

Development of China's Battery Industry



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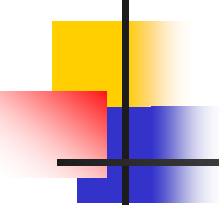
1 China Battery industry Society

2 Institute of Chemical Power Supply in
Light industry

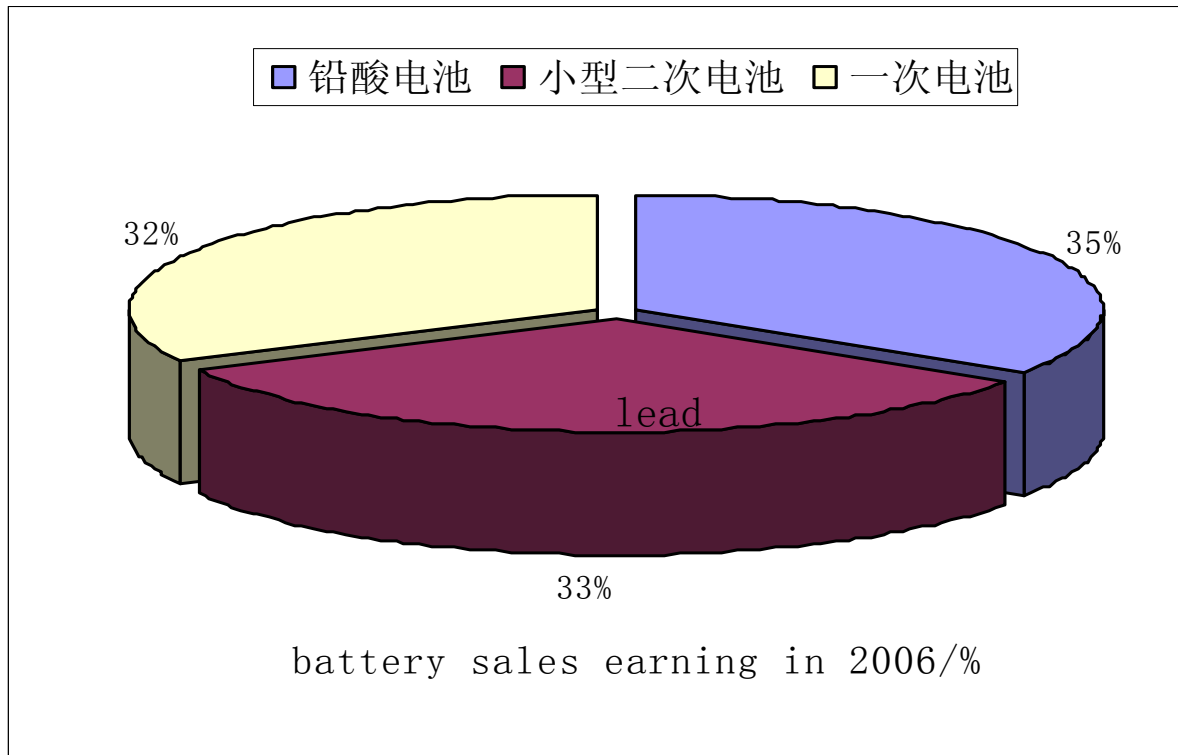


1 General information

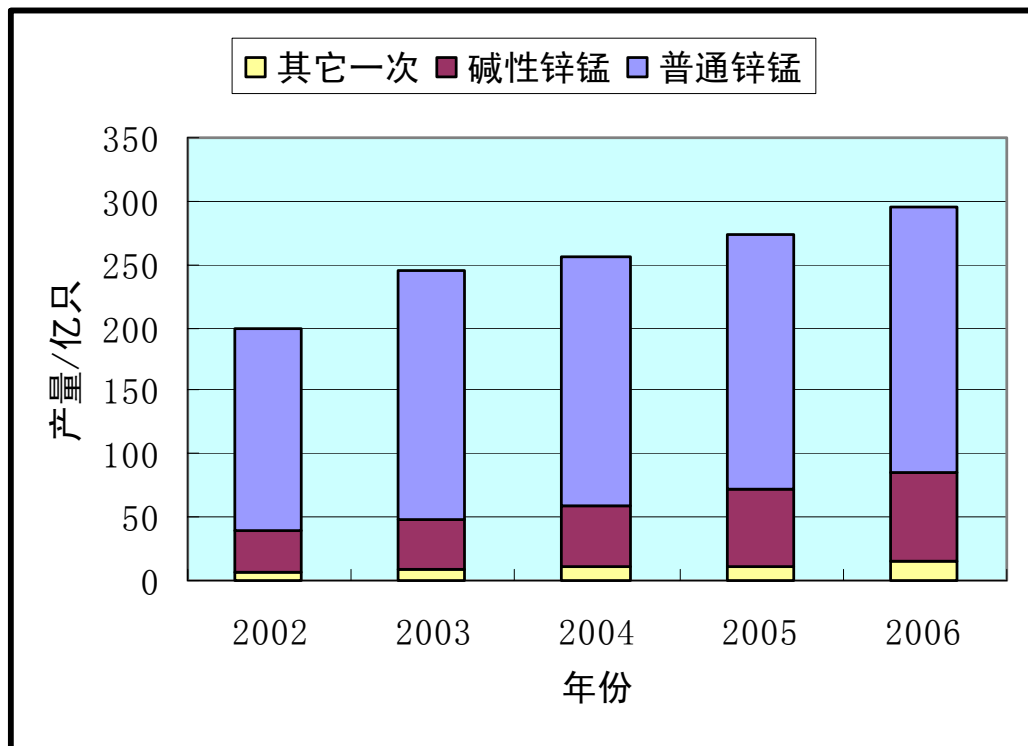
- As a portable power supply, primary battery can never be replaced by other battery because of its convenience and low price.
- Today, common primary battery include Zin-Mn battery, alkaline Mn Battery, zin-oxide silver battery, Zin-air battery and lithium battery.
- As the largest battery producer, China in 2006 produced 32.5 billion pieces of battery (excl.button alkaline Mn Battery) ,more than half of the global total output. Among them, primary battery is more than 29billion while Zin-Mn battery takes 28 billion. Others takes 1.5billion.。 Zin-Mn battery amounts to 95% of total primary battery.。
- As the popularization of electric notebook and small remote control, production of button dioxide Mn battery has been over 1billion pieces.

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- With development of musica card, small toy and children watch in recent years, production of excl.button alkaline Mn Battery has been over 10 billion pieces.
 - Zin-Mn battery is the most commonly used primary battery. Although Zin-Mn battery has a history of more than 100 years, scientists has been working for more cheap substitute, however, they failed. It can be forecasted that Zin-Mn battery wii still be the main primary battery globally. And the demand will be stronger and stronger with economy development
 - Global Zin-Mn battery is heading for alkaline, high power and non-hg. The alkaline rate worldwide has been over 30% while in developed countries, that no. is 70%. Battery of low quality is being driven out.

