	19
Turkey	547	693	508	388	410	470	442	216
Total Maghreb & Middle East	1,255	1,059	950	849	1,202	1,275	1,231	1,171
<i>% Change YoY</i>		<i>-15.6%</i>	<i>-10.3%</i>	<i>-10.6%</i>	<i>41.6%</i>	<i>6.0%</i>	<i>-3.4%</i>	<i>-4.9%</i>

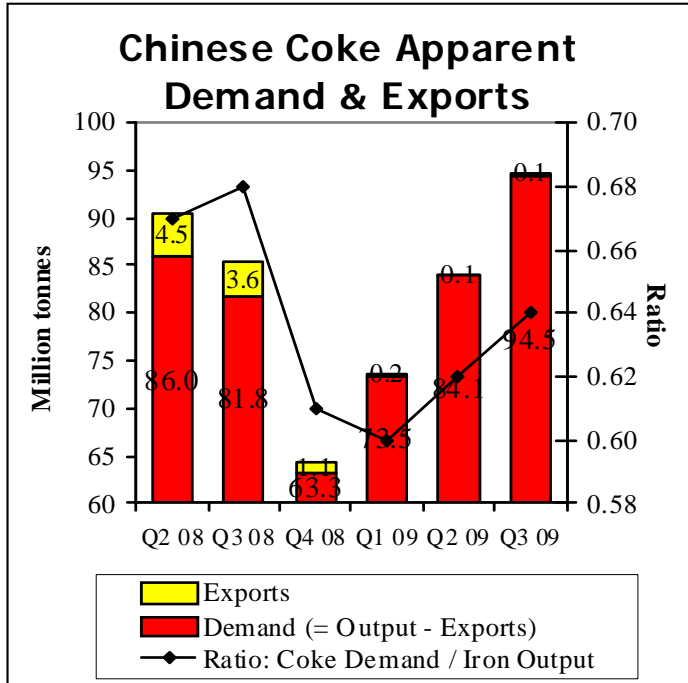
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Coke Exports (cont'd)

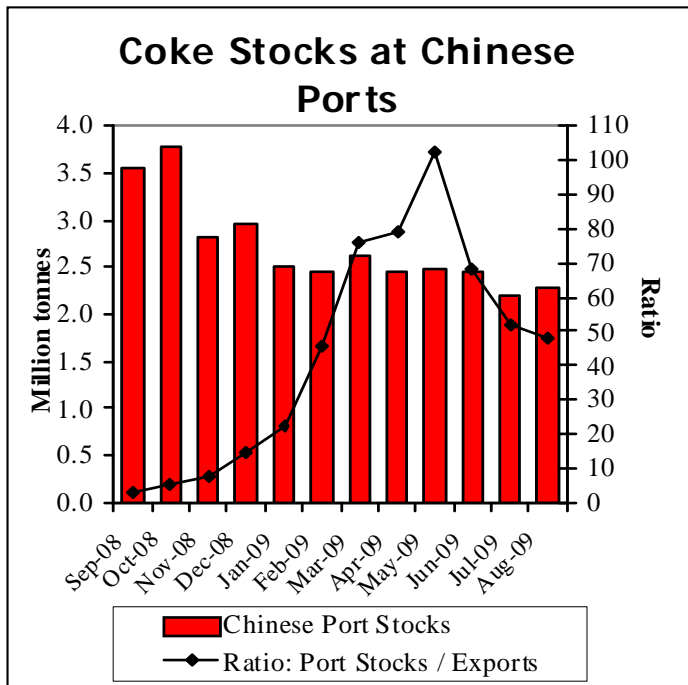
Exporting Country (cont'd)	Coke Exports, 000 metric tonnes			Comments
	2007	2008	2009	
Poland	6,309	6,009	3,500	In the past, Germany accounted for 50-55% of Polish exports, but in 2007 and 2008 this market took less than 30%. Other important markets in 2008 were Austria, Czech Republic, Romania and Ukraine. The Przyjazn plant is the single largest coke exporter from Poland; other major exporters are Zdzeszowice and Zabrze. Walbrzych is supplying foundry coke. Apart from European markets, Poland also exported coke to North America (225,000 tonnes), Algeria (113,000 tonnes), Pakistan (41,000 tonnes) and Egypt (21,000 tonnes) in 2008. However 80-85% of 2008 exports were to other European countries. In 2009 there was interest from India in Polish coke due to the lack of supply from China.
Russia	3,603	3,821	3,200	Altai-Koks in Siberia is the leading exporter of coke from Russia. Koks of Kemerovo is also a regular supplier to overseas markets. Combined, these two plants appear to account for 65-70% of total exports. Exports mainly consist of blast furnace coke, with around 30-35% being nut coke and breeze. Other producers active in the export market have included Moscow Coke (Mechel) and Severstal. Key markets for Russian coke in remained Kazakhstan (1.02m tonnes) and Ukraine (0.47m tonnes). Exports to Iran were also higher, increasing to 0.60m tonnes, three times the level of the previous year. Belgium also took 1.03m tonnes in 2008, consisting of shipments by Novolipetsk Steel to its affiliate at Charleroi. Exports in the first half of 2009 were 1.58m tonnes. Export duty on coke of 6.5% was abolished from July 2007.
Spain	1,012	591	200	ArcelorMittal exports coke from Aviles to its plants in northern Europe. The Bremen steel plant in Germany is the main consumer. Apart from blast furnace coke, there are also foundry coke exports from Spain to other EU countries. In 2008 Spain exported coke to Germany (405,000 tonnes) and France (84,000 tonnes). Imports in 2009 were significantly lower, probably consisting mostly of foundry coke from the three plants in northern Spain.

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Appendix C: Chinese Coke Market Data



The chart shows Chinese coke demand on apparent basis (i.e. = production – exports) and the same expressed as a ratio of iron output in China. Over time, the ratio should tend towards a constant. Therefore, a short-term upward tendency indicates higher stocks of coke in China, as was the case from Q1 to Q3 2009.



Coke stocks at Chinese ports have remained stable at between 2.0m and 2.5m tonnes to date in 2009. This was equivalent more than one year's exports at the current level (ratio is expressed as weeks of exports).