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# Chinese Zinc Quarterly

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## **Executive Summary**

1. Current zinc price has made miners and smelters prefer to production reduction. However, TC items favor miners so that global concentrate output is estimated to keep growth in 2011. But operation rate in smelters will be relatively high so that concentrate supply will tight.
2. Global zinc consumption in 2010 recovered obviously from 2009. Global surplus in 2009- 2010 was around 1Mt and global social inventory has hit a record high. Surplus in 2011 will be reduced, however, inventory will continue to increase.

## International market

According to latest statistics from ILZSG, global zinc output was 10.55Mt in Jan.-Oct.2010, up by 15.2% y-o-y or 1.39Mt compared with 9.16Mt in the same period of 2009. Of which, Europe zinc output increased by 330kt to 2.01Mt, up by 19.6% y-o-y, meanwhile Belgium zinc output increased dramatically, because those who stopped production in 2009, resumed production in 2010. Asian zinc output increased by 940kt to 6.4Mt in Jan.-Oct. 2010, up by 17.2% y-o-y, China, India and Japan are the major countries whose zinc output increased in Asia. American zinc output increased by 150kt to 1.51Mt, up by 10.2% y-o-y, Australian zinc output increased by 20kt in the same period, and African zinc output equaled the level of the same period in 2009. Global zinc output in 2010 is expected to be 12.60Mt, up by 12.2% y-o-y.

The new added smelting zinc capacity in India and Brazil reached 370kt in 2010, which will enhance zinc output in 2011. Meanwhile, the additional zinc smelting capacity in China is estimated to be about 500kt, in case of output reduction in other countries, an increase of 500kt zinc output will still be secured. Therefore, global zinc output is estimated to be 13.10Mt in 2011, up by 4% y-o-y.

**Table 1 Western zinc concentrate output of expanded or new started projects in 2009-2011 (unit: kt metal content)**

Mine	Country	New-added capacity	Output in 2009	Output in 2010	New-added output in 2010	Output in 2011	New-added output in 2011
<b>Penasquito</b>	Mexico	170	5	65	110	175	<b>60</b>
<b>Century</b>	Australia	149	361	505	5	510	<b>144</b>
<b>Iscazacruz</b>	Peru	140	23	110	53	163	<b>87</b>
<b>Rampura-Agucha</b>	India	87	628	655	60	715	<b>27</b>
<b>Talvivaara</b>	Finland	58	2	19	41	60	<b>17</b>
<b>Golden Grove</b>	Australia	53	57	82	-29	53	<b>25</b>
<b>Koktaus</b>	Kazakstan	47	0	25	22	47	<b>25</b>
<b>Milpo</b>	Peru	45	64	66	43	109	<b>2</b>
<b>Aguas Tenidas</b>	Spain	45	6	25	26	51	<b>19</b>
<b>Sindesar Khurd</b>	India	42	0	0	42	42	<b>0</b>
<b>Shaimerden</b>	Kazakstan	39	21	60	0	60	<b>39</b>
<b>Mungana</b>	Australia	38	0	0	38	38	<b>0</b>
<b>Cerro Lindo</b>	Peru	40	79	85	30	115	<b>6</b>
<b>Mount Isa</b>	Australia	38	324	345	15	360	<b>21</b>
<b>Total</b>		<b>991</b>	<b>1570</b>	<b>2042</b>	<b>456</b>	<b>2498</b>	<b>472</b>

**Table 2 Planed smelting capacity in western countries in 2009- 2012**

Country	Company	Smelter	Commission date	Note
<b>India</b>	Binani		2009	New commissioned capacity reached 38ktpy in Q2
	Hindustan Zinc	Rajpura Dariba	Mar. 2010	210ktpy

<b>France</b>	Nyrstar	Auby	Feb. 2009	Added	30-160ktpy
<b>Brazil</b>	Votorantim	Cajamarquilla	May. 2010	Expanded	to 320ktpy
		Juiz de	2009	Expanded	to 115ktpy
		Minas Gerais.	2010	Expanded	to 260ktpy from 180ktpy
<b>Turkey</b>	Cinkom		2010	Planned	to construct 100ktpy
<b>Russia</b>	Ruession Copper Company	Troitsk	2010	Newly constructed	50ktpy of copper and 50ktpy of zinc
<b>Bulgaria</b>	KCM	Plovdiv zinc	2010	Expanded	to 103ktpy from current 73,000t.
	OTZK		2011	Newly constructed	a zinc smelter with capacity of 45ktpy
<b>Korea</b>	Korea Zinc	Onsan Smelter	2011	Expanded	to 600ktpy from current 440ktpy
<b>Japan</b>			2010-2011	Added	60ktpy
<b>Peru</b>	ZINCORE		2011	Newly construct	a smelter with a capacity of 50ktpy
<b>Mexico</b>	Group Mexico	San Luis Potosa	2011	Refined	zinc capacity is expanded from current 105ktpy to 200ktpy.
<b>Malaysia</b>	ZincOx		2011	Annual capacity is	150ktpy

<b>Germany</b>	Xstrata	Nordenham	2011	Expansion capacity is 20ktpy
<b>Russia</b>	UGMK	chelyabinsk	2012	Newly construct 300ktpy
<b>Total</b>				Add 1,658kt

Source: Antaike

According to ILZSG's statistics, global zinc consumption reached 10.341Mt in Jan.-Oct. 2010, up by 17% y-o-y, of which, zinc consumption in western countries reached 5.538Mt, up by 11.6% y-o-y, and consumption in South Korea, German and Japan all increased dramatically.

PMI of main major economies in 2010 maintained the same level as 2009, except PMI of Japan decreased below 50, PMI of other countries all kept above 50. The world economy is reviving slowly, especially the recovery of auto industry, which actively support zinc consumption.

According to OICA's report, global auto output increased by 32.5% y-o-y in Jan.-Sept. 2010. Because of USA government provided low interest for car purchasers and released related economic stimulus measures, which made the clear recovery of USA auto industry. RMA's latest statistics showed that sales volume of tire in USA in 2010 is expected to increase by 9% y-o-y.

With the gradual recovery of different countries' economies, global crude steel output kept the growth trend of H2 2009. According to World steel's statistics, crude steel output of 66 main crude steel producing countries and areas was 1.1651bln tonnes in Jan.-Oct. 2010, up by 17.5% y-o-y or 2.4% compared with the same period of 2008.

Since 2009, galvanized steel output of main countries increased dramatically, however, none recovered to the level before the financial crisis except China. Zinc consumption in western countries had not yet returned to the normal level. New information showed that major steel plants and zinc smelters signed 2010 zinc premium at 4.5-5cents/pound, small galvanizing plants got the premium more than 5cents/pound.

**Table 3 Global market balance of zinc concentrate (unit: kt)**

	2008	2009	2010	2011
<b>Output</b>	11,720	11,370	12,210	13,060
<b>Demand</b>	11,580	11,310	12,300	13,090
<b>Balance</b>	+140	+60	-110	-30
<b>Contract TC</b>	350	194	270	200
<b>Benchmark Price</b>	2,500	2,000	2,500	2,000
<b>Up %</b>	10	10	8	8
<b>Down %</b>	8	8	5	5

Galvanizing plants expressed their operation rate was about 70% at present and it is estimated galvanized steel market will be strong in H1 2011 but not sure.

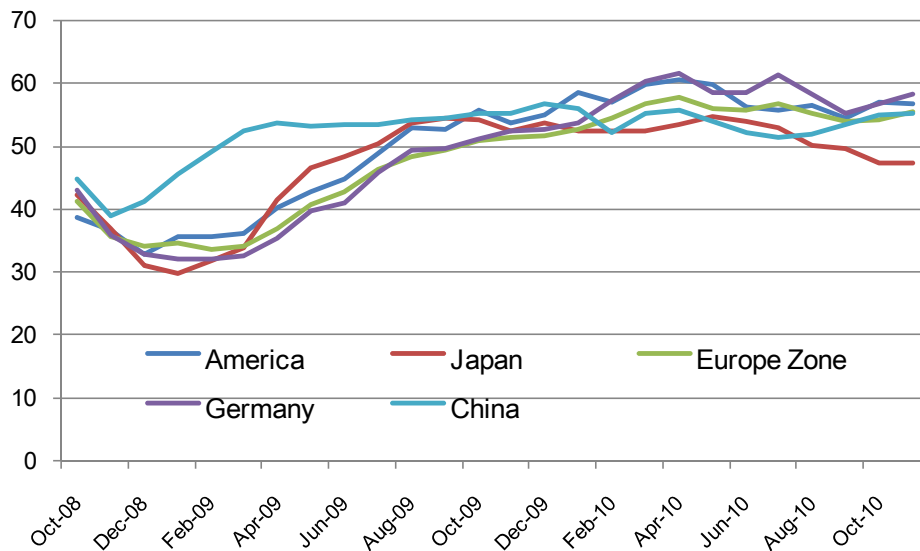
According to statistics from ILZSG, China and other countries use apparent consumption as calculated standard, so the date is too large. After partial adjustment by us, global zinc consumption is expected to be 11.62Mt in 2010, up by 13.5% y-o-y. Thus, 980kt oversupply on 2010 global zinc market will be almost the same as 2009.

We forecast global economy continues to recover amidst turbulence and zinc consumption is expected to grow further. To calculate with a 4% and 5.9% increased of zinc output and consumption, global supply surplus could reach 790kt in 2011, which will be the fourth consecutive year of oversupply.

Zinc inventory on LME in late 2010 was 701kt, which was the highest level since December 2004 and a net increase of 212kt in late 2009. Zinc inventory on SHFE in 2010 had a net increase of 139kt and reached 311kt by the end of 2010, including Chinese partial public social inventory (not including reserve inventory) therefore global inventory will reach 1.34Mt.

Global social inventory is expected to be 2.28Mt, touching a record high, equivalent to 71.7 days of consumption. The highest zinc inventory on LME in history was 1.234Mt in August 1994, and zinc for three month delivery on the LME was 933US\$/t at that time.