2 production



1 Battery sales earning in
2006



2 Production change in recent years

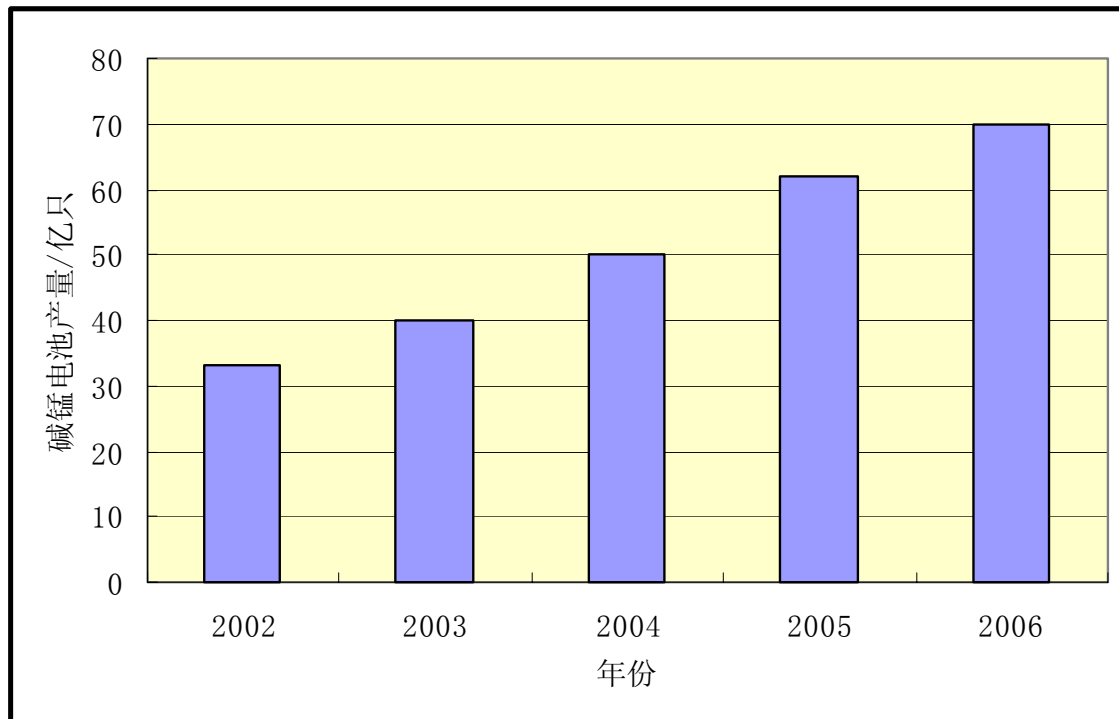
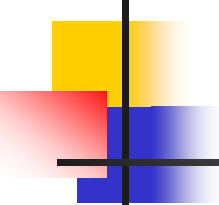


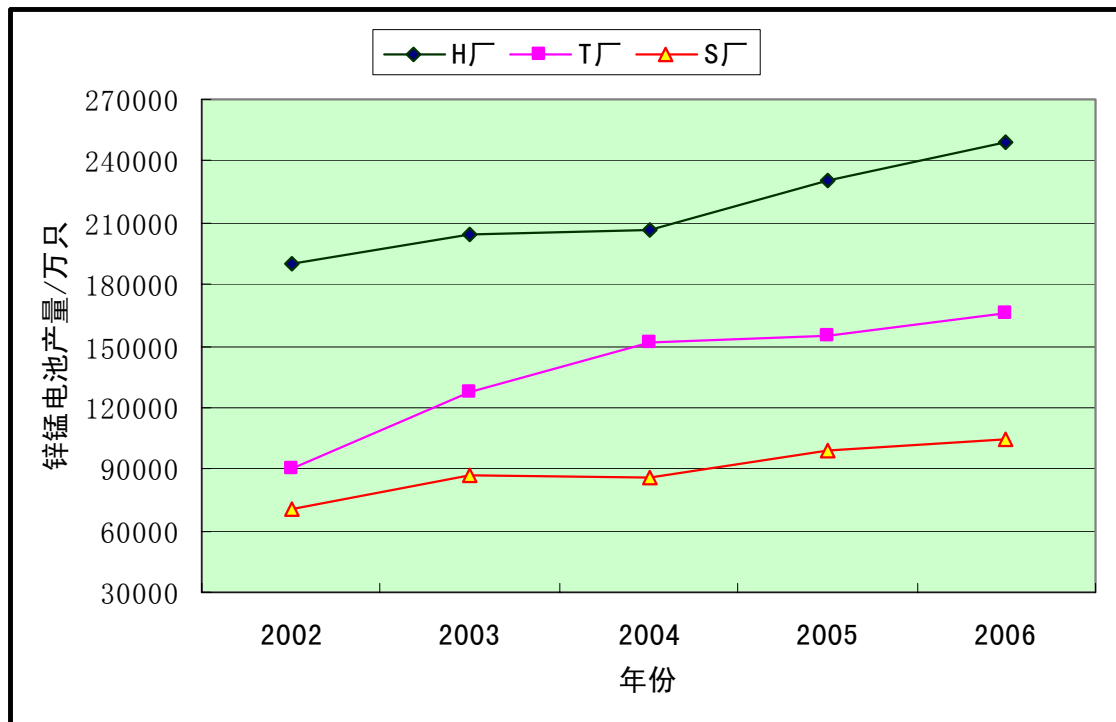
图3 production change of alkaline Mn battery



