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[Table of Contents 2](#)

[List of Tables & Charts 3](#)

[Study Overview 4](#)

[Sample Text, Table & Chart 5](#)

[Sample Profile, Table & Forecast 6](#)

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Batteries in China

Industry Study with Forecasts to **2010 & 2015**

Study #2151 | February 2007 | \$4900 | 255 pages

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Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT

General	4
Economic Overview.....	5
Population Patterns.....	8
Personal Income & Expenditure Trends	10
Industrialization & Manufacturing Trends	12
Currency Exchange Rates	14
Government Spending & Investment Trends.....	17
Motor Vehicle Outlook.....	18
Electrical/Electronics Sector Outlook.....	22
Environmental & Regulatory Considerations.....	24
The Five-Year Plan.....	26

TECHNOLOGY

General	29
Basic Electrical Properties	30
Battery Construction & Operation	32
Conventional Battery Chemistries	34
Advanced Battery Chemistries	37
Fuel Cells & Other Alternative Power Sources ...	44
Smart Batteries.....	48

BATTERIES OVERVIEW

General	51
Pricing Patterns	53
International Environment.....	56
World Outlook	56
Foreign Trade	60
Primary Batteries	62
Secondary Batteries.....	63

PRIMARY BATTERY PRODUCTS

General	65
Zinc-Carbon/Zinc-Chloride Batteries	68
Alkaline Batteries.....	70
Primary Lithium.....	73
Other Primary Batteries.....	74
Silver Oxide	76
Zinc-Air.....	78
Specialty & All Other Primary Batteries	80

PRIMARY BATTERY MARKETS

General	83
Consumer Primary Battery Market	86
Entertainment.....	87
Toys & Games.....	88
Photography	89
Lighting.....	90
Other Consumer Markets	91

Industrial Primary Battery Market	92
Government Primary Battery Market	94
Other Primary Battery Markets.....	96

SECONDARY BATTERY PRODUCTS

General	99
Lead-Acid Batteries	102
Starting/Lighting/Ignition	104
Non-SLI	106
Motive Power.....	107
Stationary & Other Types	108
Rechargeable Lithium Batteries	109
Lithium Ion	112
Lithium Polymer	114
Nickel-Cadmium Batteries.....	115
Nickel-Metal Hydride Batteries	117
Other Secondary Batteries	120
Rechargeable Alkaline	122
Rechargeable Zinc-Air.....	123
Nickel-Hydrogen	123
Sodium-Sulfur	124
All Other	125

SECONDARY BATTERY MARKETS

General	127
Electric Bicycles, Motor Vehicles & Other Transportation	130
Electric Bicycles	132
Traditional Motor Vehicles	134
Farm Vehicles.....	135
Motorcycles	137
Hybrid-Electric Vehicles	138
Portable Devices	140
Personal Communications Devices.....	142
Portable Computers.....	144
Power Tools	146
Other Portable Devices	147
Motive Power	149
Industrial & Mining Vehicles.....	150
Recreational & Other Motive Power.....	151
Backup Power Supplies	152
Industrial	154
Telecommunications.....	155
Utility-Related	156
Government & Other	157
Government.....	158
Other.....	159

INDUSTRY STRUCTURE

General	160
Industry Composition	161
Market Share	165

Primary Batteries.....	167
Procter & Gamble	168
Shandong Goldlo Industrial.....	169
Guangdong Chaoan Zhenglong.....	169
Xiamen Three Circles.....	169
Guangzhou Tiger Head Battery.....	170
Lead-Acid Secondary Batteries	170
Baoding Jin Fengfan Storage Battery.....	171
Johnson Controls	172
GS Yuasa.....	172
Tianneng Power International.....	172
Coslight Technology International.....	173
Other Secondary Batteries	173
BYD	174
SCUD Fujian Electronic	175
Huanyu Power Source.....	175
China BAK Battery.....	175
Matsushita Electric Industrial.....	175
Research & Product Development.....	176
Manufacturing	177
Marketing & Distribution	179
Financial Requirements	180
Mergers, Acquisitions & Industry Restructuring	182
Cooperative Agreements.....	184
Foreign Participation in China	187
Legal & Regulatory Issues	187
Wholly-Owned Foreign Enterprises	189
Joint Venture	190
Representative Offices	192