**Chart 1 PMI of Major Economies**

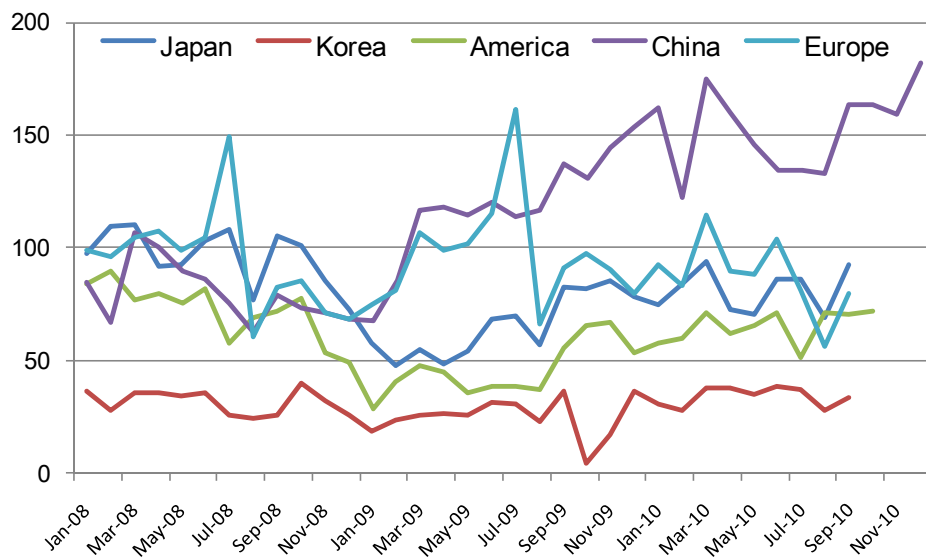




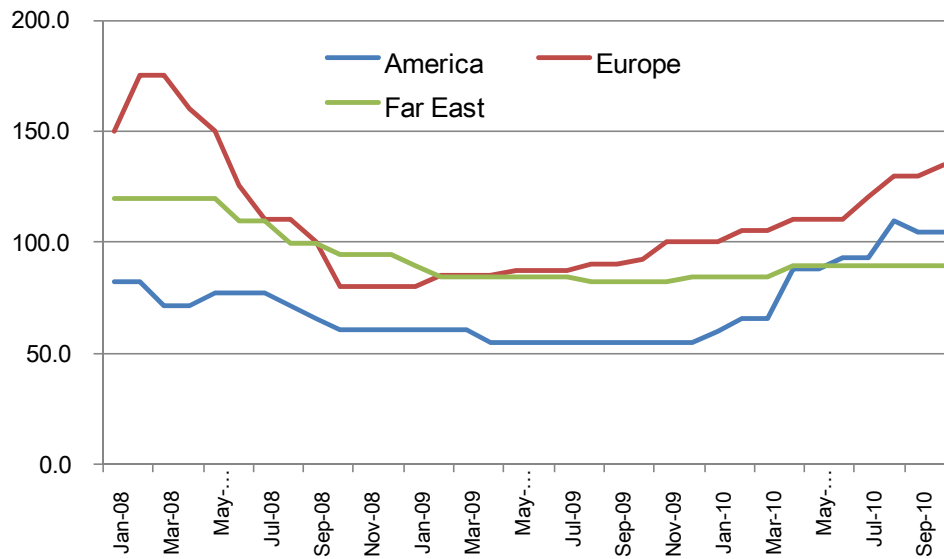
**Chart 2 Galvanized Sheet Outputs of Major Economies**



**Chart 3 Automobile Outputs of Major Economies**



**Chart 4 Premium Changes of Some Regions**



**Table 4 Market Balance of Global Zinc, kt**

	2008	2009	2010	2011	
<b>Output</b>		11,620	11,230	12,600	13,100
<b>M-o-M (%)</b>		2.6	-3.4	12.2	4.0
<b>Consumption</b>		11,190	10,240	11,620	12,310
<b>M-o-M (%)</b>		0.5	-8.5	13.5	5.9
<b>Market Balance</b>		430	990	980	790
<b>Inventory for consuming (day)</b>		15.2	38.5	27.2	14.3
<b>LME Spot Price, US\$/t</b>		1,874	1,655	2,185	2,350

Sources: ILZSG, Antaike

**Table 5 Quarterly Market Balance of Global Zinc, kt, US\$**

	Supply	Demand	Balance	Price
<b>2009 Q1</b>	3050	2830	220	2288
<b>Q2</b>	3200	2970	230	2058
<b>Q3</b>	3090	2910	180	2012
<b>Q4</b>	3260	2910	350	2314

<b>Total</b>	12600	11620	980	2160
<b>2010 Q1</b>	3190	3100	90	2450
<b>Q2</b>	3290	3150	140	2310
<b>Q3</b>	3280	3060	220	2015
<b>Q4</b>	3340	3000	340	2100
<b>Total</b>	13100	12310	790	2219

## Chinese market

### Investment in Chinese Lead and Zinc Industry

According to statistics from CNIA, fixed assets investment in Chinese lead and zinc industry in January- November was 38.66bln yuan, up by 32.6% y.o.y. Among which, investment in newly started projects was 30bln yuan, down by 20.3% y.o.y. Investment in newly started mining project in the eleven months was 16.24bln yuan, up by 27.77% y.o.y; the completed investment in mining sector was 17.98 bln yuan, up by 31.73%, the investment in newly started smelting projects was 13.76 bln yuan, down by 44.85%, the completed investment was 20.66 bln yuan, up by 33.09%.

Investment in newly started smelting projects declined obviously, and was much lower than mining projects in 2010. The growth rate of completed investment in smelting projects slowed down obviously too. However, the completed investment in smelting industry was still higher than that of mining industry.

**Table 6 Fixed asset investments in lead and zinc industry**

	No. of ongoing projects	Investment in newly started projects, bln yuan	Completed investment, bln yuan	Yoy chn (completed investment),%
<b>Mining and concentrating</b>				
<b>2007</b>		12.8	11.67	81.1
<b>2008</b>	480	12.21	12.71	8.9
<b>2009</b>	532	13.24	15.78	24.1
<b>2010</b>	580	17.8	19.8	25.5
<b>Jan.- Mar.</b>	176	3.05	1.69	45.1
<b>Jan.- Jun.</b>	381	8.84	7.26	39.8
<b>Jan.- Sep.</b>	500	12.54	12.76	29.3
<b>Jan.- Nov.</b>	572	16.24	17.98	31.7
<b>Smelting</b>				

<b>2007</b>		14.41	12.75	60.2
<b>2008</b>	299	16.29	13.07	9.2
<b>2009</b>	317	25.8	17.31	32.4
<b>2010</b>	290	15.5	24	38.7
<b>Jan.- Mar.</b>	108	2.45	2.16	45.2
<b>Jan.- Jun.</b>	204	6.6	9.67	46.7
<b>Jan.- Sep.</b>	245	8.2	16.47	40.6
<b>Jan.- Nov.</b>	286	13.76	20.66	33.1

Source: CNIA

## New projects and capacity

### Mining capacity

Based on the situation of investment in domestic nonferrous metals sector in 2010, the investment in lead and zinc mining and concentrating sector would increase by 25.5% or 4.02bln yuan compared with the previous year to around 19.8bln yuan in 2010. According to the Chinese 2009 nonferrous metal production capacity newly released by CNIA, the lead and zinc mining and concentrating capacity was higher than our earlier anticipation. Then, we estimate the domestic zinc mining capacity should reach 4.3Mt (metal content) in 2010, while that of lead should reach 1.9Mt; the concentrating capacity of zinc should reach 4.2Mt while that of lead should reach 1.85Mt.

**Table 7 Chinese lead and zinc mining capacity, ktpy**

	Mining			Concentrating		
	Ore volume	Lead	Zinc	Ore volume	Lead	Zinc
<b>2004</b>	28,920	800	2,000	30,010	900	2,090
<b>2005</b>	31,340	860	2,120	32,120	1,020	2,200
<b>2006</b>	36,170	1,010	2,550	33,100	1,110	2,810
<b>2007</b>	45,960	1,150	3,250	37,320	1,290	3,080
<b>2008</b>	49,390	1,540	3,740	41,170	1,520	3,610
<b>2009</b>	55,470	1,740	3,990	47,580	1,710	3,860
<b>2010</b>	61,000	1,900	4,300	54,000	1,850	4,200

Sources: CNIA and Antaike

## **Smelting capacity and project construction**

There should be four zinc smelting projects to be commissioned in 2010, but finally only one came online which was the 50kt electrolytic zinc project of Guangxi Hechi Nangang Nonferrous Metals (Group) Smelting Co., Ltd., (Hechi) putting into production in Q2. The company produced 150kt of zinc ingot in 2010, 63kt more than the previous year. Hit by the energy saving and emission reduction policy in September, Hechi couldn't run on full capacity, but still reached the whole year's target.

The other three projects which should be commissioned in 2010 were the 50kt electrolytic zinc project of Gansu Chengzhou Kuangye Co., Ltd. (Chengzhou Kuangye), 110kt electrolytic zinc project of Chifeng NFC Kubo Hongye Zinc Industry Co., Ltd. (NFC Kubo Hongye) and 100kt electrolytic zinc project of Anhui Tongguan.

Gansu Chengzhou Kuangye started the construction of the 50kt electrolytic zinc project in 2008 but still hasn't commission. Antaiko got the news from the people closed to the situation that the above mentioned project will be put into production in H1 2011.

NFC Kubo Hongye planned to commission the 110kt electrolytic zinc project on Dec. 26, 2010, but to delay to Q2 2011 lacking of labors.

Anhui Tongguan also put off the 100kt electrolytic zinc project from end of 2010 to March 2011 due to construction delay.

In the next five year, China's additional zinc smelting capacity will mainly in the current three major companies, Yunnan Chihong Zinc & Germanium Co., Ltd., Baiying Nonferrous Co., Ltd. and Shenzhen Zhongjin Lingnan Nonfermet Co., Ltd.