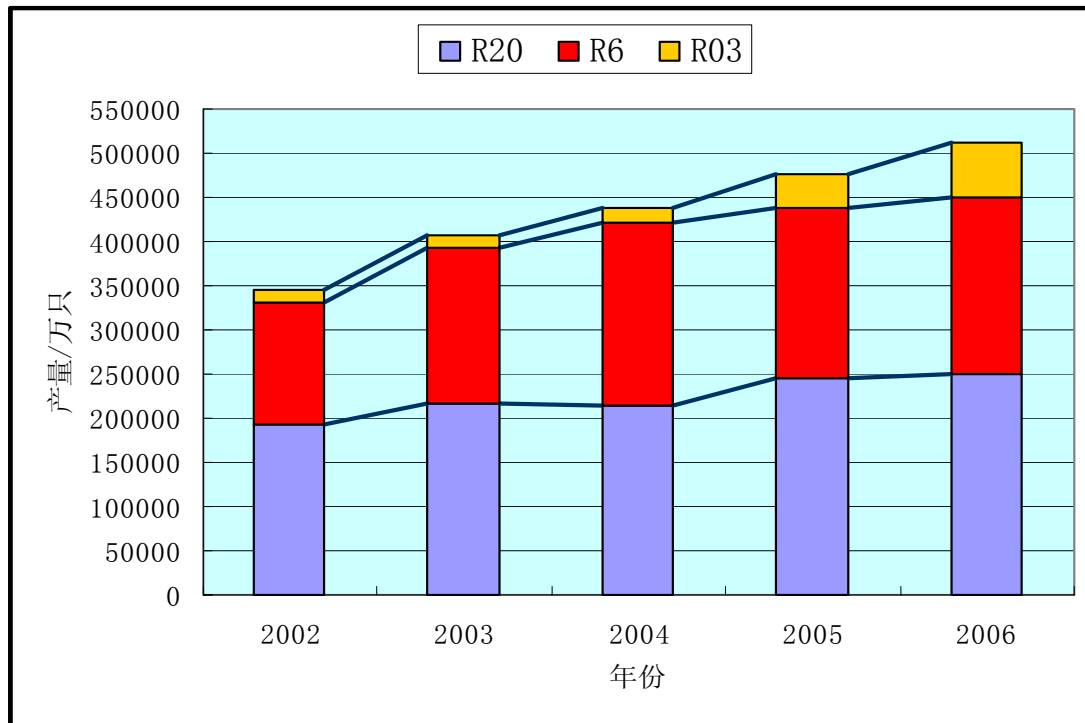
Production analysis

- **Total battery sales earning in 2006 is about 12.2 billion, of which primary battery sales amounts to 39 billion, almost the same as that of lead acid battery and small secondary battery.**
- **In recent years, the average growth rate of primary battery in China is above that of the world. Major growth shows in alkaline Mn Battery, with a 30%/ growth rate year on year.**
- **Cost performance of common Zin-Mn Battery becomes lower and lower with the rural material price up while quality down. Besides, because of lack in resource and environment pollution, it is no longer fit for certain use. Growth of common Zin-Mn Battery has been more slow in recent 3 years, with a 2% average rate.**

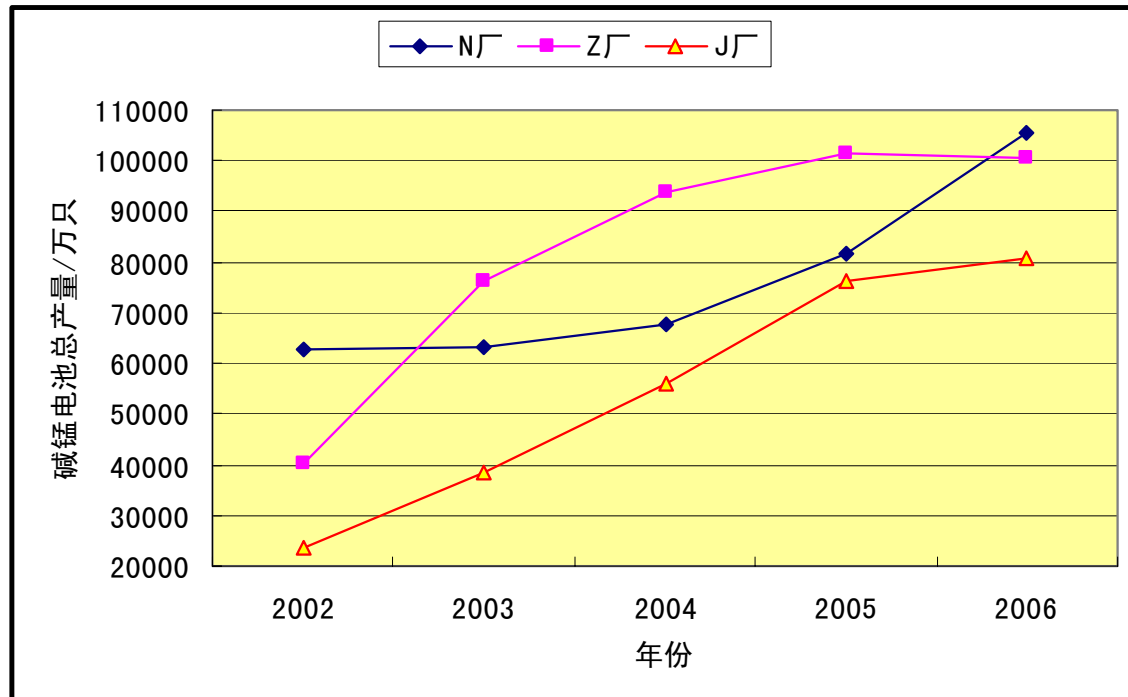
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- **TO have a analysis on change in domestic primary battery, several main manufactures have been researched. Their production change is shown by picture 4 while main type change is shown by picture 5.**
 - **Production change of main Zin-Mn Battery manufactures in recent years is shown by picture 6,while type change is shown by picture7-8 with picture 9 shows the price change.**
 - **Chart 1 shows the average Zin-Mn Battery growth rate of major manufactures.**



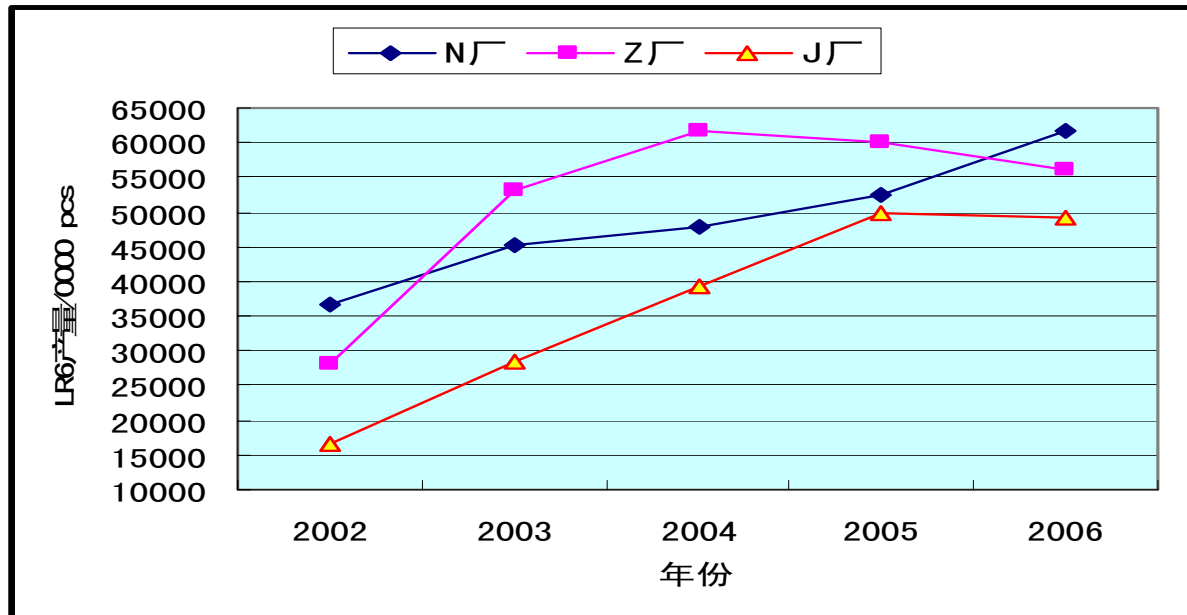
picture4 Zin-Mn battery production of 3 main manufacturers.



