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2009 EMD Market Review and Forecast

Li Tongqing
China National Friendship Association of EMD Producers
CITIC Dameng Mining Industries Ltd.

2010 International Forum on Electrolytic Mn Products
IMI's 7th EPD China Conference

March 23, 2010, Nanning, China

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2009 Global EMD Market Review

- EMD demand decreased in 2009 against global economical crisis.
- Global EMD market reshaped in 2009 due to anti-dumping actions by USA, Japan & EU.
- USA, Japan & Belgium cut their EMD import to varying extent.
- Eliminating the outside competition through anti-dumping action, Tosoh Greece and CEGASA fully utilized their capacity to supply European market.
- Similarly, Tosoh Japan and 3 EMD producers in US have also been in full running with at least one US producer is now expanding their capacity.
- Delta EMD shifts to US market from Belgium.
- Industrialization of Li-Mn-O as cathodes for Li-ion battery accelerated, leading to significant demand increase for EMD
- Though sales volume decreased in 2009, due to significant sale price increase Delta still realized the profit of Rand 167.7 million compared with profit of Rand 89.4 million in 2008.

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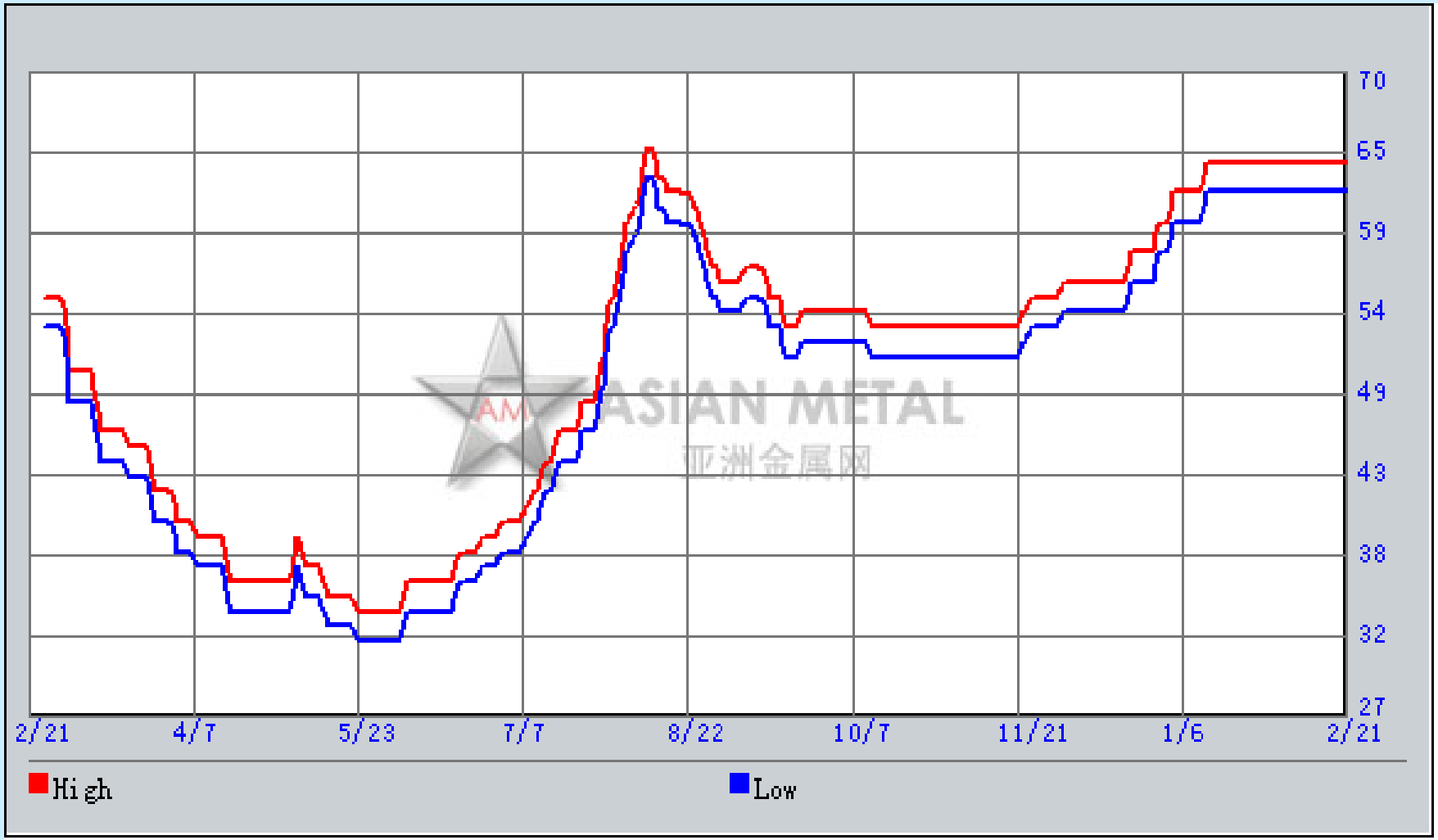
Price Curve for Mn Ore Australian 43-44%