Yunnan Chihong's 140kt zinc and 60kt lead project in Huize County will be commissioned in October 2011 and the old 60ktpy smelting plant will be closed at the same time;

In Yiliang Yunnan, Chihong's Shaotong lead & zinc processing plant will build a 100ktpy zinc smelter;

In Hulunbeier Inner Mongolia, Chihong Mining, subsidiary of Yunnan Chihong will invest 3.4bln yuan in a 60ktpy lead and 140ktpy zinc project, said on Aug. 27, 2010;

In 2013, Yunnan Chihong's zinc and lead smelting capacity will reach 500ktpy and 300ktpy respectively. In 2015, the company's four producing bases will be formed respectively located in Qujing Yunnan, Huize Yunnan, Shaotong Yunnan and Hulunbeier Inner Mongolia.

Baiyin Nonferrous Group planned to extend the lead & zinc capacity during 2011-2015 through merger and acquisition of neighborhood lead & zinc resources and smelting assets. After the merger of Chengzhou Kuangye, Baiyin Nonferrous Group managed to build an additional electrolytic zinc capacity of 50kt based on the current 50ktpy zinc capacity in 2011.

The company is likely to build a 100kt electrolytic zinc smelting capacity in 2012. By end of 2012, Baiyin Nonferrous Group's zinc smelting capacity can reach 500ktpy, 330ktpy more than that at the end of 2010.

Zhongjin Lingnan will build 200kt zinc smelting capacity in Danxia plant which zinc smelting capacity can reach 300ktpy. Zhongjin Lingnan and Yunnan Xiangyun Feilong will jointly build a 200ktpy zinc smelter in Fangchenggang City, Guangxi. Based on the above data, Zhongjin Lingnan's zinc smelting capacity can reach 700ktpy in 2015.

Shaoguan Smelting Company was under public pressure again after the thallium pollution was exposed on Oct. 21, 2010, after the cadmium pollution incident in 2008.

In the next coming year, Chinese other zinc & lead producers like Yuguang Gold & Lead Co., Ltd., Shaanxi Hanzhong Zinc Co., Ltd., Hunan Shuikoushan Co., Ltd. and Jinding Zinc Co., Ltd. all have extension plans which have been mentioned in our previous report.

Based on the statistics from China Nonferrous Metals Industry (CNIA), Antaike adjusted the data that China's total distilled zinc, electrolytic zinc and zinc production capacity was 5.35mlnt by 2010, including 4.33mlnt capacity from named zinc producers, which accounting for 81% of China's total zinc smelting capacity.

**Table 8 The possible new added zinc smelting capacity in 2009- 2015 unit: kt**

	New added capacity	Commission date	Note
<b>Guangxi Nanfang Nonferrous Metals Smelting Co., Ltd</b>	100	Q1 2010	New added: 100kt (50kt was commissioned )
<b>Total 2010</b>	100		
<b>Tongguan Chizhou</b>	100	End of March 2011	Delayed from the end of 2010 to Q1 of 2011
<b>Xichang Heli Zinc Industry Co., Ltd</b>	40	April 2011	Expanded from 60kt to 100kt
<b>Liuzhou Huaxi</b>	20	2011	Added: 20kt
<b>Gansu Chengzhou Mineral Industry</b>	50	May 2011	
<b>Chifeng Hongye Zinc Industry</b>	110	Q2 2011	
<b>Jiangxi Copper Group</b>	100	Q4 2011	Lead: 100kt, zinc: 100kt
<b>Chihong Zn&amp; Ge's Huize Project</b>	140	Q4 2011	
<b>Total 2011</b>	560		
<b>Huixin Lead and Zinc</b>	100	2012	Located in Huili County of Sichuan Province

<b>Baiyin Company</b>	100	2012	Baiyin: new added 100kt, Cheng County: new added 100kt.
<b>Hunan Shuikoushan</b>	70	2012	Expanded from 80kt to 150kt
<b>Guangxi Jinshan Mining Co., Ltd</b>	100	2012	New added: 100kt
<b>Jinding Zinc Industry</b>	100	H2 2012	100kt of electrolytic zinc
<b>Total 2012</b>	470		
<b>Baiyin Company</b>	100	2013	100kt in Cheng County
<b>Henan Yuguang Lead and Zinc</b>	100	2013	Three phases
<b>Chihong Zn&amp; Ge's Hulubeier</b>	140	2013	Chihong Zn& Ge's Hulubeier
<b>Chihong Zn&amp; Ge's Shaotong Lead and Zinc Mine</b>	100	2013	Shaotong Lead and Zinc Mine
<b>Zhongjin Nonfemet</b>	100	2013	Construct oxide ore treatment plant in Fangchenggang
<b>Total 2013</b>	540		
<b>Zhongjin Nonfemet</b>	200	2014-2015	Expand Danxia Smelter
<b>Bayi Zinc Industry</b>	100	2014-2015	100kt electrolytic zinc
<b>Chifeng Hongye Zinc Industry</b>	80	2014-2015	Expand from 220kt of 2010 to 300kt
<b>Total 2014-2015</b>	380		

Source: Antaike

**Table 9 Chinese zinc smelting capacity in 2000- 2010 unit: kt**

	Distilled zinc	Electrolytic zinc	Zinc products	Total
<b>2000</b>	565.8	1167.8	358.1	2091.7
<b>2001</b>	546	1324.4	351.3	2221.7
<b>2002</b>	531	1661.6	353.8	2546.4
<b>2003</b>	628.6	1899.8	368.8	2897.2
<b>2004</b>	966.7	2346.7	483	3796.4
<b>2005</b>	915.9	2696.4	504.5	4116.8
<b>2006</b>	862.1	2870.2	507.5	4239.8
<b>2007</b>	834.1	3347.3	642.3	4823.7

2008	894.7	3719.9	640.0	5318.5
2009	500	4116.3	730	5346.3
2010	500	4216.3	630	5346.3
2011	500	4776.3	630	5906.3
2012	500	5829.9	630	6959.9
2013	500	6369.9	630	7499.9
2014	500	6569.9	630	7699.9
2015	500	6809.9	630	7939.9

**Table 10 Electrolytic zinc and distilled zinc smelting capacities in major enterprises**

unit: ktpy

	2010	2011	2012	2013	2014	2015
<b>Inner Mongolia</b>	41	52	52	76	76	94
<b>Nonfermet Chifeng</b>	11	22	22	22	22	30
<b>Hongye</b>						
<b>Bayannaoer Zijin Mining</b>	20	20	20	20	20	20
<b>Xing'an Copper and Zinc Smelting</b>	10	10	10	20	20	30
<b>Chihong Zn &amp; Ge</b>	0	0	0	14	14	14
<b>Liaoning</b>	41	39	40	40	40	40
<b>HLD Nonferrous Metals Group</b>	39	39	40	40	40	40
<b>HLD Zinc Smelter</b>	2	0	0	0	0	0
<b>Gansu</b>	25	35	47	60	60	70
<b>Baiyin Nonferrous Metals</b>	17	27	37	50	50	60
<b>Baohui Group</b>	6	6	10	10	10	10
<b>Others</b>	2	2	0	0	0	0
<b>Shaanxi</b>	67	67	67	75	75	75
<b>Hanzhong Bayi</b>	27	27	27	30	30	30
<b>Shangluo</b>	15	15	15	20	20	20
<b>Dongling Zinc Industry</b>	25	25	25	25	25	25
<b>Qinghai</b>	10	10	10	10	10	10



<b>Western Mining</b>	6	6	6	10	10	10
<b>Others</b>	4	4	4	0	0	0
<b>Shangxi</b>	4	4	4	4	4	4
<b>Xiangfen</b>	4	4	4	4	4	4
<b>Nonferrous Metals</b>						
<b>Sichuan</b>	31	35	35	40	40	40
<b>Sichuan Hongda</b>	10	10	10	10	10	10
<b>Huidong Lead and Zinc Mine</b>	5	5	5	10	10	10
<b>Xichang Zinc Industry</b>	6	10	10	10	10	10
<b>Huideli</b>	6	6	6	6	6	6
<b>Others</b>	4	4	4	4	4	4
<b>Yunnan</b>	68	82	83	105	105	105
<b>Chihong Zn&amp; Ge</b>	16	30	30	40	40	40
<b>Luoping Zinc and Electricity</b>	14	14	15	15	15	15
<b>Xiangyun Feilong</b>	10	10	10	10	10	10
<b>Yunnan Smelter's Zinc Smelting Co., Ltd</b>	6	6	6	10	10	10
<b>Jinding Zinc Industry</b>	12	12	12	20	20	20
<b>Mengzi Mining and Metallurgy</b>	5	5	5	5	5	5
<b>Haolong Mining Industry</b>	5	5	5	5	5	5
<b>Guangxi</b>	48	55	55	67	67	71
<b>Nanfang Nonferrous Metals Group</b>	15	20	20	20	20	20
<b>Jinshan In&amp; Ge</b>	4	4	4	6	6	10
<b>Liuzhou China Tin</b>	5	7	7	7	7	7
<b>Liyin</b>	6	6	6	6	6	6
<b>Nonfemet Liuzhou</b>	4	4	4	4	4	4