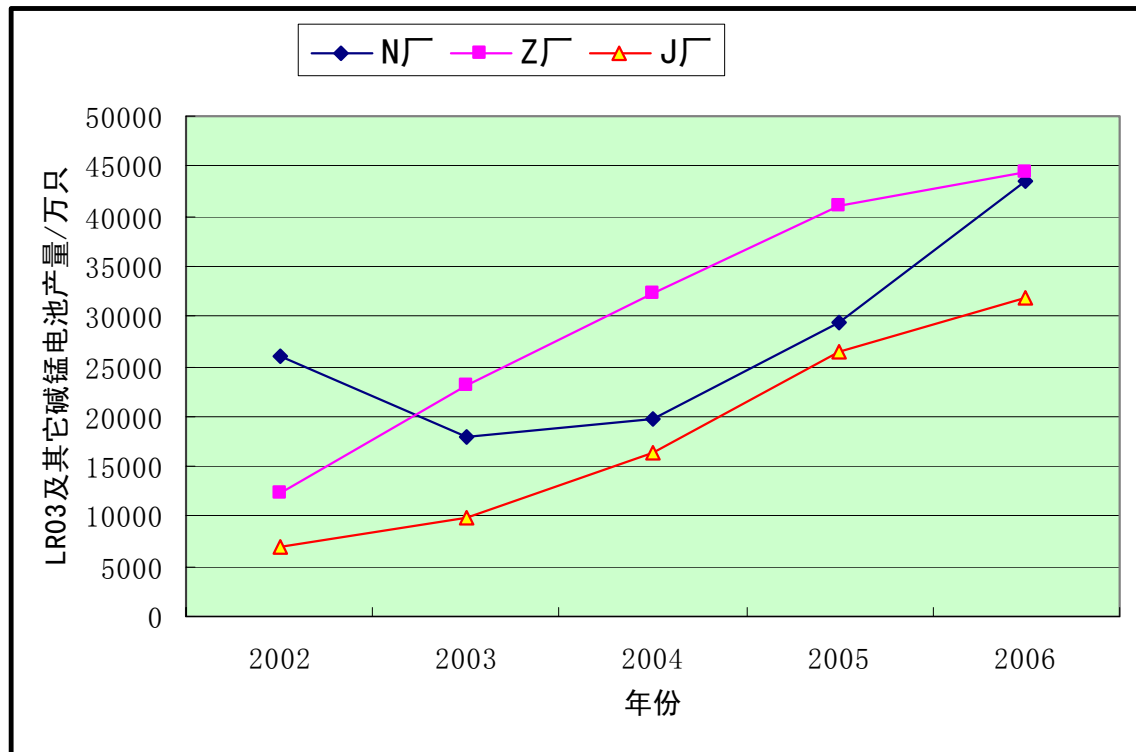
picture5 each type Zn-Mn battery production of 3 majormanufactures.



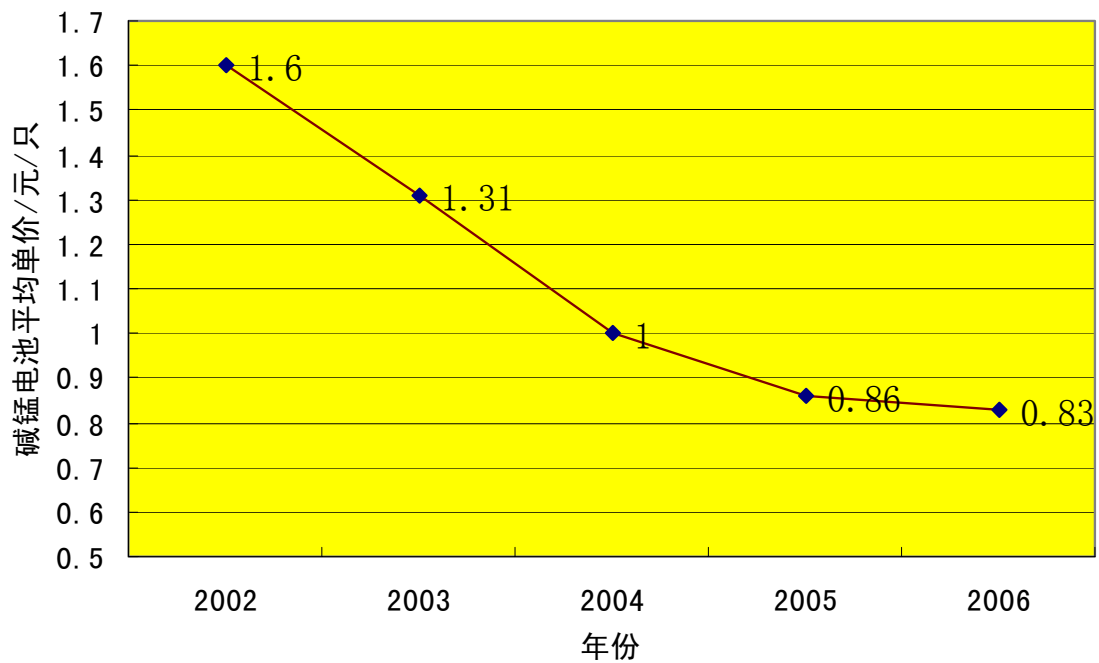
picture6 alkaline Mn Battery
production of 3 major manufactures



picture7 LR6 battery production of 3 main alkaline Mn Battery manufactures



picture8 LR03 and other alkaline Mn Battery production of 3major manufactures



picture9 average alkaline Mn
Battery price of manufacturer J

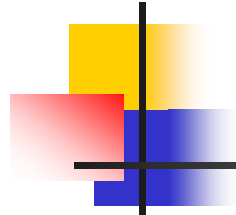
chart1 average growth rate of Zin-Mn and alkaline Mn Battery production in maojor manufactures

Ord.	item	3 Manufacture of Zin-Mn battery	3 manufacture of alkaline Mn battery
1	Average growth of total output/%	12.1	31.6
2	Average growth of sales earning/%	18.5	22.0
3	Average growth rate of R20 /%	7.4	/
4	Average growth rate of R6 orLR6 /%	11.5	26.2
5	Average growth rate of R03 or LR03 /%	85.8	35.0