China Port RMB/mtu From 2009-2-21 To 2010-2-21



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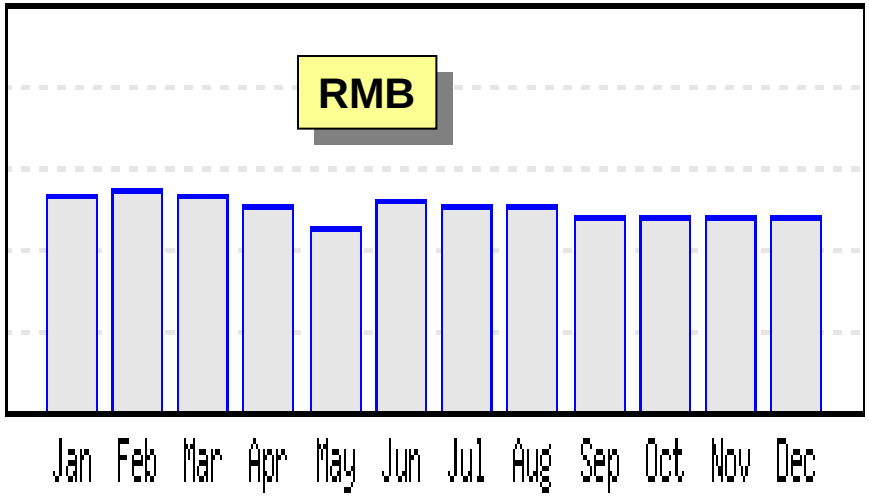
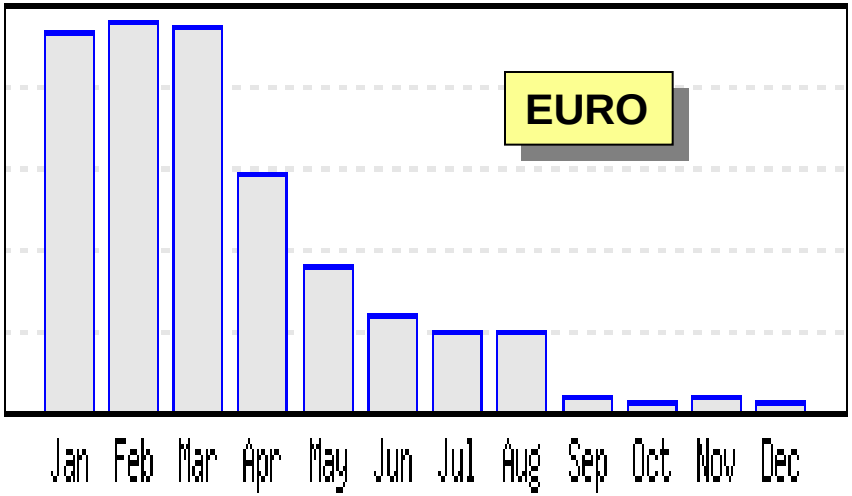
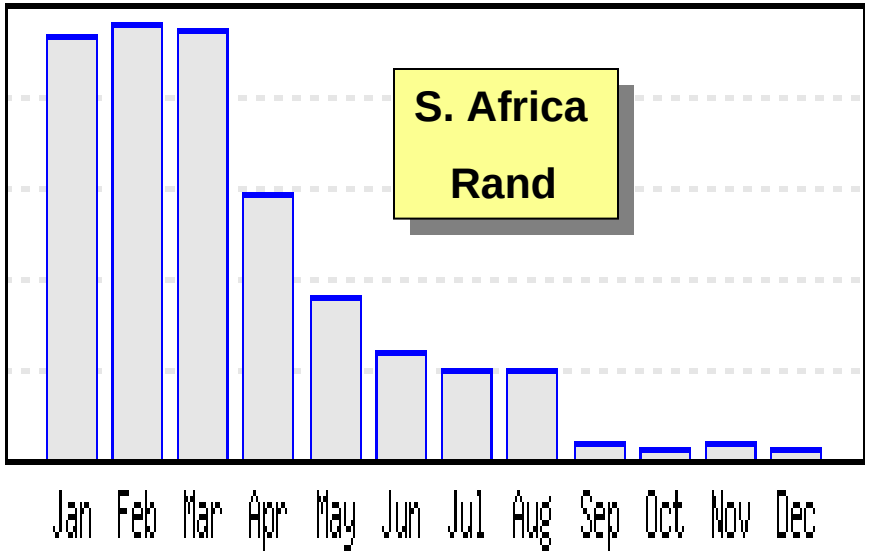
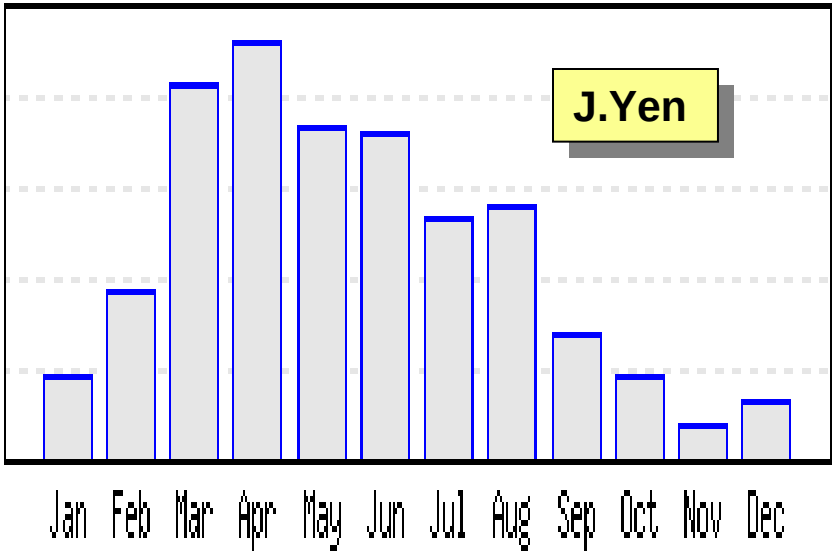
Selected Foreign Exchange Rates against US Dollar Trends in 2009









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2009 World EMD Production Capacity

Country	Company	MT/Y	Country	Company	MT/Y
China	14	230,000	U S	Erachem	24,000
Japan	Tosoh	34,000	U S	Eveready	12,000
Greece	Tosoh	18,000	South Africa	Delta	30,000
Spain	Cegasa	6,000	India	Moil	1,000
U S	Tronox	26,500	Total	381,500	