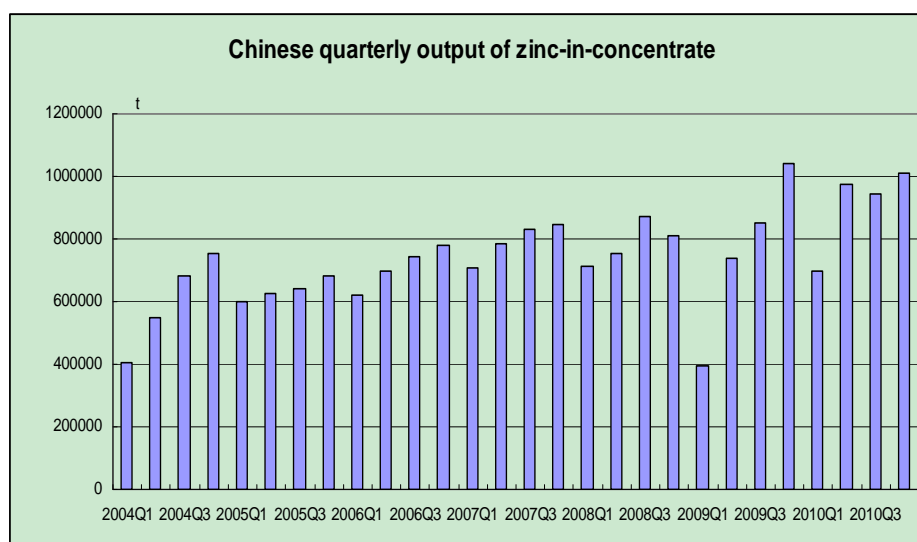
<b>Zinc</b>						
<b>Tanghan Zn&amp; In</b>	2	2	2	2	2	2
<b>Nonfemet</b>	0	0	0	10	10	10
<b>Jilang In&amp; Ge</b>	2	2	2	2	2	2
<b>Guangxi Youlian</b>	2	2	2	2	2	2
<b>Others</b>	10	10	10	10	10	10
<b>Guizhou</b>	5	5	5	5	5	5
<b>Railway Zinc Smelter</b>	5	5	5	5	5	5
<b>Hunan</b>	79	79	79	86	86	86
<b>Zhuzhou Smelter</b>	50	50	50	50	50	50
<b>Shuikoushan</b>	8	8	8	15	15	15
<b>Hsikwangshan</b>	5	5	5	5	5	5
<b>Twinkling Star</b>						
<b>Sanli Group</b>	6	6	6	6	6	6
<b>Taifeng Smelter</b>	3	3	3	3	3	3
<b>Jinshi Mineral Industry</b>	2	2	2	2	2	2
<b>Others</b>	5	5	5	5	5	5
<b>Guangdong</b>	30	30	30	30	40	40
<b>Nonfemet</b>	30	30	30	30	40	40
<b>Henan</b>	24	24	24	24	34	34
<b>Yuguang Gold and Lead</b>	20	20	20	20	30	30
<b>HBL</b>	2	2	2	2	2	2
<b>Qiangqiang Zinc Industry</b>	2	2	2	2	2	2
<b>Jiangxi</b>	0	10	10	10	20	20
<b>Jiangxi Copper</b>	0	10	10	10	20	20
<b>Anhui</b>	0	10	10	10	20	20
<b>Chizhou Tongguan</b>	0	10	10	10	20	20
<b>Zhejiang</b>	2	2	2	2	2	2
<b>Wenzhou Smelter</b>	2	2	2	2	2	2
<b>Total</b>	433	511	514	524	634	676

## Chinese zinc conc. Production

The growth of Chinese zinc concentrate output was fast in 2010. According to CNIA figures, China produced 3.298mlnt of zinc concentrate in Jan-Nov 2010, up by 21.8% y/y. The total output is expected to reach 3.63mlnt for the whole year, up by 17.5% y/y.

The concentrate output always grew quarter by quarter during a year. The cold weather and Spring Festival affects output in Q1, and producers always raise production to fulfill yearly target in Q4. However, the lowest output season was Q3 in 2010, 946kt. Mine production was affected during the period due to the rain reason in South China. Meanwhile, China mining industry carried out a round of regulation. Some small illegal mines reduced production. The natural disasters in Gansu also reduced output of some mines. The zinc concentrate output was 350kt in Nov. 2010 and it is estimated total output volume is 1.0mlnt in Q4, lower than that of same period in 2009.

**Chart 5 Chinese quarterly output of zinc- in- concentrate**



**Table 11 Chinese Zinc in Concentrate Output by Region in Nov. 2010**

Unit: tonne

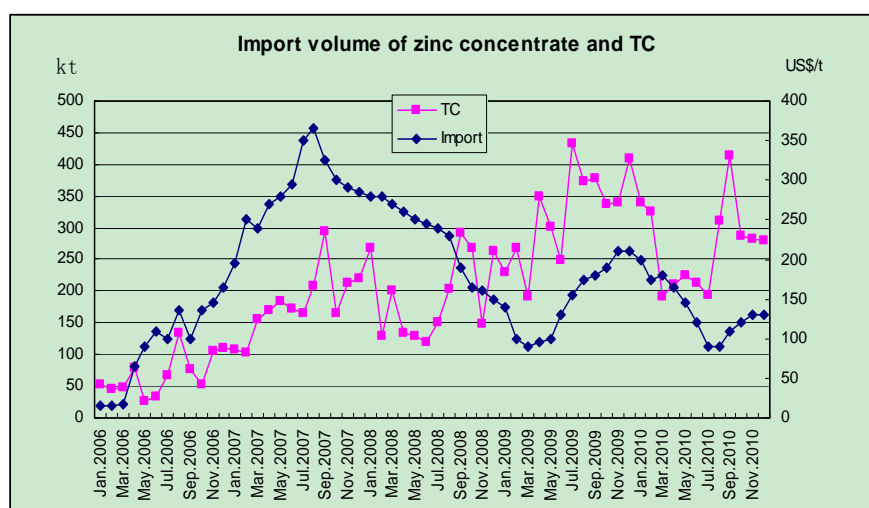
Province	Nov. 2010	Jan.-Nov. 2010	Jan.-Nov. chn yoy (%)
<b>National total</b>	351,682	3,297,860	21.81
<b>Hebei</b>	4,192	47,603	67.99
<b>Inner Mongolia</b>	71,691	696,699	21.80
<b>Liaoning</b>	2,197	37,404	43.02
<b>Jilin</b>	2,722	12,503	-13.89
<b>Jiangsu</b>	1,476	12,917	-26.15
<b>Zhejiang</b>	4,301	35,369	20.29
<b>Anhui</b>	785	4,442	589.37

Fujian	12,816	123,957	21.43
Jiangxi	4,515	39,182	-15.85
Henan	5,878	47,923	-1.62
Hunan	46,166	494,471	40.46
Guangdong	19,288	162,212	4.98
Guangxi	35,902	313,488	101.68
Chongqing	700	18,820	99.47
Sichuan	36,245	320,207	29.67
Guizhou	2,737	11,255	113.32
Yunnan	52,893	473,981	-8.36
Tibet	2,245	18,006	5.57
Shaanxi	15,677	164,433	3.72
Gansu	20,161	175,180	39.39
Qinghai	6,915	70,559	4.45
Xinjiang	2,180	17,248	49.18

## Import

Chinese zinc concentrate import reached a high level in H2 2009, with the monthly import volume about 378kt. It was because most overseas smelteries paused production after Q4 2008, leading to high stock of concentrate. Zinc price and TC rebounded. But concentrate import dropped obviously in H1 2010. The average monthly import volume was only 256kt. There were two main reasons for the dropping import: concentrate supply decreased compared with 2009, and TC dropped to US\$ 90/t from US\$ 200/t in early 2010; zinc price vibrated heavily in 2010, and domestic zinc producers dare not make pricing. Chinese zinc concentrate output decreased in Q3, while the global concentrate supply eased. Then TC increased to US\$130/t from US\$90/t. Concentrate import increased again. According to Customs figures, China imported 312kt of zinc concentrate in Q3, up by 272kt Q/Q. The total concentrate import was 2.99mlnt in Jan-Nov, down by 13.2% y/y. It is estimated concentrate import will be 3.3mlnt for the whole year of 2010, equal to 1.605mlnt of zinc metal.

**Chart 6 Import volume of zinc concentrate and TC**



## Supply and demand balance and price

Chinese domestic zinc concentrate supply was ample in the first four months of 2010 due to the high stock at mines and smelters and high import volume. Chinese domestic zinc futures continued to drop since May 2010. The zinc price went below 14,000 yuan/t in June. Mining companies started to hold stock. Zinc import and the spot TC decreased obviously. Most smelters were not confidence with the zinc market for Q3 and reduced concentrate import. However, the mine production was affected by natural disasters and mining policy. Zinc producers had to raise raw material import in Q3. Zinc price began to take off after mid-September, reaching 18,000 yuan/t. High zinc price cushioned concentrate price and increased the concentrate supply in October. The spot TC for imported concentrate increased to US\$ 130/t in mid-October. Thus zinc producers raised concentrate import.

Domestic tight concentrate supply was ease gradually, since import increased and the growth rate of mine output increased in H2. There were 85kt and 65kt of surplus in Q3 and Q4 respectively in domestic market. Domestic concentrate supply and demand was comparatively balanced for the whole year of 2010.

**Table12 Supply/demand of zinc-in-conc. in China, kt metal content**

	2009		2010				
	Q4	Annual	Q1	Q2	Q3	Q4	Annual
<b>Output</b>	1,093	3,320	699	975	946	1,010	3,630
<b>Import</b>	547	1,910	420	318	451	416	1,605
<b>Supply</b>	1,640	5,230	1,119	1,293	1,397	1,426	5,235
<b>Output of refined Zn</b>	1,266	4,293	1,170	1,306	1,264	1,310	5,050
<b>Demand for Zn-in-conc.</b>	1,330	4,480	1,211	1,357	1,312	1,361	5,241
<b>Balance (stock)</b>	310	750	-92	-64	85	65	-6
<b>Domestic TC</b>	6,100	5,280	6,200	5,500	5,600	6,000	5,825

**Table 13 TC for Home-made conc. and imported Conc.**

	TC for Home-made conc. yuan/t	SHG Zinc price on Chinese market, yuan/t	TC for Imported Conc. US\$/t	LME spot zinc price, US dollar per tonne
<b>Dec. 2010</b>	6,300-6,000	18,040	110-130	2,280
<b>Nov. 2010</b>	6,300-6,000	18,345	110-130	2,291
<b>Oct.2010</b>	6,000-5,700	18,930	110-130	2,372

<b>Sep.2010</b>	5,800-5,500	17,307	100-110	2,151
<b>Aug.2010</b>	5,500-5,300	16,705	100-85	2,044
<b>Jul.2010</b>	5,400-5,000	15,245	100-85	1,843
<b>Jun.2010</b>	5,300-5,000	14,445	120-100	1,742
<b>May 2010</b>	5,700-5,300	15,935	130-110	2,001
<b>Apr.2010</b>	6,200-6,000	18,310	160-140	2,398
<b>Mar.2010</b>	6,000-6,200	18,200	180-200	2,275
<b>Feb.2010</b>	6,000-6,400	17,535	190-200	2,156
<b>Jan.2010</b>	6,000-6,500	19,933	200-210	2,434
<b>Q2. 10</b>	5,800-6,300	18,620	110-130	2,314
<b>Q1.1</b>	5,000-5,800	16,757	85-110	2,013
<b>Q4.09</b>	6,200-5,000	16,230	160-100	2,058
<b>Q3.09</b>	6,000-6,500	18,556	210-180	2,288
<b>Q2.09</b>	6,000-6,500	17,050	185-220	2,213
<b>Q1.09</b>	5,000-6,000	14,344	155-200	1,765
<b>Oct.2010</b>	3,800-5,000	12,710	85-140	1,477
<b>Sep.2010</b>	3,500-4,000	10,823	150-85	1,172

Source: Antaike

Note: Zinc conc. TC is based on grade 50%.