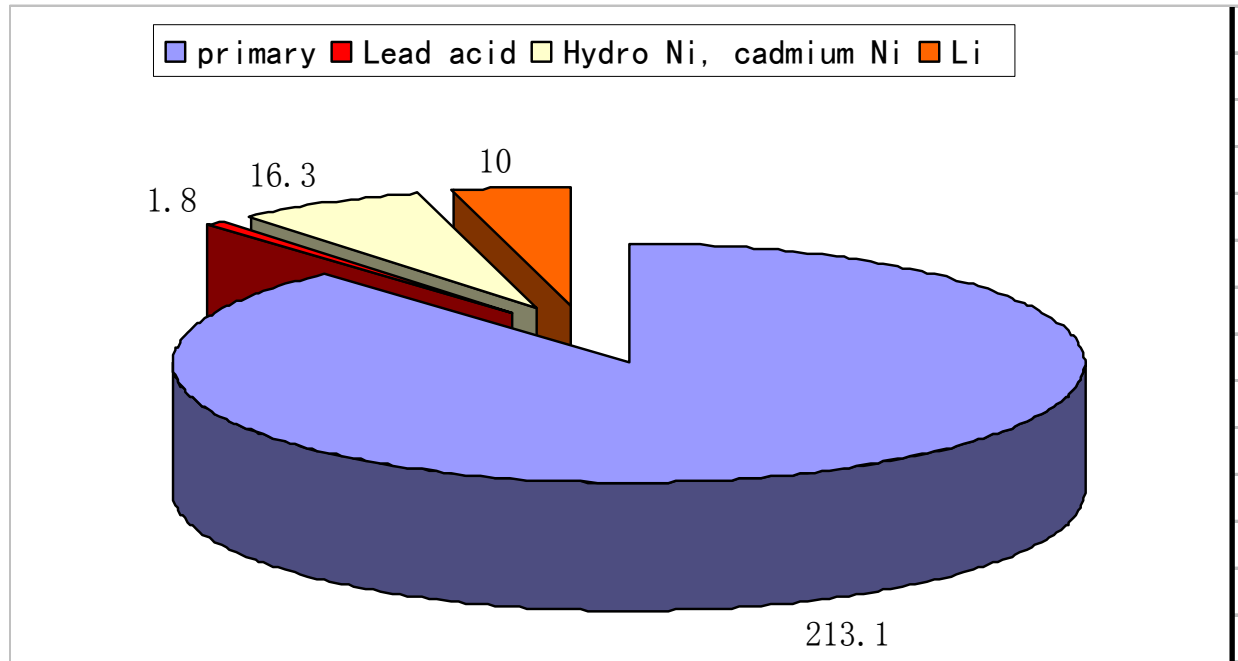
Production Analysis

- **Output growth of major manufactures becomes small, while sales earning rate is larger than that of output. Main cause is that price of rural material rises a lot.**
- **Among common Zin-Mn battery, growth of R20 and R6 is small while output of R03 grows a lot.**
- **Total battery output grows by a large margin.**
- **Output of major basisity Zin-Mn battery manufactures is close to that of the national output. With the total output grows, growth rate becomes small.**
- **Rise of rural material makes the cost of Zin-Mn battery grow, but sales earning of basisity Mn battery is lower than that of output.**

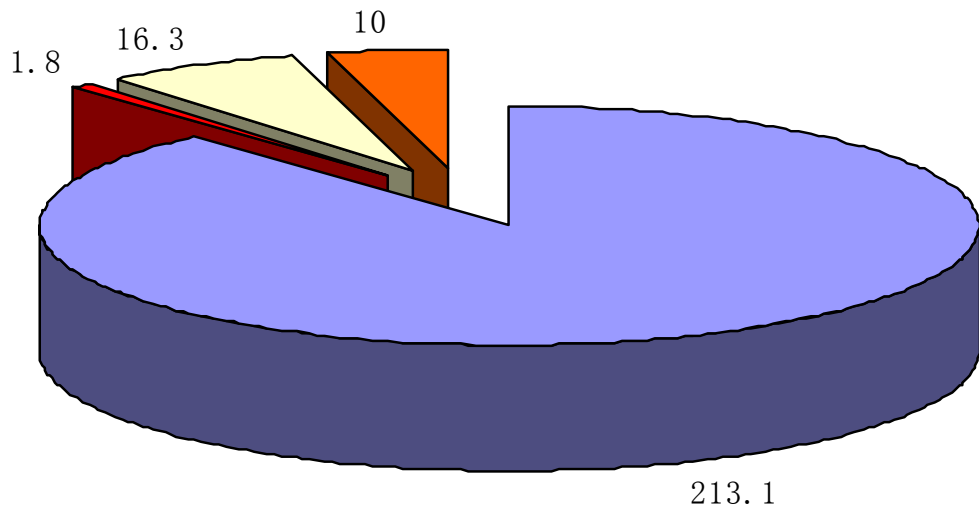
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- **Basisity Mn battery goes into a little profit period. Most unit price shows a large down, some even sown 50%. First is that high-profit period is over. Second is that competition becomes severe. Third is that there is a price difference between LR0 and LR6.**
 - **Growth rate of LR6 is lower than that of LR03. First reason comes from the market. the popularization of MP3 and other electronic remote control has the same market result as bleeper. The other comes from manufactures' benefit. As price of rural material rises, cost growth of LR6 is higher than that of LR03, some manufactures thus given up LR6. Output of primary lithium battery, especially button lithium-Mn battery grows. However, the quality of battery produced in China is far behind that of Japan, thus the price of same type battery in China is much lower than that in Japan.**

3 Imp. & Exp.

3.1 Exp.

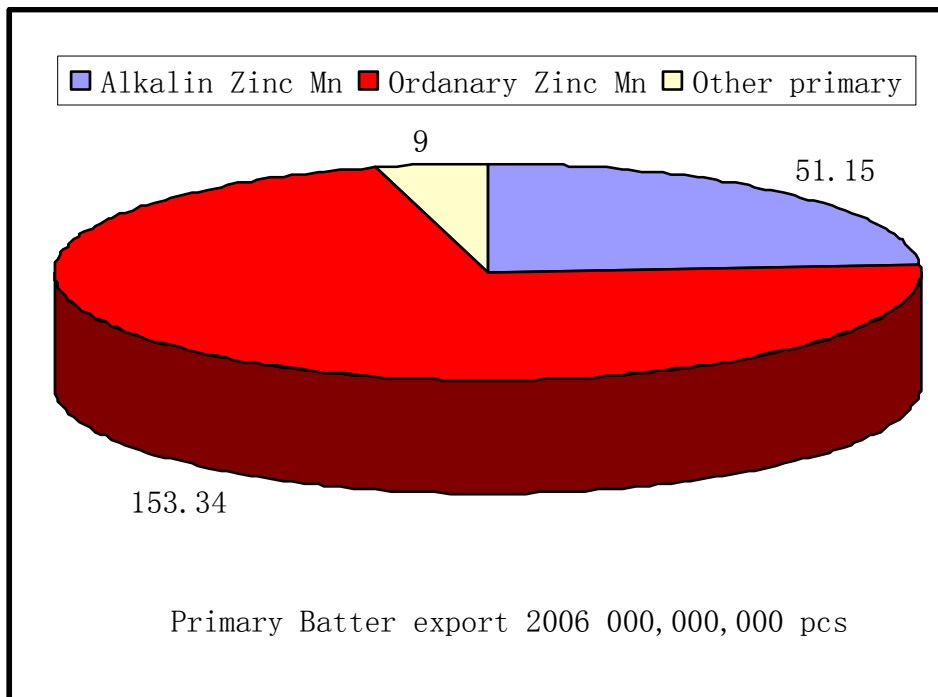


Picture 10 export of battery in 2006



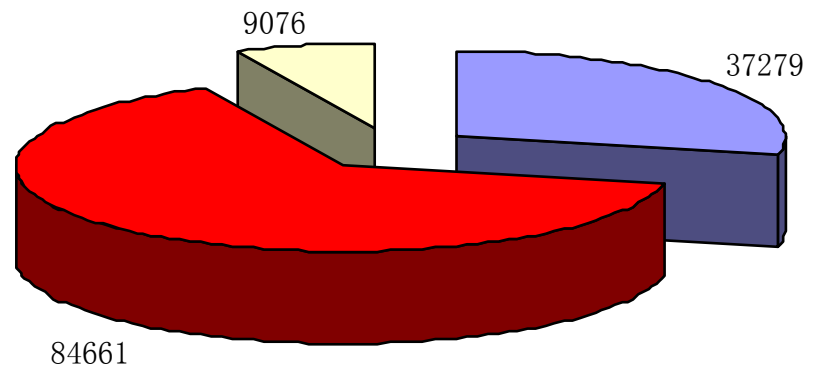
export volume of all type battery/000,000,000 pcs