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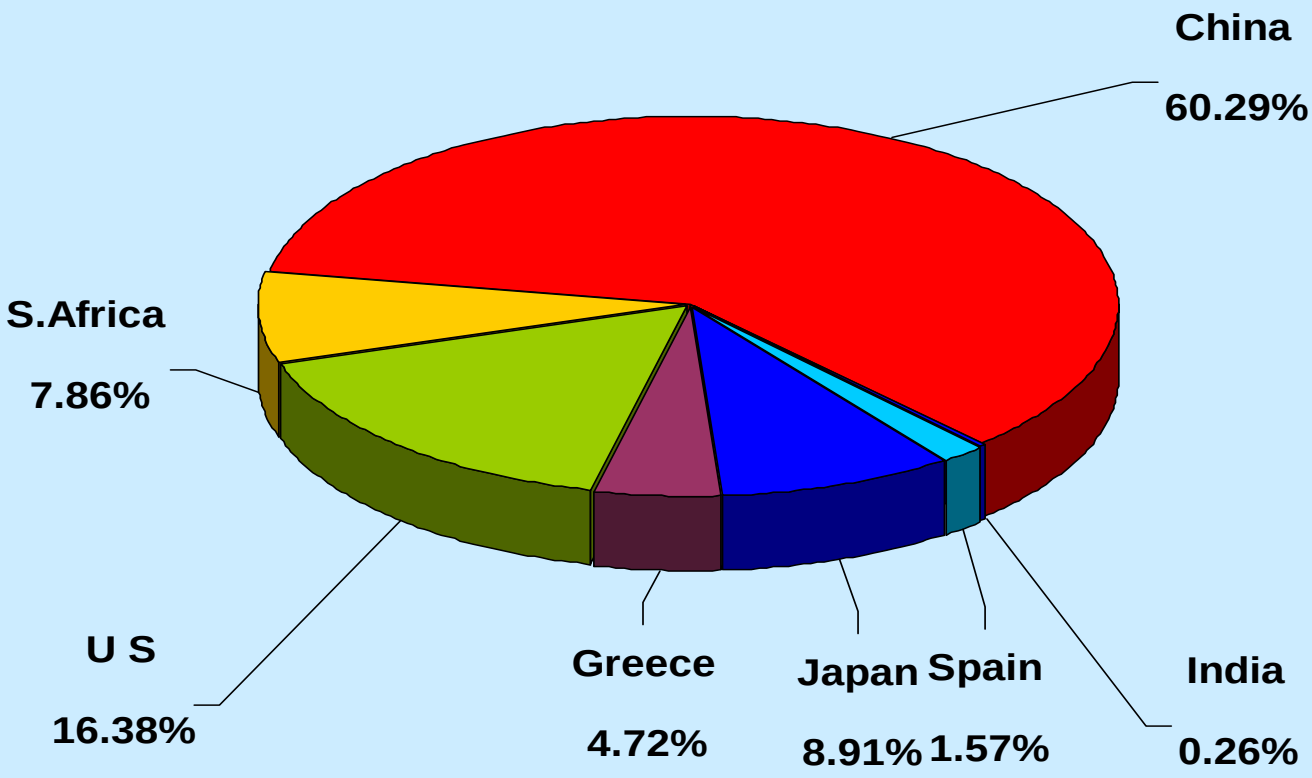
2009 World EMD Production Capacity

Total: 381,500 MT



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Major EMD Exports by Country

Unit: MT

Country	2006	2007	2008	2009
China	52,758	47,057	38,947	38,720
Japan	29,341	24,138	20,485	15,581
Australia	24,000[E]	26,053	12,942	-
South Africa	25,696	22,085	32,398	18,467
Greece	9,700[E]	13,872	15,393	17,500[E]
Spain	5,307	6,716	5,903	6,000[E]
Total	2,601[E]			
Country	149,403	139,921	126,068	96,260

[E] Estimated

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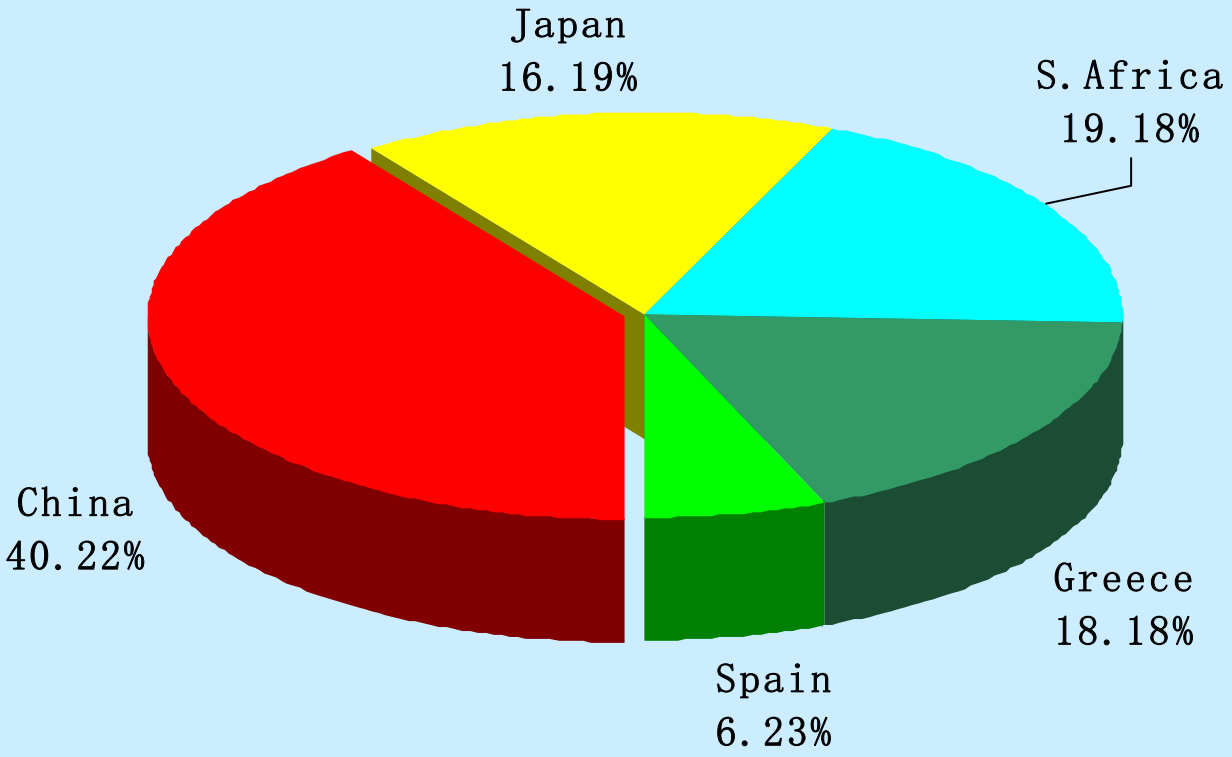
2009 Major EMD Exports by Country