**Table 14 Chinese market balance of zinc concentrate (kt)**

	Zinc concentrate output	Import	Zinc output	Consumption for concentrate	Export concentrate	Balance
<b>2000</b>	17,800	390	18,580	20,290	690	-2,790
<b>2001</b>	17,930	3,260	19,670	21,150	67	-27
<b>2002</b>	19,000	3,920	21,340	22,940	18	-38
<b>2003</b>	21,300	3,820	22,860	24,580		540
<b>2004</b>	25,000	3,030	26,740	28,750		-720
<b>2005</b>	25,470	2,900	27,600	29,680		-1,310
<b>2006</b>	28,440	4,200	31,470	33,840		-1,200
<b>2007</b>	30,480	10,700	37,070	39,860		1,320
<b>2008</b>	31,500	11,400	40,050	43,060		-160
<b>2009</b>	30,900	19,000	41,960	45,110		4,790
<b>2010</b>	36,300	16,050	48,700	52,410		-60

## Zinc Market

### Zinc Production

2010 is the year that Chinese zinc output seeing largest growth. In accordance with the statistics released by CNIA, the output of zinc in Jan.-Nov. was 4,735kt, up by 19.7% y-o-y. In Nov., the output was 460kt, being the highest monthly output in history record. It is estimated the yearly output in 2010 will reach 5.2Mt. Antaite gets source saying in all the major smelting plants' production, there is about 150kt 1# refined zinc taken as raw material to produce zinc alloy, which belongs to double counting. If not counted, domestic output of zinc was about 505t.

In 2010, 27 enterprises in China have more than 50ktpy capacity, and their total capacity was 4,120ktpy, accounting for 77% of Chinese 5,350ktpy total effective capacity. Those 27 enterprises also produced 3,400kt zinc, accounting 67% out of Chinese total output 5,050kt. Enterprises seeing sharp output growth mainly cover those who had new capacity commissioned between 2008 and 2009, such as Zhuzhou Smelter Group Co., Ltd, Nonfement, Neimeng Xing'an, Hechi Nanfang, Shanxi Hanzhong Zinc, Inner Mongolia Zijin Mining, etc.. Their capacity utilization rate was above 90%. Correspondingly, partial smelting plants with about 50ktpy capacity cut production due to various reasons, or their capacity utilization rate were very low.

In general, since financial crisis happened, large enterprises' capacity is increasing and those companies with capacity below 50ktpy saw weaker competitiveness. On one hand, those small size enterprises were shocked directly by China national policy of energy-saving and emission-reduction in 2010. Although Yuguang Gold & Lead, Hanzhong Zinc, Chihong Zinc and Germannium, etc. were also shocked by environment protection accidents, their outputs of zinc were almost not influenced. On the other hand, raw material market brought capital competition impacts. From raw material acquisition to products sales, large enterprises have sufficient capital support. In comparison, small size enterprise's capital capacity is limited and their capability against risk is also weak.

**Chart 7 Changes in Chinese refined zinc output in 2001- 2010**

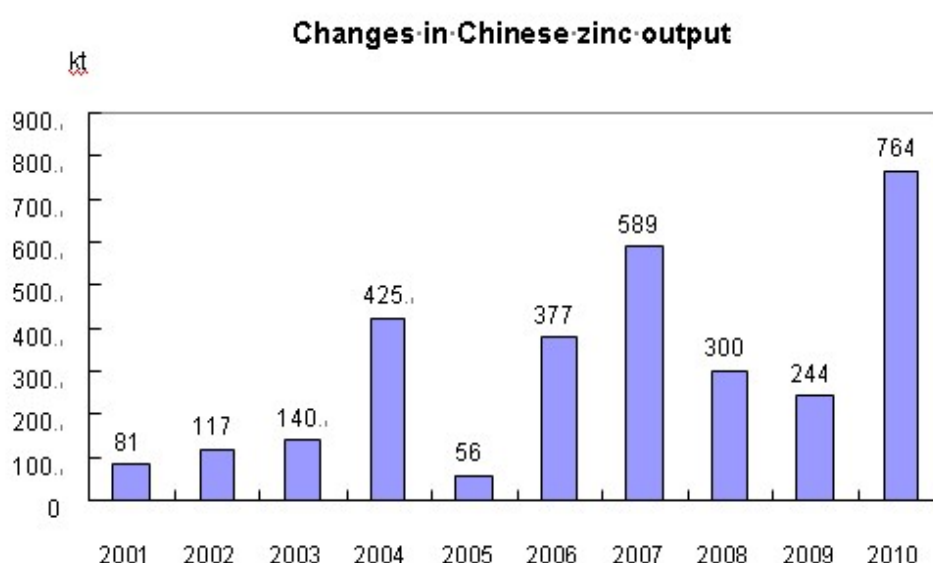


Chart 8 Monthly output of refined zinc in China in 2005-2010

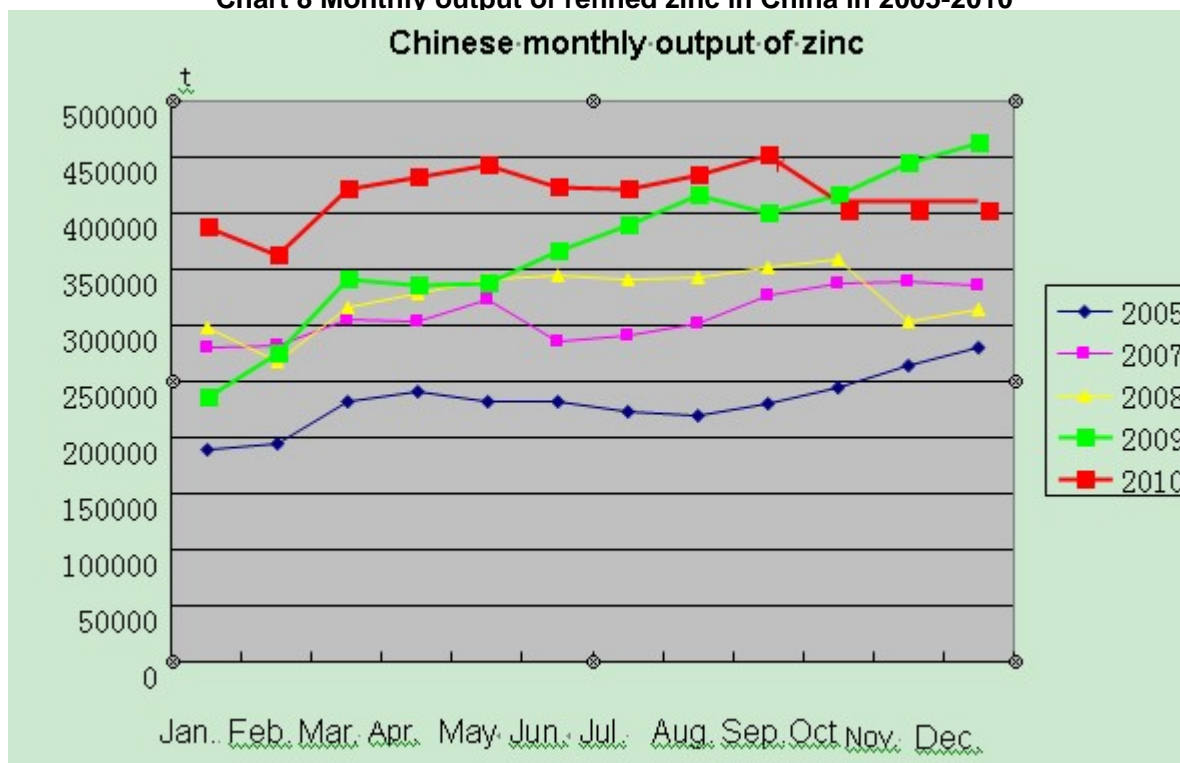


Table 15 Chinese Zinc Output by Region in Nov. 2010, tonne

Province	Nov. 2010	Jan.- Nov. 2010	Jan.- Nov. chn yoy (%)
<b>National total</b>	460,018	4,735,179	19.70
Hebei	133	4,218	--
Shanxi	--	400	-9.71
Inner Mongolia	34,765	343,732	78.65
Liaoning	32,761	351,765	9.75
Jiangsu	2,100	20,554	-20.26
Zhejiang	8,282	81,551	38.44
Anhui	268	2,448	-29.70
Fujian	1,440	10,910	502.43
Jiangxi	2,375	28,010	83.28
Henan	22,767	251,186	-5.64
Hubei	598	5,465	120.90
Hunan	116,853	1,085,600	16.00
Guangdong	2,799	261,705	10.52
Guangxi	35,039	448,127	35.80
Chongqing	25	3,270	--
Sichuan	23,782	236,498	0.21
Guizhou	2,354	20,655	57.21



Yunnan	83,214	781,009	13.57
Shaanxi	56,889	489,724	44.69
Gansu	26,191	221,040	26.41
Qinghai	7382	85955	-24.47
Xinjiang	--	1,357	--

Note: 1.All the figures listed above are quoted from the data of China Nonferrous Metal Industry Association (CNIA); "--" means unavailable.