Picture 11 export value of battery in 2006



Picture 12 export of primary battery in 2006

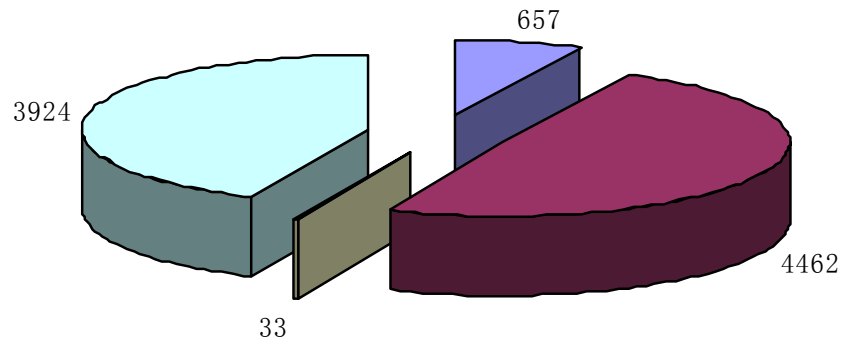
Alkaline Zinc Mn Ordinary Other primary



Amount of primary batter exports/USD0000

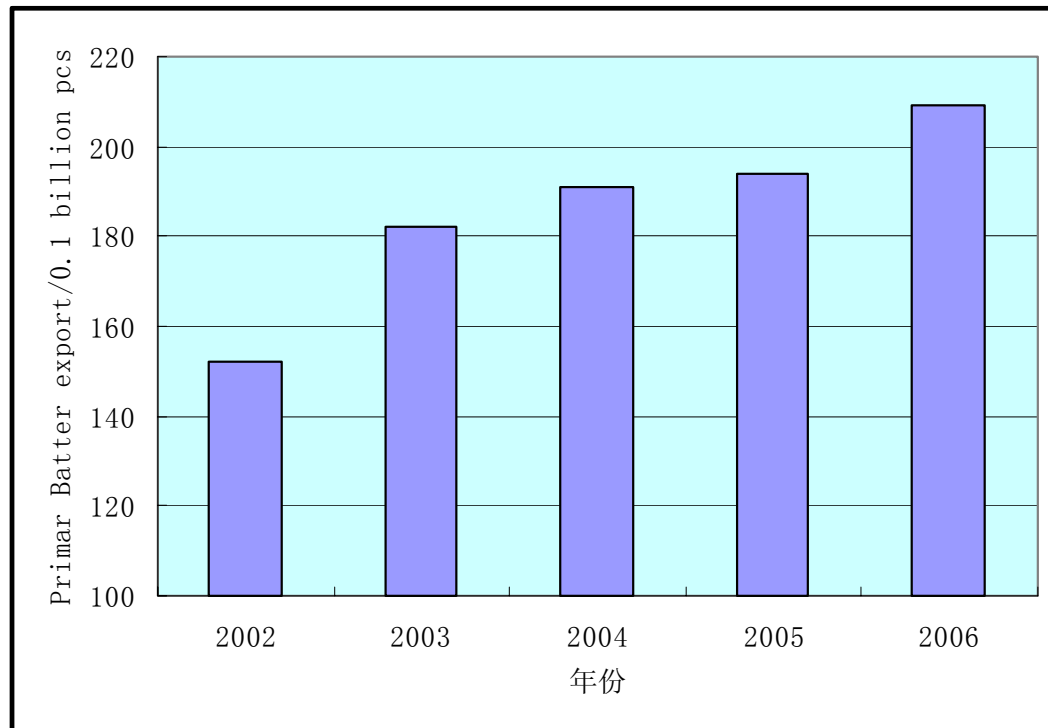
picture13 Export value of primary battery in 2006

■ Silver Oxid ■ Li ■ Zinc ■ Other primary



Other primary battery export amount/usd0000

picture14 export value of other primary battery in 2006



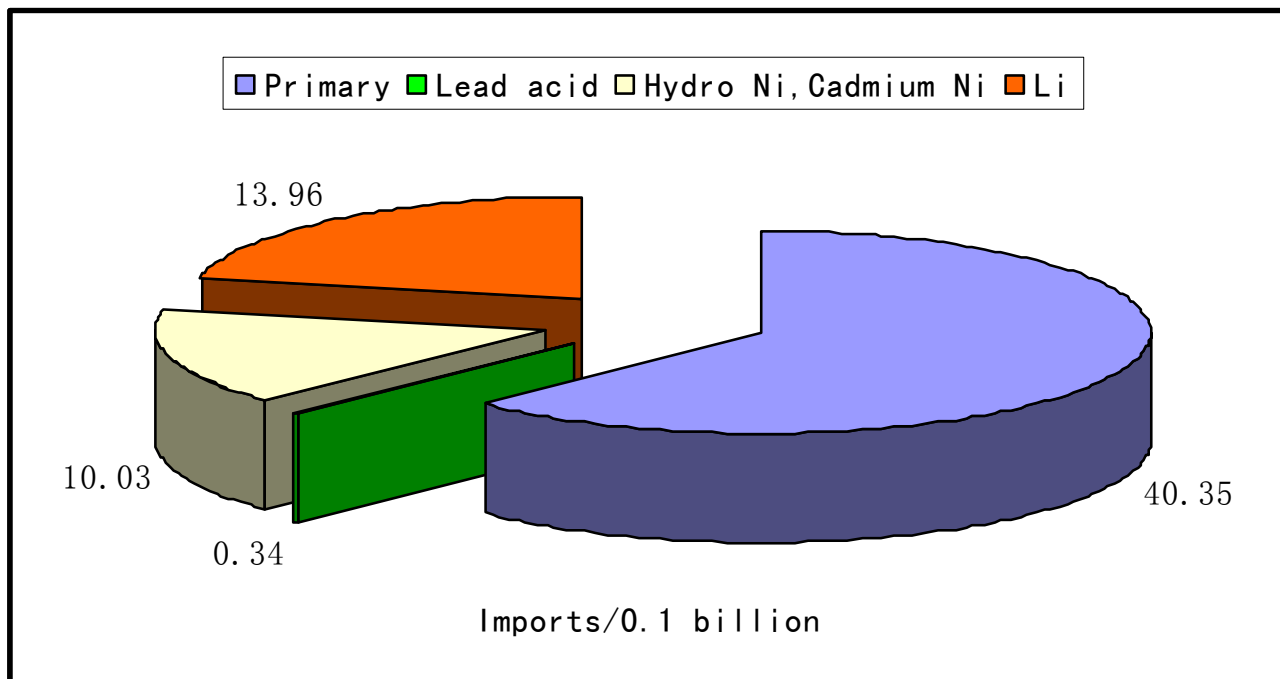
picture15 change of primary
export quantity in 2006