Unit: MT

Total: 124,307 MT



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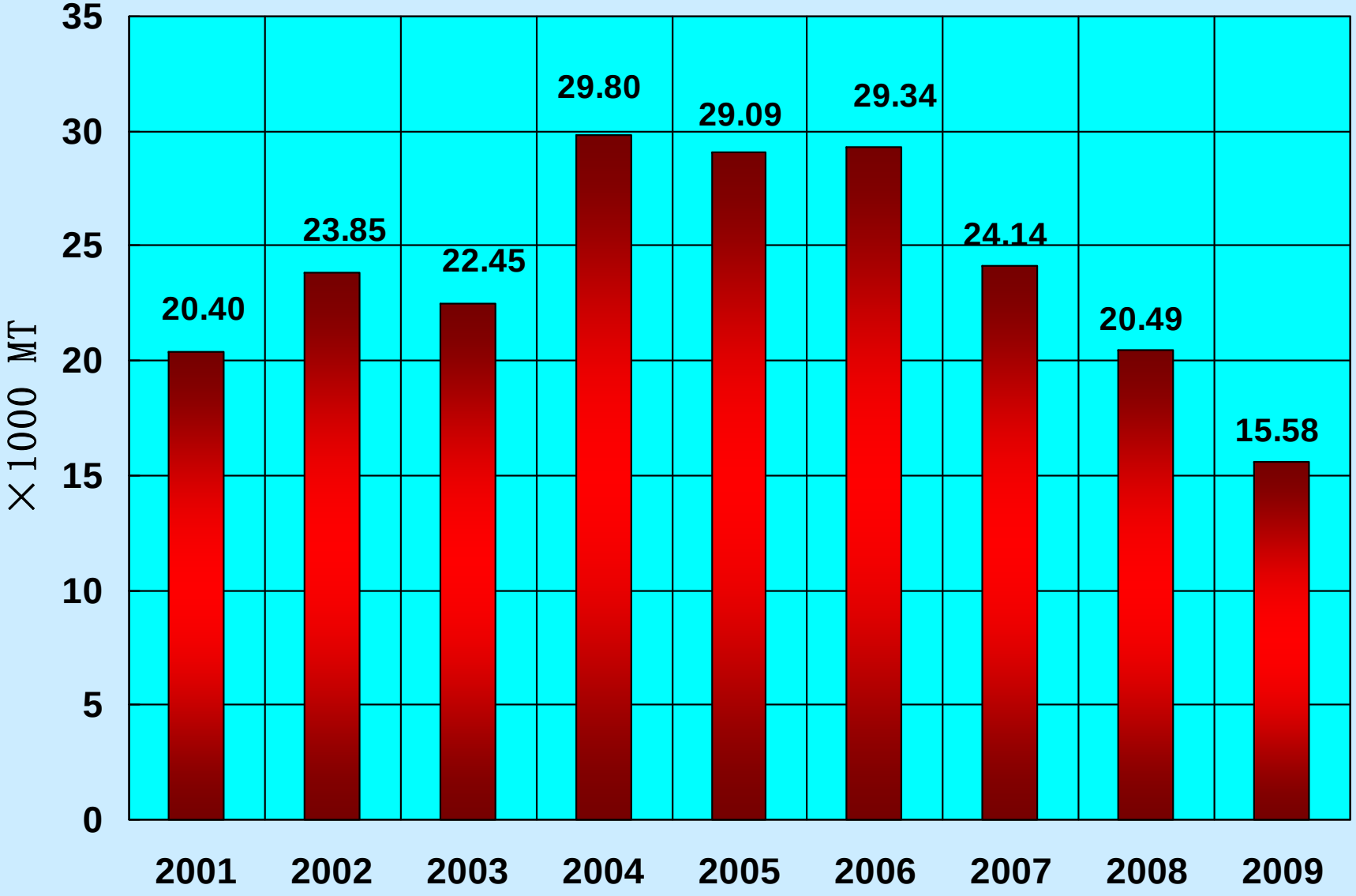
2001-2009 Japan EMD exports