**Table16 Chinese zinc producer with capacity above 50kt, unit: kt**

	Producer	Capacity in 2010	Output in 2009	Output in 2010	Changes in 2010
1	Zhuzhou Smelter Group Co., Ltd.	500	438	508	70
2	Huludao Nonferrous Metals Group Co., Ltd.	390	346	375	29
3	Shenzhen Zhongjin Lingnan Nonfermet Co., Ltd.	300	237	255	18
4	Yunnan Chihong Zinc & Germanium Co., Ltd.	200	189	181	-8
5	Shaanxi Dongling Group Co., Ltd.	260	94	190	96
6	Henan Yuguang Gold & Lead Co., Ltd.	200	234	235	1
7	Baiyin Nonferrous Metals Co., Ltd.	170	147	168	21
8	Yunnan Jinding Zinc Co., Ltd.	120	124	110	-14
9	Zijin Mining Group Co., Ltd.	200	103	190	87
10	Chifeng Kubo Hongye Zinc Co., Ltd.	110	101	107	6
11	Yunnan Xiangyun Feilong Co., Ltd.	100	80	85	5
12	Shangluo Zinc Smelter of Shaanxi Zinc Industry Co., Ltd.	150	90	150	60
13	Nanfeng Nonferrous Metals Smelting Co., Ltd.	200	83	150	67
14	Hanzhong Zinc Industry Co., Ltd.	270	119	194	75
15	Yunnan Luopng Zinc & Electricity Co., Ltd.	140	75	84	9
16	Inner Mongolia Xing'an Copper and Zinc Smelting Co., Ltd.	100	25	100	75
17	Sichuan Hongda Co., Ltd.	100	83	76	-7
18	Shuikoushan Nonferrous Metals Co., Ltd.	100	71	70	-1
19	Liuzhou China-Tin Co., Ltd.	60	51	55	4
20	Yunnan YN Smelter Zinc Co., Ltd.	60	35	58	23
21	Hunan Sanli Group Co., Ltd.	60	30	6	-24
22	West Mining Co., Ltd.	70	62	61	-1
23	Gansu Chengzhou Mining Co.	50	20	20	0

<b>24</b>	Baohui Group	60	48	42	-6
<b>25</b>	Hsikwangshan Twinkling Star Co., Ltd.	50	35	40	5
<b>26</b>	Sichuan Huidong Lead-Zinc Mine	50	30	26	-4
<b>27</b>	Taifeng Smelter	50	32	32	0
<b>Sub-total</b>		4120	2934	3546	586
<b>National Total</b>		5490	4290	5050	760

Source: Antaika

## Trade of Zinc

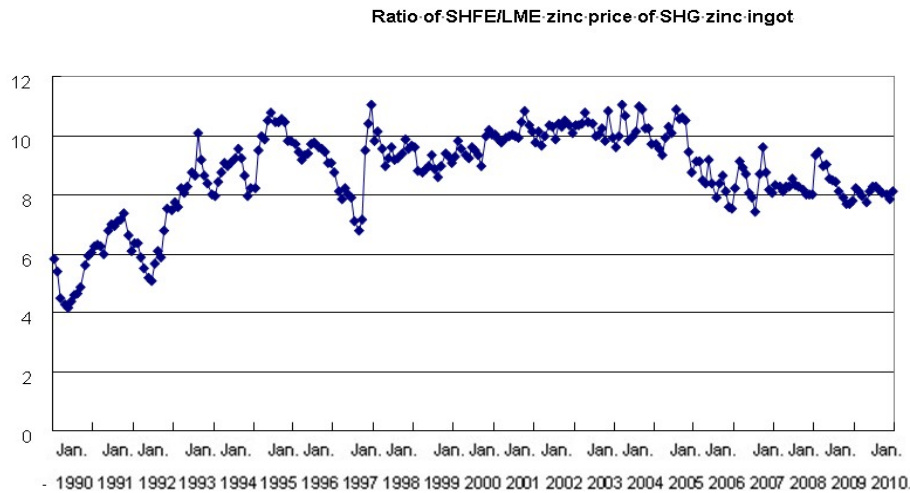
In accordance with the statistics released by China Customs, China imported about 1,605kt zinc concentrate (metal content). The net import of refined zinc was around 280kt and that of zinc alloy was 150kt; 25kt zinc semis; 30kt zinc scraps. The total net import reached 2,090kt.

**Table 17 Chinese import and export of major zinc products in 1991- 2010 (kt metal content)**

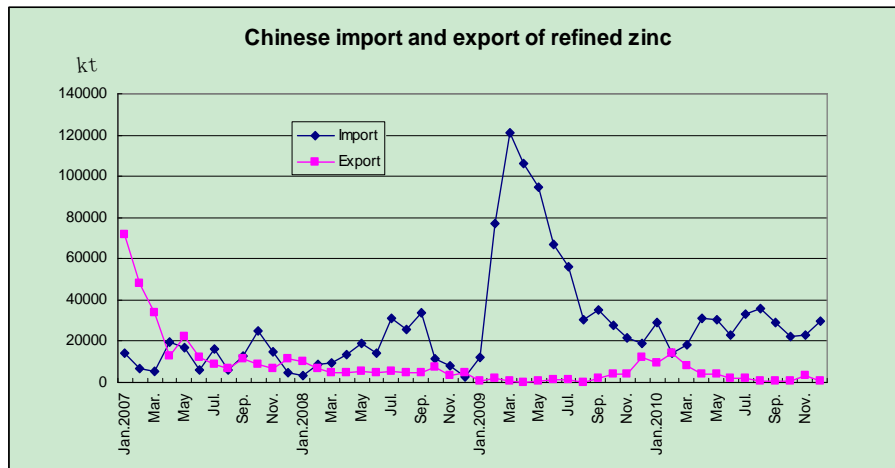
	Export				Import			Total	Net export
	Zinc and alloy	Zinc oxide	Zinc con.	Total	Zinc and alloy	Zinc oxide	Zinc conc.		
<b>1991</b>	6.3	19	38.5	63.8	11.7	0.3	0.1	12.1	51.7
<b>1992</b>	84.9	25.6	32.7	143.2	51.9	3.7	3.6	59.2	84
<b>1993</b>	205.6	24.1	58.7	288.4	40.1	2.2	4	46.3	242.1
<b>1994</b>	278	25.8	139.6	443.4	48.6	4.5	15	68.1	375.3
<b>1995</b>	191.5	31	77.4	299.9	66.7	4.4	51.2	122.3	177.6
<b>1996</b>	226.8	37.8	54.7	319.3	69.5	5.7	147.5	222.7	96.6
<b>1997</b>	556.9	44.8	90.7	692.4	72	7.4	83.3	162.7	530
<b>1998</b>	382.9	38.4	100.7	522	87.5	7.9	26.3	121.7	400.3
<b>1999</b>	527.1	41.2	116.6	684.9	107.4	8.6	22	138	546.9
<b>2000</b>	593.3	107.9	69.4	770.6	130	10.6	39	179.6	591
<b>2001</b>	562	74.2	6.7	642.9	141.2	10.8	326.4	478.4	164.5
<b>2002</b>	496	69.6	1.8	567.4	211.7	12.5	392.3	616.5	-49.1
<b>2003</b>	484.2	77.6	0	561.8	310.5	14.1	372.8	697.4	-135.6
<b>2004</b>	263	50	0	313	459	16	303	778	-465
<b>2005</b>	146	43	0	189	621	15	290	926	-737
<b>2006</b>	341	44	0	385	532	18	420	970	-585
<b>2007</b>	277	41	0	318	149	20	1,070	1,239	-921
<b>2008</b>	71	22	0	93	331	12	1,140	1,483	-1,390
<b>2009</b>	29	11	0	40	702	12	1,910	2,624	-2,584
<b>2010</b>	45	15	0	60	470	20	1,605	2,095	-2,035

In most time of 2010, zinc ingot parity in China and abroad was around 8, so it is not appropriate both for import and export. However, in Jan.-Nov., the import of refined zinc still reached 250kt including 175kt 0# refined zinc and 48kt 1# refined zinc and 18kt lower than 1#. According to Antaiko's survey, among all the imported 0# zinc ingot, 60% were through trade corporation for finance target. 40% of them are industry import, mainly being used for copper products, battery, zincification industry and metal products. 1# zinc ingot is used for down streaming customers import to use them in hardware and tool import.

**Chart 9 Ratio of SHFE/LME zinc price of 0# zinc ingot**



**Chart 10 Chinese import and export of refined zinc**



Source: China Customs

**Table 17 Chinese import and export of refined zinc in Jan.- Nov. of 2010 kt**

	Import	y-o-y %	Export	y-o-y %
SHG zinc	214	-60.9	39	50
HG zinc	48	-48.9	0	0

Zinc ingot ( < 99.99%)	27	-3.6	0.9	-59.1
Total	289	-56.9	39.9	34.8

## Consumption of zinc

Driven by central government's policies to enlarge domestic consumption and the spontaneous release of residents' consumption in 2010, consumption demand increased rapidly and became a main driving force to the steady developed economy.

China's apparent consumption of zinc reached 5.0609 Mt in the first 11 months of 2010, an increase of 8.8% year on year mainly due to the 20% rise in output. Imported zinc concentrate was 235,900t, down by 62.7% y-o-y, and imported zinc alloy was 140,900t, up by 19.2% y-o-y. It is estimated that total apparent consumption would increase by 8.9% to 5.33 Mt in 2010, and real consumption rose by 10.4% to 4.75 Mt due to the growth in galvanized industry.

Galvanized industry:

The rapid development of infrastructure, automobile and home appliance industries spurs galvanized demand.