COMPANY PROFILES

Aucma New Power Technology.....	194
Baoding Jin Fengfan Storage Battery	195
BYD Company	196
China BAK Battery.....	197
China Shoto PLC	199
Coslight Technology International Group.....	200
CSIC Zibo Storage Battery Factory.....	202
Energizer Holdings	203
EnerSys	206
Fujian Quanzhou Huaqiao Storage Battery Factory.....	208
Gold Peak Industries.....	209
GS Yuasa Corporation.....	212
Guangdong Chaoan Zhenglong Enterprise	214
Guangxi Wuzhou Sunwatt Battery	215
Guangzhou Tiger Head Battery Group	216
Hi-Watt Battery Industry.....	217
Huanyu Power Source	218
Hubei Camel Storage Battery.....	219
Jiangsu HighStar Chemical Battery	220
Johnson Controls	221
Matsushita Electric Industrial.....	224

(continued on next page)

Table of Contents

COMPANY PROFILES

(continued from previous page)

Minhua Battery.....	226
Narada Power Source	227
Procter & Gamble.....	229
SANIK Battery	232
SANYO Electric.....	233
SCUD Fujian Electronic.....	235
Shandong Goldlo Industrial Group.....	236
Shanghai White Elephant Swan Battery	237
Shenzhen Desay Battery Technology.....	238
Simplo Technology Company Limited.....	239
Spectrum Brands Incorporated	240
TCL Corporation	242
Tianjin Lishen Battery Joint-Stock.....	243
Tianneng Power International Group	244
Weihai Wenlong Power Supply Group	245
Xiamen Three Circles.....	246
Xinxiang Taihang Power Source	247
Zhejiang Mustang Battery.....	248
Other Companies Mentioned in Study	249

List of Tables/Charts

EXECUTIVE SUMMARY

1 Summary Table.....	3
----------------------	---

MARKET ENVIRONMENT

1 Gross Domestic Product of China.....	7
2 Population of China	9
Cht Population of China by Age.....	10
3 Consumer Income & Expenditure Patterns in China	12
4 Manufacturing Value Added in China.....	14
5 Chinese Currency Exchange Rates, 1995-2005.....	16
Cht Chinese Currency Exchange Rates, 1995-2005.....	16
6 Government Spending & Investment in China.....	17
7 Motor Vehicle Indicators in China	18
8 Electrical & Electronic Equipment Shipments in China	24

TECHNOLOGY

Cht Basic Battery Construction.....	33
1 Fuel Cell Demand in China	46
2 Smart Battery Demand in China	50

BATTERIES OVERVIEW

1 Battery Supply & Demand in China.....	53
---	----

2 Battery Pricing in China	55
3 World Battery Demand	59
Cht World Battery Demand by Region, 2005 ...	60
4 Chinese Foreign Trade in Batteries	62
5 Chinese Foreign Trade in Primary Batteries	63
6 Chinese Foreign Trade in Secondary Batteries	64

PRIMARY BATTERY PRODUCTS

1 Primary Battery Supply & Demand in China	67
Cht Primary Battery Demand in China by Chemistry, 2005	68
2 Zinc-Carbon/Chloride Battery Supply & Demand in China	70
3 Alkaline Battery Supply & Demand in China	72
4 Primary Lithium Battery Supply & Demand in China	74
5 Other Primary Battery Supply & Demand in China	76
6 Silver Oxide Battery Demand in China	78
7 Zinc-Air Battery Demand in China	80
8 Specialty & All Other Primary Battery Demand in China	82

PRIMARY BATTERY MARKETS

1 Primary Battery Demand in China by Market.....	85
Cht Primary Battery Demand in China by Market, 2005	85
2 Consumer Primary Battery Market in China	87
3 Industrial Primary Battery Market in China	94
4 Government Primary Battery Market in China	96
5 Other Primary Battery Market in China	98

SECONDARY BATTERY PRODUCTS

1 Secondary Battery Supply & Demand in China	101
Cht Secondary Battery Demand in China by Chemistry, 2005	102
2 Lead-Acid Battery Supply & Demand.....	104
3 Starting/Lighting/Ignition Battery Demand in China	106
4 Non-SLI Lead-Acid Battery Demand in China	107
5 Rechargeable Lithium Battery Supply & Demand in China	112
6 Nickel-Cadmium Battery Supply & Demand in China	117