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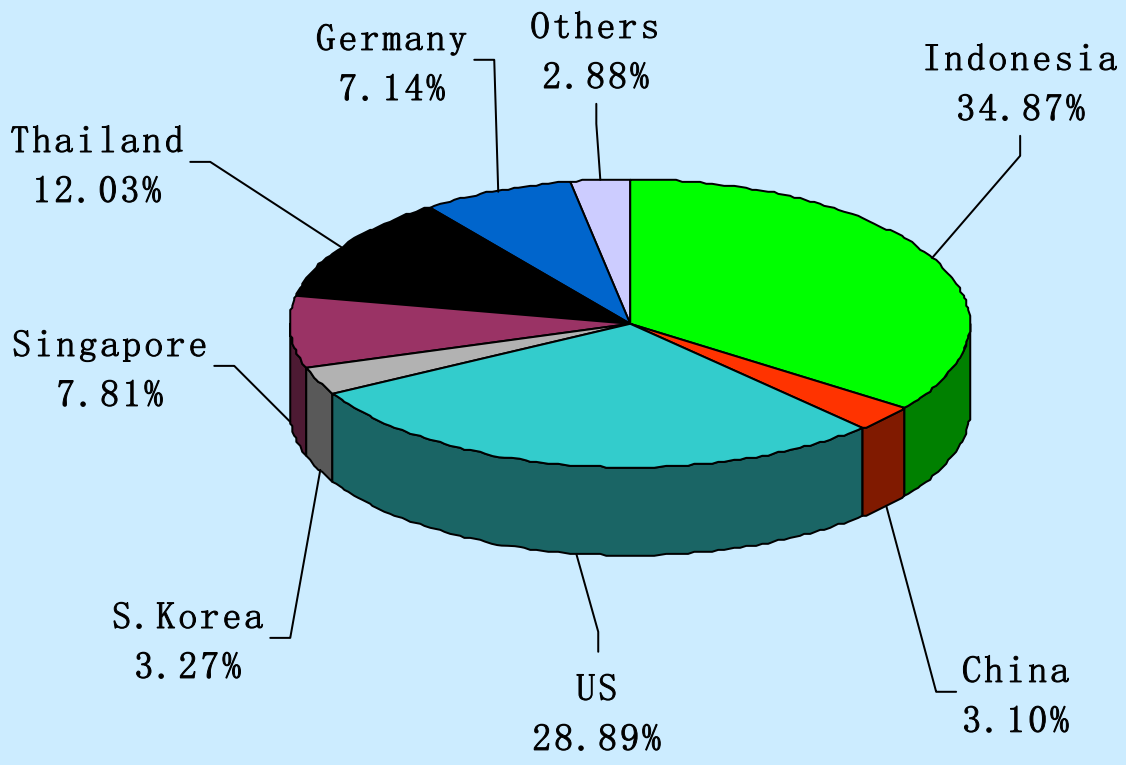
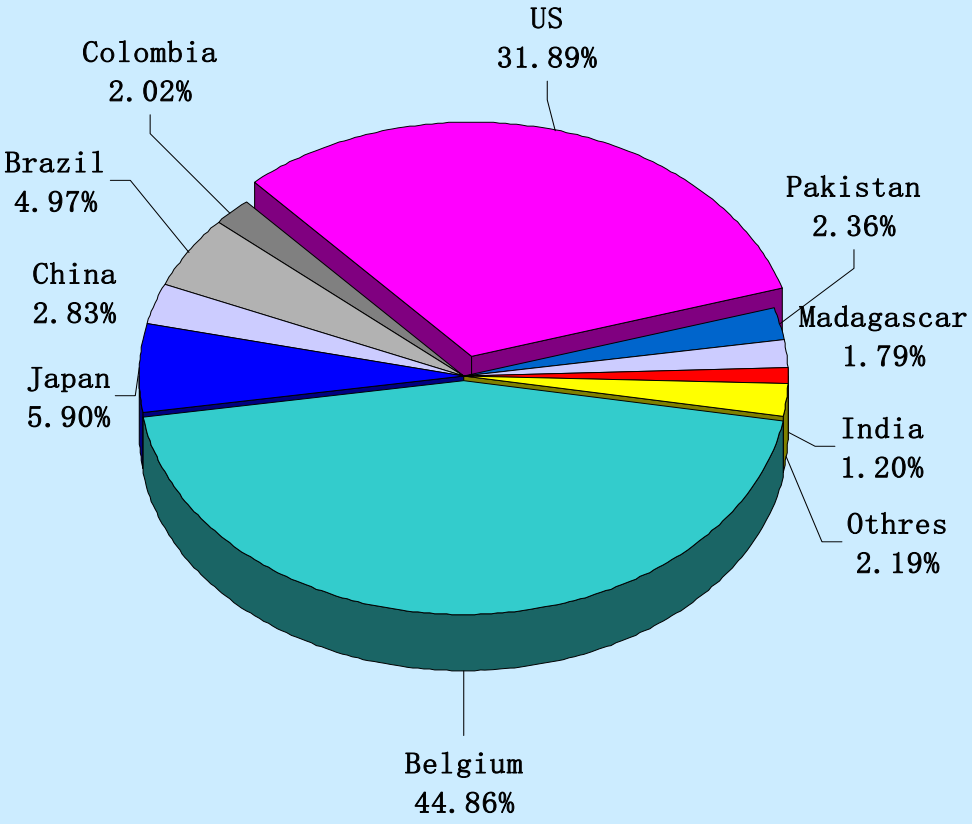
2009 Japan EMD Exports by Country