China's FAI was 21.1 trillion yuan in the first 11 months of 2010, an increase of 24.9% year on year, while the growth rate was 7.2% lower than the figure in the same period of 2009 and 0.6% in H1 but was 0.4% higher than the first 3 quarters, among which the primary industry completed 343.6 bln yuan, up by 16.6% y-o-y, the second industry achieved 8.8582 trl yuan, up by 22.7% y-o-y, and the tertiary industry reached 11.8680 trl yuan, up by 26.9% y-o-y.

China completed 8.6435 trl yuan of industrial investment in Jan-Nov, up by 22.7% y-o-y, and the growth rate was 3% lower than that in the same period of 2009 but were 0.7% and 0.8% higher than that in H1 and the first 3 quarters of 2010, among which investment in manufacturing saw an increase of 26.1%, 0.7% lower than that in the same period of 2009 but were 1.2% and 0.7% higher than that in H1 and the first 3 quarters of 2010.

Investment in property industry reached 4.2679 trl yuan in the first 11 months, an increase of 36.5% y-o-y, among which commercial house was 3.0022 trl yuan, up by 34.2% y-o-y, accounting for 70.3% of the total investment. Total housing construction areas reached 3.843 bln m<sup>2</sup>, up by 28.6% y-o-y; newly started areas were 1.451 bln m<sup>2</sup>, up by 48.7% y-o-y; space of houses completed was 485 mln m<sup>2</sup>, up by 9.6% y-o-y, among which completed residential areas were 393 mln m<sup>2</sup>, up by 7.1% y-o-y. Real estate developers completed 361 mln m<sup>2</sup> of land acquisition areas, up by 33.2% y-o-y, with a total 893.1 bln yuan, an increase of 77.9% compared with the same period in 2009.

Power consumption was 3829.8 bln kwh in the first 11 months, among which industrial power consumption was 2813.1 bln kwh. China completed 307.7 bln yuan investment in power infrastructure and added 67.30 mln kw of new capacity and poured 259.4 bln yuan in network infrastructure and added 206.95 mln kva of 220 kv and above substation capacity, with total length of 33,629 km including 29,479 km of AC and

4150 km of DC.

Automobile consumption was robust in 2010 due to many beneficial policies like cutting the purchase tax to 7.5% on small cars, adjusting the subsidy of exchanging new goods with the old from 3,000-6,000 yuan/car to 5,000-18,000 yuan/car, and also extending the subsidy period from May 31, 2010 to Dec 31, 2010. China's auto output and sales also hit historical level to 18.2647 mln units and 18.0619 mln units, an increase of 32.44% and 32.37% respectively. Besides the policy stimulation, some consumers also advanced their purchasing plans.

The policies of "home appliances going to the countryside" and "exchanging new goods with the old ones" played a very positive role in stimulating the consumption. China produced a total 70.434 mln units of household refrigerators in the first 11 months, up by 28.2% y-o-y, 62.695 mln units of micro-ovens, up by 17.1% y-o-y and 105.336 mln units of air-conditioners, up by 29.6% y-o-y, and 55.545 mln units of household washing machines, up by 29% y-o-y.

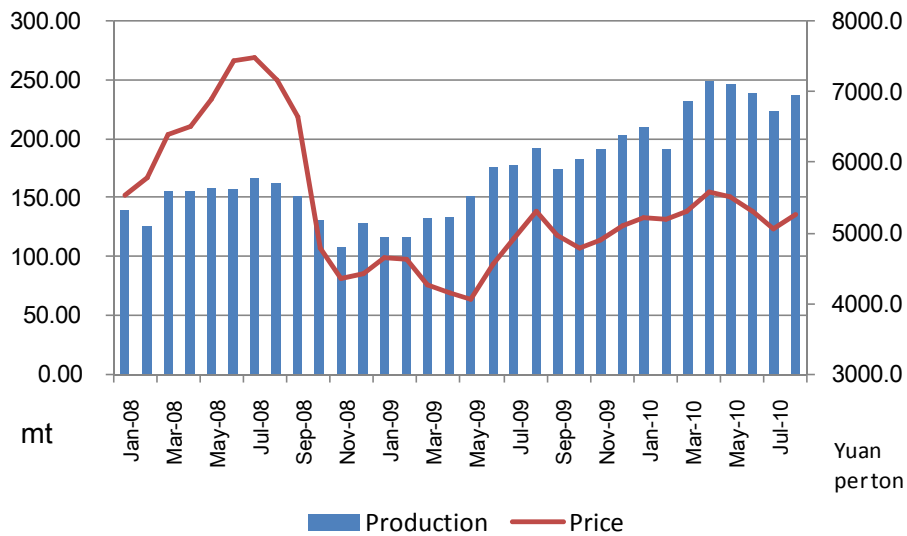
By the end of 2010, China's total length of road network reached 3.984 mln km, among which 639,000km was newly added within 5 years, High speed road grew 33,000km from the 41,000km at the end of 10th Five-year Plan period to 74,000km. China also completed 12 national trunks 13 years earlier than the previous plan and 8 inter-provincial channels.

China completed 709.1 bln yuan of investment in railway infrastructure, up by 18% year on year, and put into operation 4,986 km of new lines. National railways in operation reached 9.1 trl km, an increase of 5.8% y-o-y, and the length of high speed railway reached 7531 km at the end of 2010, and China is the nation has the maximum operating distance in high speed railways.

China's steel structure industry has showed a rapid rising momentum in recent years. And the output of steel structure rose by 15% annually from the 8.5 Mt in 2002 to 26 Mt in 2010, and the output had increased by 10 times since 1990s. To advance the development of energy saving and low carbon green building, improve residential quality, the national government has issued many policies to support the industry, and the first national steel housing industry base was set up in early Dec 2010, indicating that the industry is becoming mature gradually.

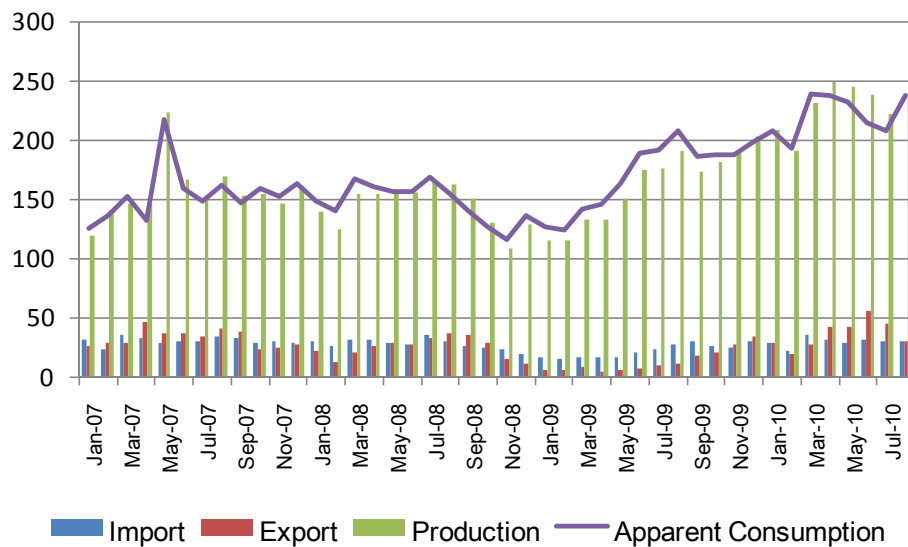
China's apparent consumption of galvanized reached 25.0633 Mt in the first 11 months, an increase of 35.3% y-o-y, among which output was 25.718 Mt, up by 47.8% y-o-y, import was 3.1533 Mt, up by 35.5% y-o-y, export was 3.7976 Mt, up by 2.2 times. The growth in output, import and export indicated a prosperous market in China and international markets.

**Chart 11 Chinese output of galvanized zinc plate and price**



Sources: NBS, My Steel and Antaike

**Chart 12 Chinese apparent consumption of galvanized plate**



Sources: NBS, China Customs and Antaike

Price of the 1mm galvanized in 2010 continued its upward momentum in H2 2009 and reached its peak in Apr. Price stayed above 5,300 yuan/t in Q4 2010.

Consumption slowed down in Q4 due to the weather issues and steel mills all cut their galvanized prices for Dec, besides, market attitude was also affected by the macro economic policies as monetary policy is likely to shift from loose to steady in 2011.

The robust consumption in downstream sectors in 2010 spurred the rapid development of galvanized industry, and it is estimated that output might reach a historical level of 27 Mt in 2010.

Output of zinc alloy in major zinc smelters might reach 700,000t due to the obvious growth in construction steel demand, therefore demand from infrastructure and real estate sector will have a larger influence on galvanized.

It is forecast that zinc consumption in 2010 might be 2.70 Mt, an increase of 20.5% on a yearly basis.

### **Zinc oxide**

Zinc oxide industry has been shocked in Q4 by rubber price increases, production reductions in tire enterprises, antidumping in ceramic industry and adjustment in real estate industry. Performances of zinc oxide producers adopt indirect production method are better than producers adopt direct method. More than 10 large- scaled producers operated at full capacity in 2010.

Natural rubber price increased substantially in 2010 and hit record high. Accordingly, production cost of tire enterprises increased by around 30%. Along with constant growth in rubber price, output of tire shrank. Tire industry has cut 1/3-1/2 of output in Q4 so that demand for zinc oxide declined. Sales of zinc oxide declined by around 1/3 in Q4.

Ministry of Industry and Information Technology issued Policy for Tire Industry on October 11. The Policy will promote industrial transformation and structural adjustment in tire industry and will encourage development of tires with high quality. Chinese tire radial rate of passenger car will reach 100% up by 2015.

Ceramic industry has faced with multiple crises since last half of 2010.

EU announced on June 19 of 2010 to conduct antidumping investigation on Chinese ceramic tiles (more than US\$300million). Most of the products are from Foshan City of Guangdong Province. EU is the main export oriented market of Foshan ceramic producers. The total export value of ceramic from Foshan to EU exceeded US\$200mln in 2009. Although the initial investigation will be announced in March of 2011, bad effect of the antidumping investigation has already appeared. Ceramic producers in Foshan have already refused 30% of orders from EU.