7 Nickel-Metal Hydride Battery Supply & Demand in China	120
8 Other Secondary Battery Supply & Demand in China	122

SECONDARY BATTERY MARKETS

1 Secondary Battery Demand in China by Market.....	129
Cht Secondary Battery Demand in China by Market, 2005	129
2 Electric Bicycle, Motor Vehicle & Other Transportation Equipment Secondary Battery Market in China.....	131
3 Electric Bicycle Secondary Battery Market in China	133
4 Traditional Motor Vehicle Secondary Battery Market in China	135
5 Farm Vehicle Secondary Battery Market in China	137
6 Motorcycle Secondary Battery Market in China	138
7 Hybrid-Electric Vehicle Secondary Battery Market in China	140
8 Portable Devices Secondary Battery Market in China	142
9 Personal Communications Device Battery Market in China	144
10 Portable Computer Secondary Battery Market in China	145
11 Power Tools Secondary Battery Market in China	147
12 Other Portable Devices Secondary Battery Market in China	148
13 Motive Power Secondary Battery Market in China	150
14 Backup Power Supply Secondary Battery Market in China	154
15 Government & Other Secondary Battery Market in China	158

INDUSTRY STRUCTURE

1 Revenue Data: Selected Battery Manufacturers, 2005.....	163
Cht Total Battery Market Share in China by Company, 2005	167
Cht Primary Battery Market Share in China by Company, 2005	168
Cht Lead-Acid Battery Market Share in China by Company, 2005	171
Cht Non-Lead-Acid Secondary Battery Market Share in China by Company, 2005.....	174
2 Selected Acquisitions & Divestitures.....	183
3 Selected Cooperative Agreements.....	185

Growth stimulants include the emergence of electric bicycles as an important means of transportation and strong domestic demand for consumer battery-powered products such as cellular phones.

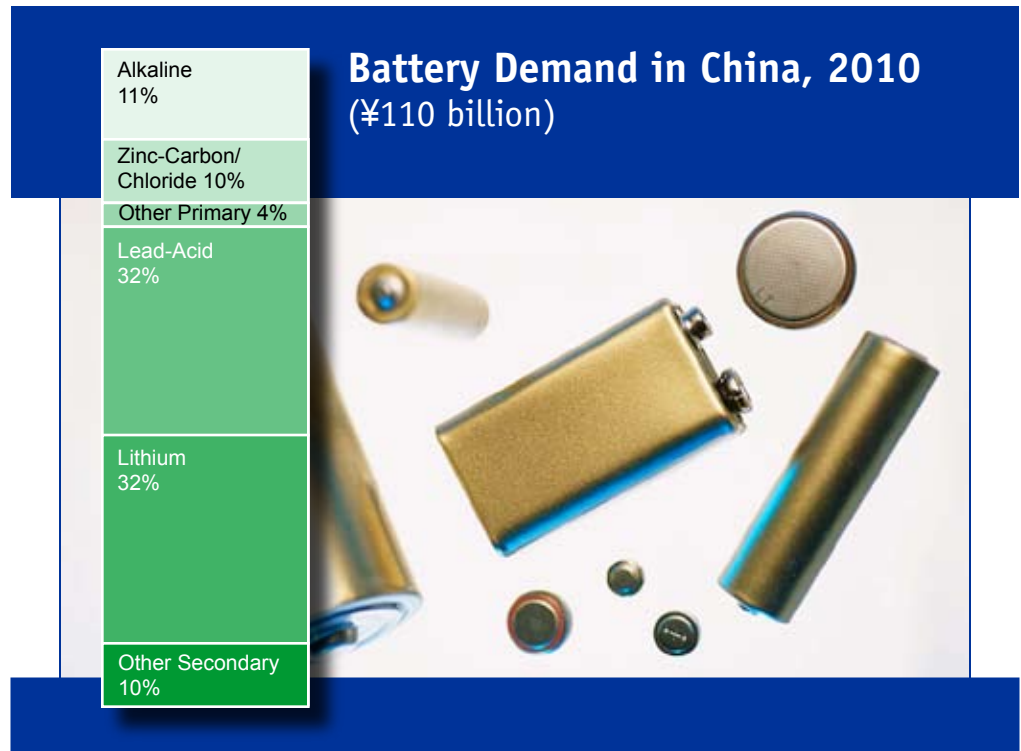
Demand in China to grow 13.2% annually to 2010

Demand for batteries in China is forecast to increase 13.2 percent annually to ¥110 billion in 2010. Growth stimulants include the emergence of electric bicycles as an important means of transportation and strong domestic demand for consumer battery-powered products such as cellular phones. Market gains will be also attributable to an ongoing shift in the product mix, trending toward high-performance, costly batteries (such as rechargeable lithium batteries) for use in high-drain electronic equipment.

Secondary batteries to outpace primary types

Sales of secondary batteries are forecast to rise 14.3 percent annually through 2010 to ¥82.1 billion. Although lead-acid batteries will account for more than 43 percent of all secondary battery sales in 2010, rechargeable lithium and nickel-metal hydride batteries will experience stronger growth. Demand for these types of advanced batteries will be heavily influenced by their high-performance attributes -- such as higher power density and longer product lifecycle than traditional lead-acid and nickel-cadmium batteries -- as well as by continuing technical innovation and decreasing prices.