Total:15,581 MT

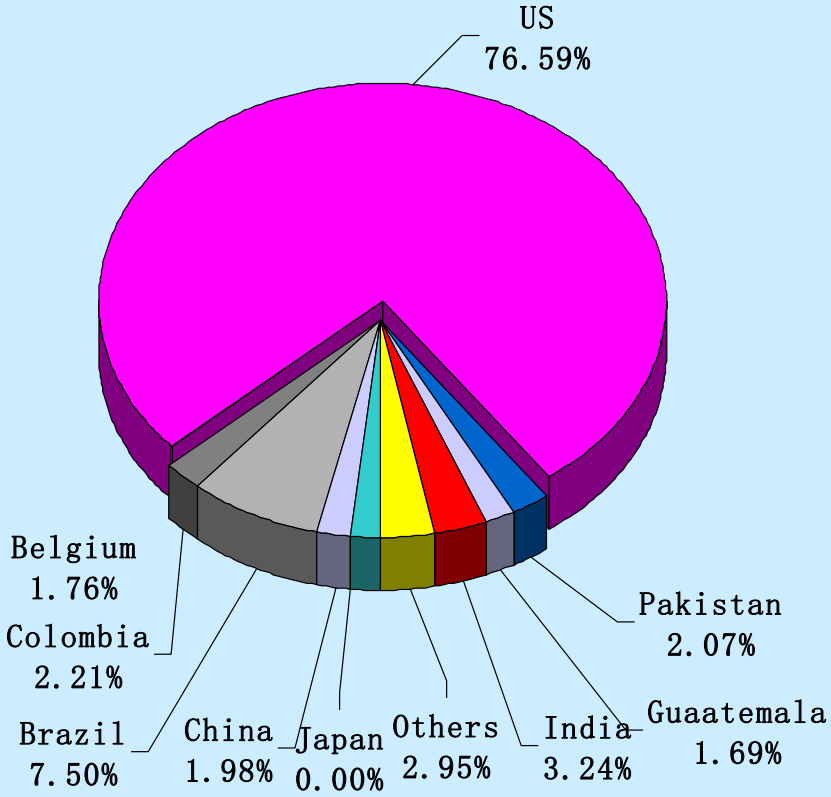


2008/2009 S. Africa EMD Exports by Country

2008 32,398 MT



2009 18,467 MT



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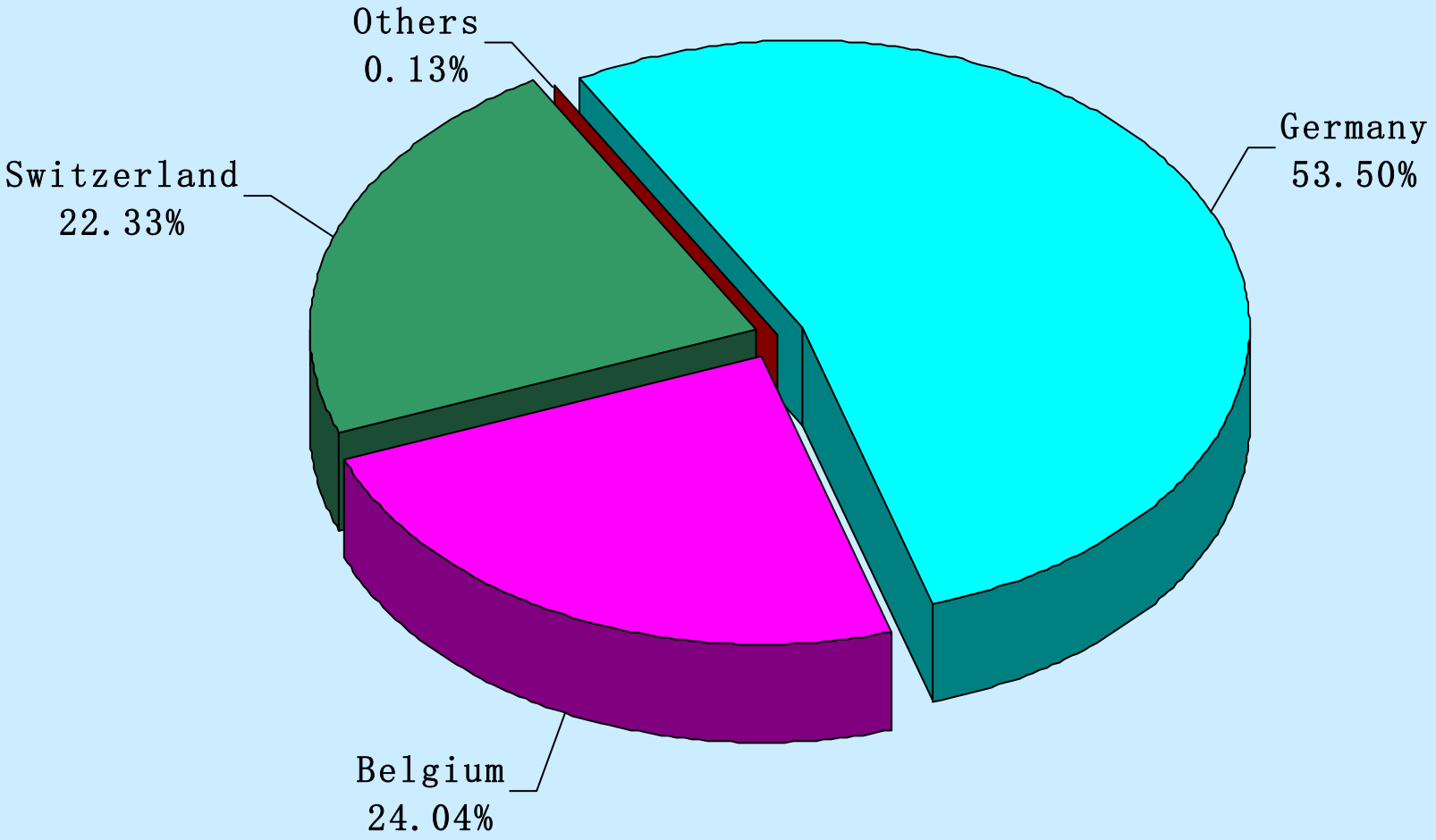
Greece EMD Exports by Country