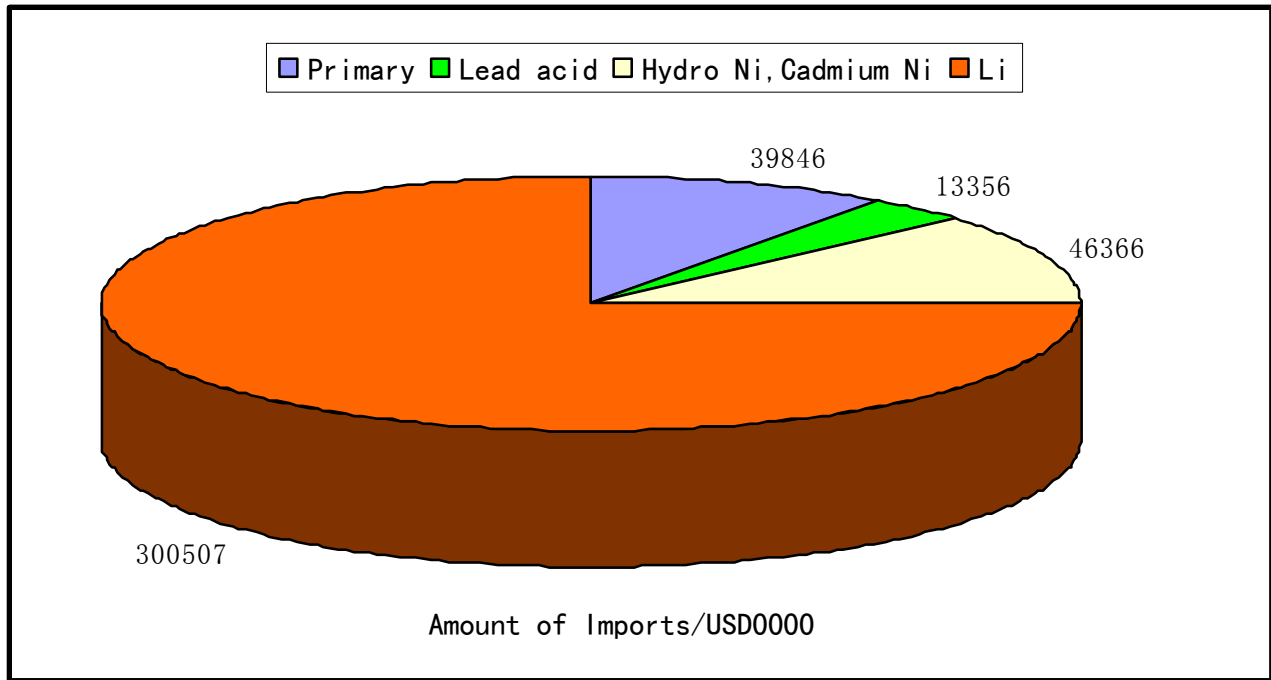
3.2 analysis on export

- **primary battery is a product of low value and easy consumption. Its export volume is large while value is low. In 2006, its export volume amounts to 20% of all battery export.**
- **Among the primary battery exported in 2006, common Zin-Mn battery amounts to 65% of total battery export and mainly R20.alkaline Zin-Mn battery export value amounts to 29%, mainly LR6 and LR03.**
- **primary battery export growth has been slow since 2003, with a 5% growth rate. Export of common Zin-Mn battery is decreasing while export of alkaline Zin-Mn battery grows a lot, with a 35% average growth rate. With the increase of high quality battery, the growth rate of export value is much higher than that of export volume. With a 20% average.**
- **In 2006, export price of common Zin-Mn is 20% higher than that in 2005, because Zin price rises.**

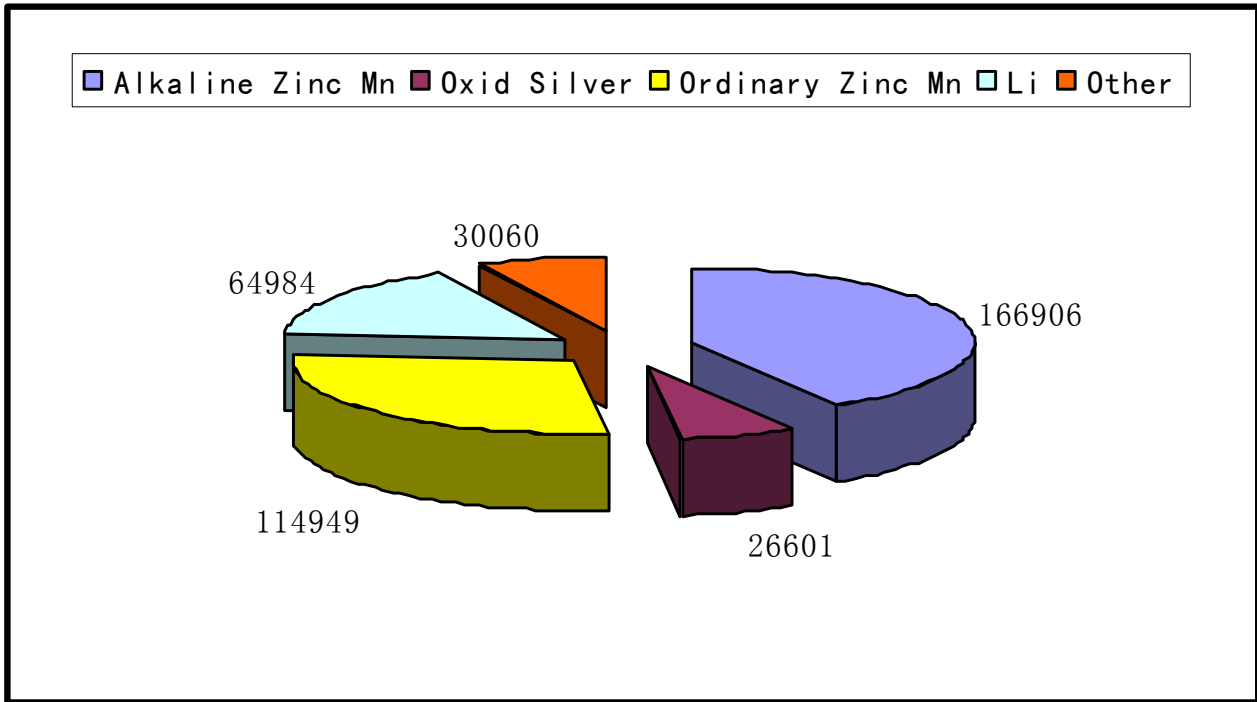
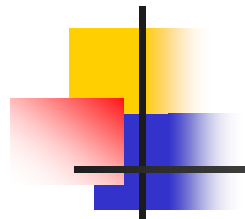
3.3 Import