While zinc-carbon/chloride batteries will continue to dominate the primary battery market in unit terms, alkaline batteries will surpass zinc-carbon/chloride cells in



market value, and comprise the largest share of demand in 2010. Alkaline and more advanced primary batteries -- such as lithium and silver oxide -- are projected to grow at higher rates than other primary batteries. Alkaline batteries are favored for their greater power and longer life than zinc-carbon/chloride cells.

Consumer, transportation uses to stay key markets

Consumer applications will comprise two-thirds of primary battery sales in 2010, continuing the historical trend. Demand for primary batteries will be fueled by an ever-increasing number of battery-powered portable devices introduced into the growing Chinese market -- such

as MP3 players and digital cameras. In China these devices are commonly powered by primary batteries rather than more expensive secondary batteries.

The domestic market for secondary batteries used in transportation equipment is forecast to increase more than 18 percent annually through 2010 to ¥32.7 billion, registering the fastest growth among secondary battery markets. Market gains will be driven by the meteoric rise of electric bicycles, as well as strong growth in the production of motor vehicles. Demand for secondary batteries in portable devices will also experience fast growth through 2010, driven by the increasing use of high-drain portable electronics such as laptop computers

Sample Text, Table & Chart

PRIMARY BATTERY PRODUCTS

Primary Lithium

Demand for primary lithium batteries is forecast to rise nearly 10 percent a year in terms, demand for primary lithium batteries is forecast to rise nearly 10 percent a year to 1.5 billion units by 2015. This is due to improvements in production technology and the use of primary lithium batteries in many applications. The production of primary lithium batteries in formats once the domain of more conventional battery chemistries such as zinc-carbon/chloride and alkaline. For instance, in January 2004 Energizer (US) launched the AL1 lithium battery as part of its E2 product line. However, competition from secondary batteries in some markets will dampen demand somewhat.

The construction of primary lithium batteries involves a lithium metal anode and an electrolyte of either organic solvent, inorganic liquid or solid material. Among the common primary lithium battery chemistries are thionyl chloride, sulfur dioxide, manganese dioxide and solid-state iodine. Primary lithium cells have a nominal voltage of three, twice that of zinc-based cells, and a total energy output as much as three times higher. Other benefits of primary lithium cells include their compact construction and extremely long lives, which make them particularly suited to applications like pacemakers and electronic meters. Lithium's high responsiveness to light frequencies makes batteries made from this element well-suited for photography and other optical applications.

Among the consumer market uses for primary lithium batteries are cameras, calculators, watches, remote controls and thermometers. In addition, the batteries can be used in implantable medical devices, computer backup systems, portable instrumentation and military-related applications, including wireless security systems, emergency location signals, jamming devices, mines, and missile and torpedo propulsion systems.

TABLE VI-3

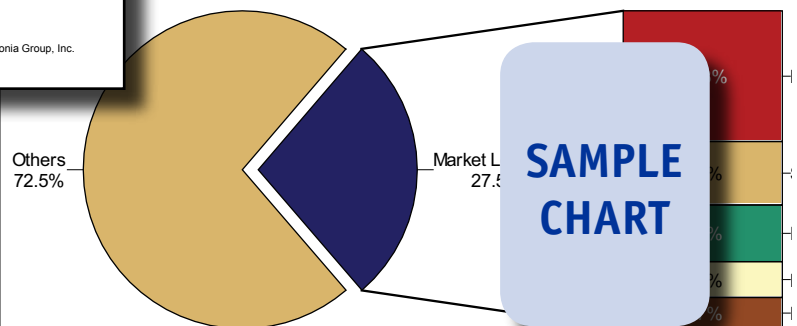
INDUSTRIAL PRIMARY BATTERY MARKET IN CHINA (million Chinese yuan)

Item	1995	2000	2005	2010	2015
Electrical & Electronic Eqp (bil ¥)	650	1498	4812	8250	13300
¥ batteries/000¥ shipments	1.5	1.4	1.0	0.9	0.9
Industrial Primary Battery Demand	650	1498	4812	8250	13300
By Application:					
OEM					
Replacement/MRO					
By Chemistry:					
Zinc-Carbon/Chloride					
Alkaline					
Other Primary					
% industrial Primary Battery Demand					

SAMPLE TABLE

CHART IX-4

NON-LEAD-ACID SECONDARY BATTERY MARKET SHARE IN CHINA BY COMPANY, 2005 (¥24.0 billion)



SAMPLE CHART

Sample Profile, Table & Forecast

COMPANY PROFILES

Guangzhou Tiger Head Battery Group Company Limited

568 Huangpu Road
 Guangzhou 510655
 China
 86-20-8552-5623
<http://www.555bf.com.cn>

Annual Sales:
 Employment:

Key Products:
 lithium-manga
 alkaline-mang

International C (ger)

Guangzhou Tiger Head Battery is a state-owned manufacturer of primary and secondary batteries. The Company operates a 170,000-square-meter production facility in Guangzhou, China.