Jan, - Nov. 2009, Subtotal: 16,509MT



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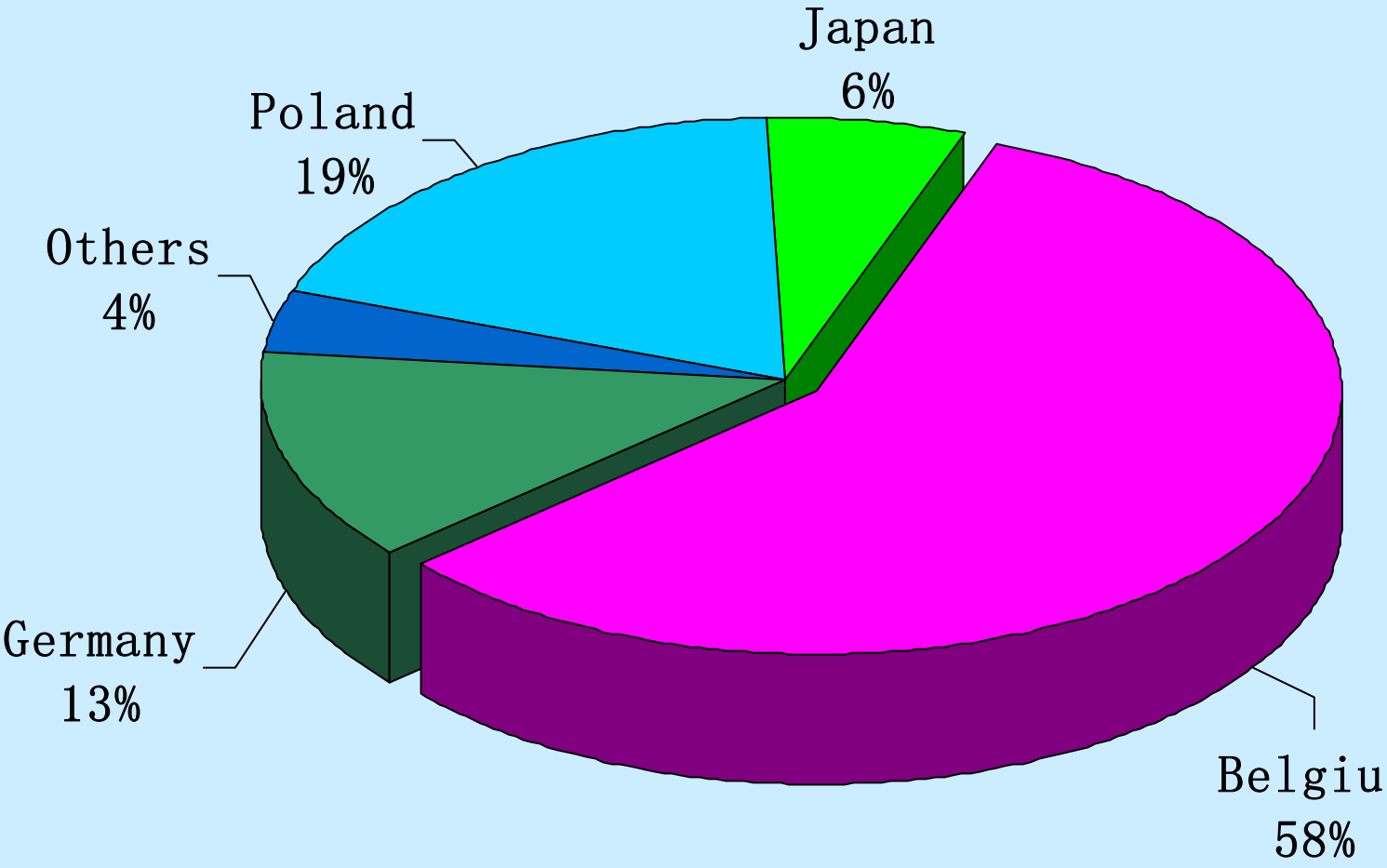
EMD Imports from Spain by Country

Jan. – Nov. 2009, Subtotal：5,492 MT



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2006-2009 Major EMD Imports by Country Unit: MT

Country	2006	2007	2008	2009
U S	36,861	30,118	20,440	17,361
Belgium	24,798	27,152	25,122	17,500^{E}
Indonesia	21,760	19,841	22,132	18,007
Japan	14,050	18,300	8,386	1,811
Germany	11,019	11,078	10,467	13,000^{E}
Singapore	5,742	7,243	6,269	4,139
China	7,942	6.161	2,999	1,147
India	8,966	6,730	5,129	6,703
South Korea	4,000	2,985	2,805	3,182
Switzerland	3,065	3,824	4,309	4,138
Thailand	2,981	3,451	5,376	4,929
Poland	2,146	2,763	1,883	1200^{E}
Malaysia	934	1,788		1100^{E}
Total	144,501	141,434	115,317	94,217

E: Estimated

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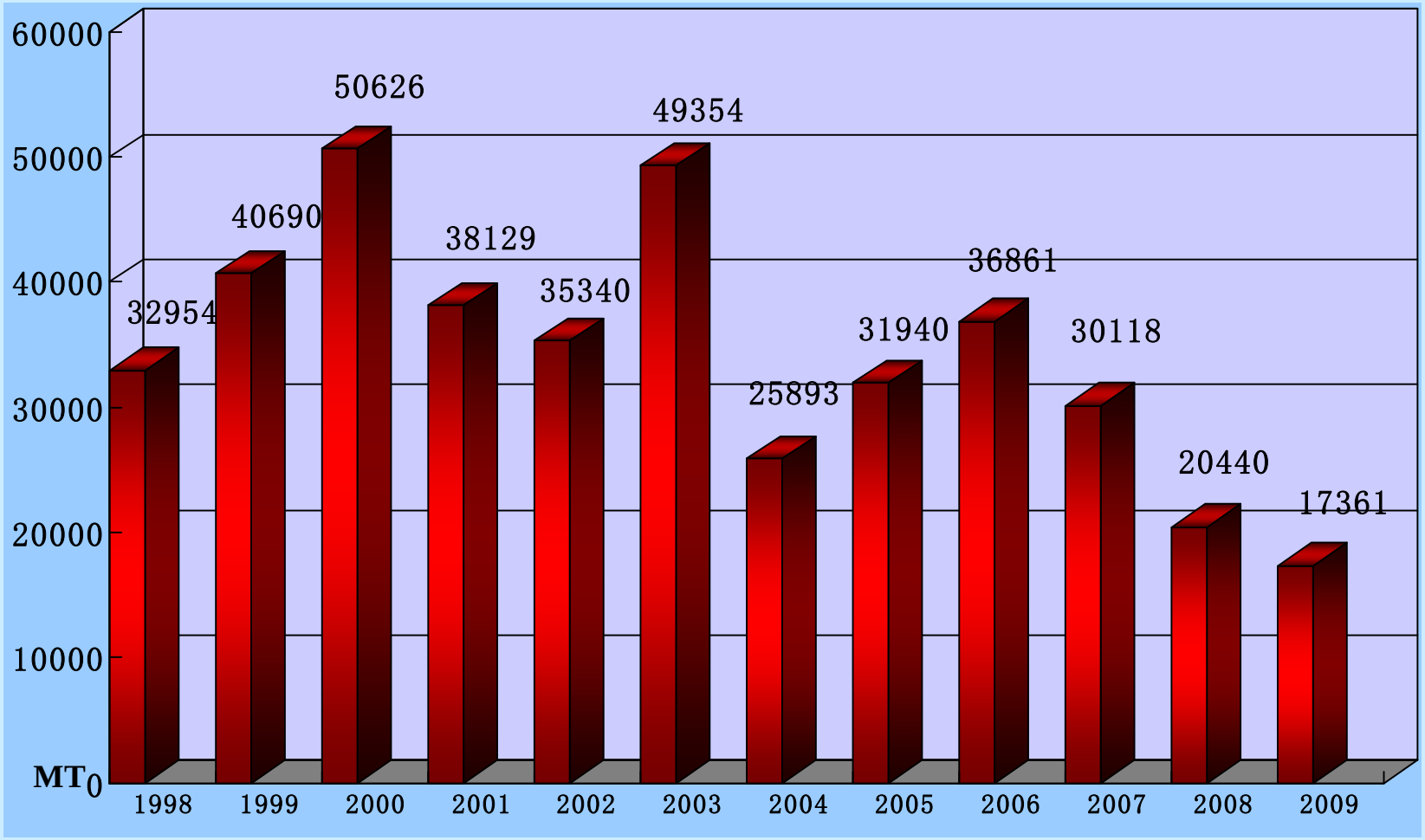
1998 – 2009 US Imports of EMD