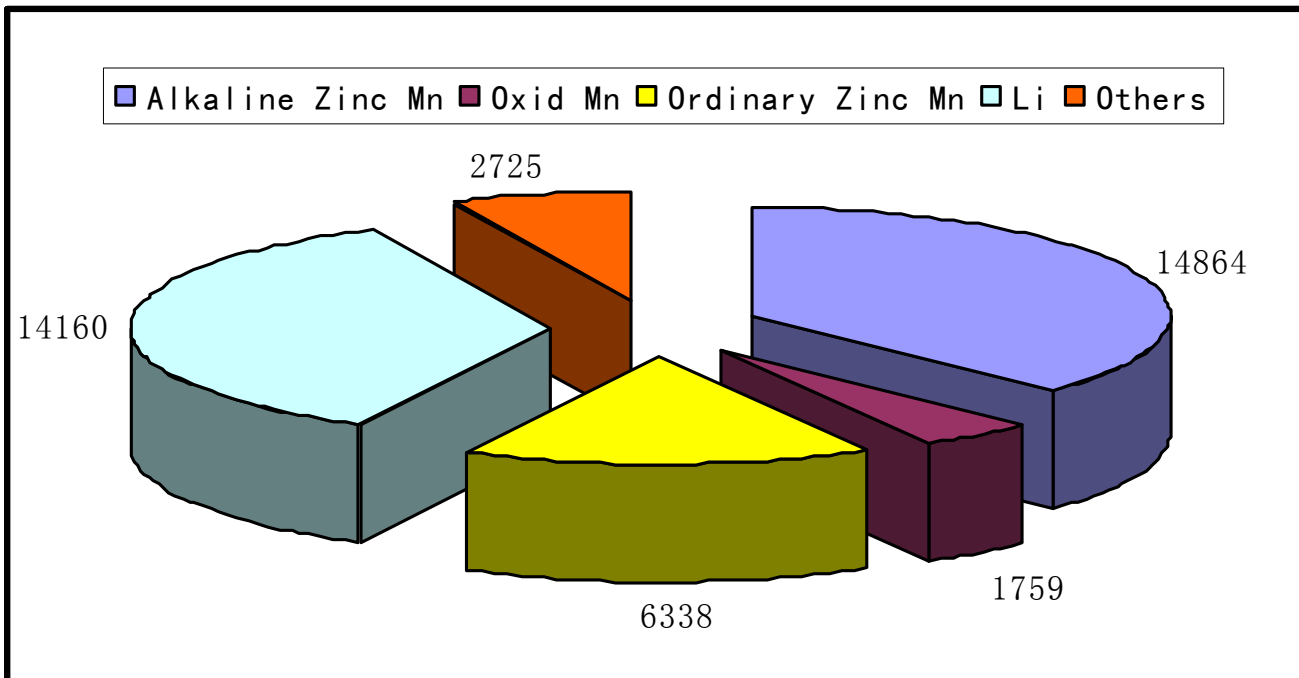
picture16 import of all battery in 2006



picturer17 import value of all battery in 2006



Picture18 import of primary battery/ ten thousand



picture19 import value of
primary battery/ten thousand \$



Chart 2 price comparison of battery imp.&exp.

Ord.	battery type	Average Imp. price /\$/ten thousand	Average exp.. price /\$/ten thousand	comparison
1	alkaline Zinc Mn	891	729	1.22
2	Common Zinc Mn	551	552	1.00
3	Oxide silver	661	586	1.13
4	Lithium	2179	1354	1.61
5	Other battery	907	903	1.00



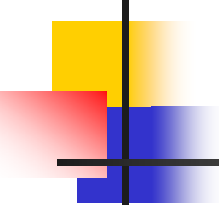
3.4 analysis on import

- **Import volume of primary battery and lithium battery in 2006 amounts to 63% and 22% respectively. while import value amounts to 10% and 75% respectively.**
- **Among the imported battery, alkaline Mn battery and primary lithium battery hold the highest value.**
- **With improvement of battery technology, battery, especially Zin-Mn battery and alkaline Mn battery, imported to China becomes less year on year.**
- **As competition becomes much severer, imputed battery price becomes lower year on year. Although import price is still higher than export price, the gap is becoming small. The gap is mainly caused by imported primary lithium battery from Japan.**

4 Developing trend and Major problems

chart3 output, imp.&exp.and domestic consumption of primary battery

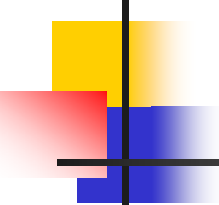
battery type	output/ 0.1billion	export/0.1 billion	import/0.1 billion	Domestic consumption/0.1billio n	note
Common Zinc-Mn battery	210	153.34	11.49	68	
alkaline Zinc-Mn	70	51.15	16.69	36	
Other primary battery	15	9.00	12.16	18	estimate d
total	295	213.45	40.34	122	

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- **The rapid economy development is the driving force of growth in battery consumption. In recent years, domestic average battery consumption , especially alkaline Mn battery and lithium battery, in recent years grows by 10%, already higher than that of the world. Consumption on alkaline battery is close to 3 piece per people per year while lithium battery 1 piece/people/year.**
 - **Total consumption of primary battery will decrease gradually, while common zin_Mn battery suffer a negative growth while consumption on alkaline Mn battery and lithium battery will still rise and is heading for better quality**
 - **Among the exported battery, alkaline Mn battery and lithium battery will holds larger rate. Imported battery will decrease and mainly are primary lithium battery, button oxide silver battery and button Zin-air battery.**



Several problems need attention on primary battery:

- **Common Zin-Mn battery contains too much Hg and chrome and this will influence export.; EU environment protection and battery regulations has a globalization trend.**
- **Quality of Common Zin-Mn battery is not so good because of rural material quality decreases. If this problem can not be solved, Common Zin-Mn battery will not have strong competitiveness.**
- **Dumping at low price and anti-dumping issue.**
- **Button alkaline Mn battery contains too much Hg. Hg contained in one button battery is 8-10 times Hg contained in R6 battery. Thus production of button battery pollutes greatly. With technology of non-Hg in battery, making a standard and limiting Hg contain should be in agenda.**
- **Pay more attention to dioxide Mn . Emphasis on quality improvement on button battery to improve competitiveness.**

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- Statistics in the speech come from national statistics bureau, the Custom and China battery Industry Association and they are just for reference. The analysis is just personal view, just for for reference.

Thanks!