The Company's batteries, produced and marketed under such brand names as 555 and TIGER HEAD, encompass alkaline, zinc-carbon, lead-acid, nickel-metal hydride (Ni-MH), lithium-manganese dioxide (Li-MnO₂) and lithium polymer (Li-Pol) types. For example, the Company's TIGER HEAD alkaline batteries are mercury-free products that can be used in such applications as MP3 players, electronic toys and cameras. Zinc-carbon batteries from Guangzhou Tiger Head Battery include 555 and TIGER HEAD metal- and paper-jacketed types. The Company's 555 lead-acid batteries comprise motorcycle; valve-regulated sealed lead-acid; and MF, DIN and N series automotive varieties.

TABLE VII-7

NICKEL-METAL HYDRIDE BATTERY SUPPLY & DEMAND IN CHINA (million Chinese yuan)

Item	1995	2000	2005	2010	2015
Consumer Durables Expend (bil 2000¥) batteries/mil ¥ expenditures	387	627	920	1100	1520
Ni-MH Battery Demand (million units) ¥/unit					
Nickel-Metal Hydride Battery Demand net exports					
Nickel-Metal Hydride Battery Shpts % Ni-MH					
Secondary Battery Demand	4590	12000	21300	32100	52500

**SAMPLE
TABLE**

"The Chinese market for secondary batteries used in transportation equipment is forecast to increase more than 18 percent per year through 2010 to ¥32.7 billion, outperforming the overall secondary battery market. Demand will be fueled by dramatic increases in electric bicycle production, as well as growth in motor vehicle production. In addition, sales are expected to continue to benefit from ..."

--Section VIII, pg. 130

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OTHER STUDIES

Battery & Fuel Cell Materials

US demand for battery and fuel cell materials will rise 4.4% per year through 2011. Growth will be driven by rising production of high-performance batteries (e.g., lithium, Ni-MH) and a nearly fivefold jump in fuel cell demand. Metals will stay the leading material while polymers and carbon/graphite lead gains. This study analyzes the US battery and fuel cell material industry, with forecasts for 2011 and 2016 by type, function and application. It also details company market share and profiles major players.

#2244 10/2007..... \$4400

World Fuel Cells

Global fuel cell spending (R&D, investment, sales) will grow 15% yearly through 2011. Portable electronics will be the fastest growing commercial use while electric power generation will stay the largest. Proton-exchange membrane fuel cells will remain dominant over other chemistries. This study analyzes the \$5.2 billion world fuel cell industry to 2011 and 2016 by product, chemistry, application, world region and for 14 countries. It also reviews technology, evaluates market share and profiles major players.

#2194 05/2007..... \$5500

Batteries

US demand for primary and secondary batteries will grow 4.3% annually through 2011. Growth will be driven by strong demand for battery-powered products and motor vehicles, and by an ongoing shift toward more expensive, better-performing batteries. Primary batteries will outpace secondary/rechargeable types, led by primary lithium batteries. This study analyzes the \$12.1 billion US batteries industry to 2011 and 2016 by product and market. It also evaluates market share and profiles major producers.

#2178 03/2007..... \$4500

Diesel Engines

US demand for diesel engines will grow 3.8% annually through 2011. Best opportunities in the dominant motor vehicle market will be found in light-duty trucks, with the much smaller passenger car segment also faring very well. Off-highway diesel engines will experience slowing but still robust demand as new emissions regulations phase in. This study analyzes the \$16.6 billion US diesel engine industry to 2011 and 2016 by product, material and market. It also details market share and profiles major firms.

#2171 03/2007..... \$4400

Solar Energy Products

US demand for photovoltaic modules will more than triple by 2010, driven by innovations, economies of scale and government subsidies. Crystalline silicon cells will remain dominant while thin films will post stronger growth. Thin films use little or no silicon and can integrate photovoltaics within roofing shingles and other building materials. This study forecasts US solar energy product demand to 2010 and 2015 by product, market and region. It also evaluates market share and profiles major producers.

#2126 12/2006..... \$4300

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