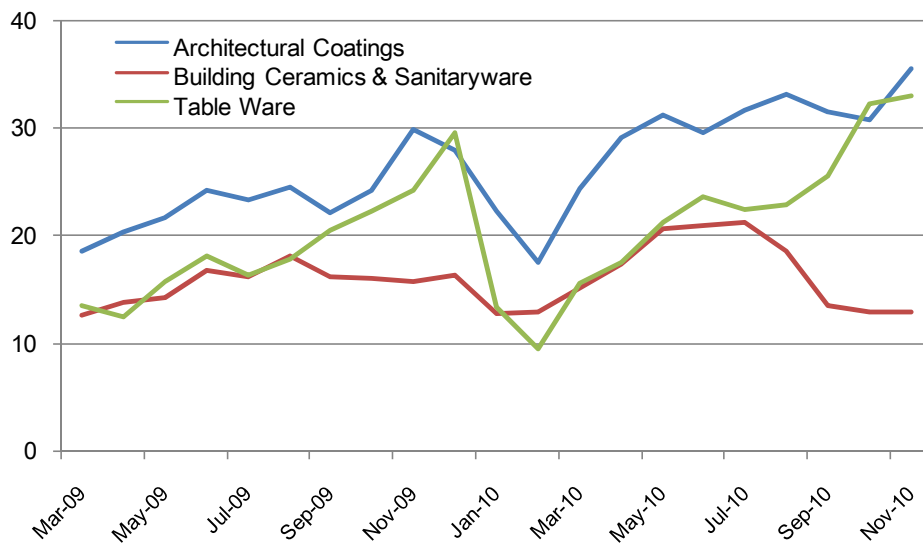
Chinese government has attached more importance on controlling real estate industry in 2010. As the upstream industry of real estate sector, ceramic industry has been shocked a lot.

Ceramic industry in Foshan City has suffered with huge problems since the second half of 2010. Affected by multiple factors such as RMB appreciation, regulation on real estate sector, capacity surplus, etc, production and sales were affected. Accordingly, lots of enterprises are forced to close production lines. Up to now, most of enterprises have already closed above 40% of production lines even above 70%.

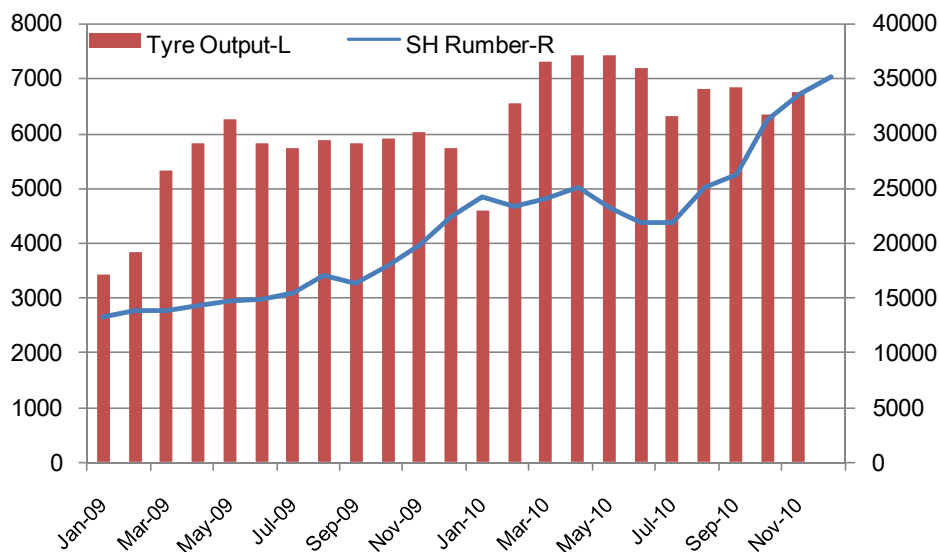
Zinc oxide producers adopt direct method have been shocked a lot and remained a low operation rate in the second half of 2010

Antaike estimates that zinc consumption in zinc oxide industry in 2010 was 510kt, up by 21.7% y-o-y.

**Chart 13 Monthly output of Architectural and table ware**



**Chart 14 Tyre output VS SH rubber price**



**Copper semis**

According to statistics from CNIA, copper semis output in the first eleven months was 9.09Mt. Total output in 2010 is estimated to reach a record high of 10Mt. Rapid developments in consumption and power grids have stimulated consumption for copper products.

Consumption for zinc in brass is estimated to be 525kt in 2010.



In conclusion, Antaike estimates that Chinese zinc consumption will reach 4.75Mt in 2010.

## Battery

Chinese battery industry performed well in 2010. Chinese battery output has recovered to the same level before the financial crisis. Output of primary battery and primary battery unit was 30.6bln in the first 11 months, up by 17% y-o-y.

Driven by global economic recovery, export amount of alkaline Zn-Mn battery and Zn-Mn battery have exceeded the amount in 2009.

Zinc consumption in battery industry in 2010 is estimated to be 372kt, up by 3% y-o-y.

**Table 19 Import and export of Zn-Mn batteries, 100mln units**

Products	Jan-Nov. 2008		2008		2009			Jan.-Nov. 2010		
	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	YoY %	Imp.	Exp.	YoY %
Alkaline Zn/Mn button primary cells	7.2	17.4	7.6	18.5	5.1	14.6	-21.06	4.1	12.1	-9.95
Alkaline Zn/Mn button primary cells	13.7	36.8	14.6	40.9	10.4	40.9	0.18	11.6	47	27.75
Other alkaline Zn/Mn primary cells	0.8	2.2	0.86	2.3	0.5	1.4	-40.35	0.5	1.2	-4.81
<b>Total</b>	<b>8.3</b>	<b>144.5</b>	<b>8.8</b>	<b>156.2</b>	<b>6.8</b>	<b>161.4</b>	<b>3.2</b>	<b>8.8</b>	<b>166</b>	<b>16.64</b>

Source: China Customs

## Die-casting

Chinese hardware industry has recovered in 2010. Sales amount of hardware industry in the first ten months of 2010 increased by 27% from the same period of 2009; total amount of import and export value reached US\$ 34.38bln, up by 31.3% y-o-y. Among which, export value was US\$26.4bln, up by 33.2% y-o-y; import value was US\$7.98bln, up by 25.1% y-o-y.

Chinese toy industry operated smoothly in 2010. Sales value of toy industry in the first ten months was up by 24.8% y-o-y. The growth rate was up by 3.9% from the first half of 2010.

Recoveries in hardware and toy industries have stimulated production recovery in die-casting zinc alloy. Chinese import of unwrought zinc alloy in the first eleven months was 141kt, up by 19.2% y-o-y. We estimate that zinc consumption in die-casting industry in 2010 was 650kt, up by 8% from 2009.

## Market Trend and Price Outlook

Chinese zinc output in 2010 is estimated to be 5.05Mt, consumption is estimated to be 4.75Mt, net import of refined zinc is estimated to be 280kt and supply surplus is estimated to be 580kt, down by 47kt from 2009. Chinese social inventory has reached 1.31Mt since 2008. Among which, inventory in exchanges has been 311kt; inventory in logistics companies in Shanghai has been 450kt; state reserved inventory has been 100kt; inventory in Nanhai of Guangdong Province has been 125kt; inventories in logistics companies in northeast and north China have been 20kt; inventory in smelters has been 220kt; inventory held by traders has been 85kt.

**Table 20 Supply/demand of refined zinc in China, kt**

	Output	Imp.	Consumption	Exp.	Balance
2000	1,957	129	1,470	594	22
2001	2,038	19	1,500	542	15
2002	2,155	68	1,700	473	50
2003	2,295	136	1,970	451	10
2004	2,720	224	2,440	239	265
2005	2,776	392	2,980	123	65
2006	3,153	318	3,300	325	-154
2007	3,742	149	3,650	276	-35
2008	4,042	183	4,050	71	104
2009	4,286	670	4,300	29	627
2010	5,050	320	4,750	40	580
2011	5,350	200	518	2	400

### Market outlook in 2011

1. Loose monetary policy will continue and metals prices will fluctuate around high level.

Current unemployment rate in developed countries remains high. Unemployment rate of the U.S, Euro Zone and Japan remains around 9.6%, 10.0% and 5.2% respectively. It reflects that economic recovery hasn't stimulated employment growth. IMF estimates that unemployment rate of developed countries in 2011 will be around 9%. The high unemployment rate will restrict consumption which can drive economic recovery. The high unemployment rate may cause social unrest. Economic performances in developed countries are hard to be well in 2011. Federal Reserve will continue loose monetary policy before real recovery has been seen in U.S economy. U.S dollars will rush to bulk commodities market. Together with international investment speculations, bulk commodities prices will be forced to rise. Substantial increase in international grain price has put hugger impact on developing countries than developed countries.

Relative loose monetary environment in 2011 will further support metals prices increase. However, global economy will face with multiple uncertainties and will continue to fluctuate around bottom. Accordingly, fluctuation will be seen in nonferrous metals market.

2. Over surplus continues in both domestic and international zinc market, pressure from fundamental on zinc price continues to increase.

The high zinc price has stimulated global production obviously. Both concentrate and refined zinc output is estimated to increase substantially in 2011, especially in China. Main enterprises will strengthen production in 2011 for it is the first year of 12th five year plan period.

Unstable global economy brings uncertainties in consumption. Accordingly, supply surplus is more likely to be seen. In addition, inventory has been high in 2009- 2010 so that fundamental can't support further price increase.

3. Global copper market will see a shortage of 400kt in 2011. Copper price is estimated to increase further in 2011. Accordingly, zinc price is hard to decline because of financial attribute.

In conclusion, zinc market mainly followed the trend of other base metals in 2010. The situation will continue in 2011. Supported by loose monetary environment and substantial increase in copper price, zinc price will continue to rise. However, zinc price will drop rapidly if there're any changes in macro economy and base metals market. Average zinc price in 2011 will be higher than that of 2010. Zinc for three month deliver on the LME will be around US\$2,100- 2,600. And Chinese spot price will fluctuate around 16,500- 22,000yuan/t.

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