Unit: MT



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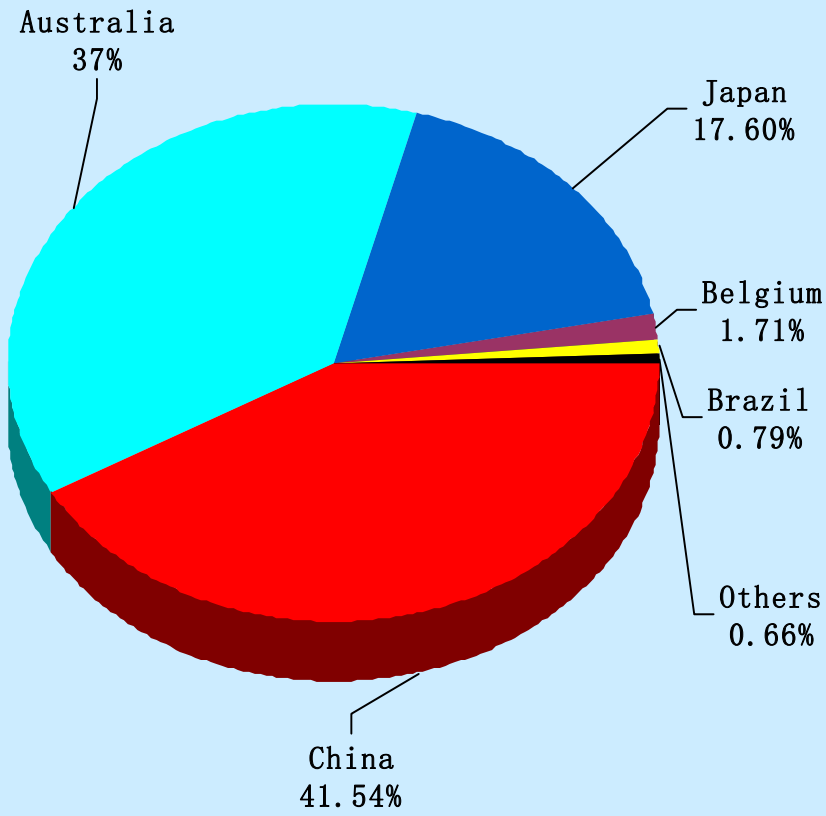
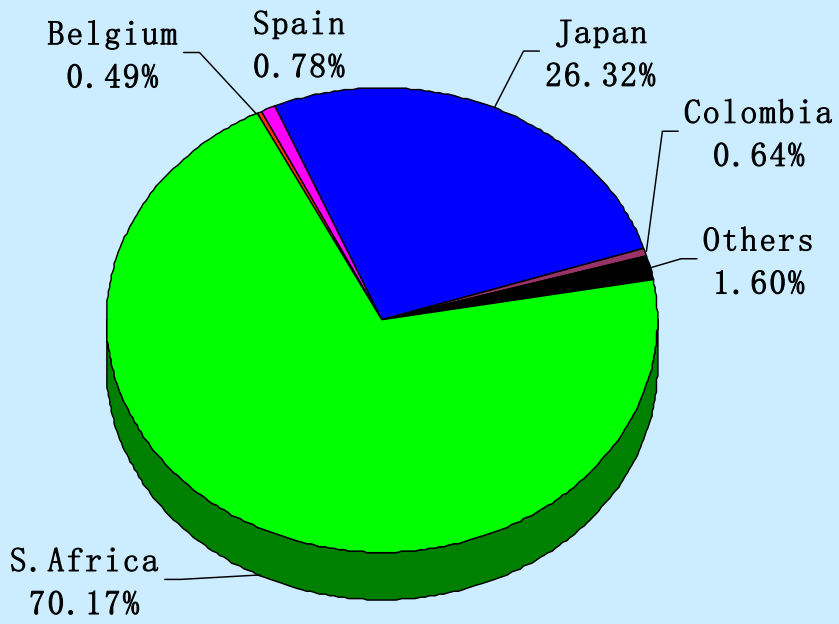
US EMD Imports by Country

2006 36,861 MT



2009 17,361 MT



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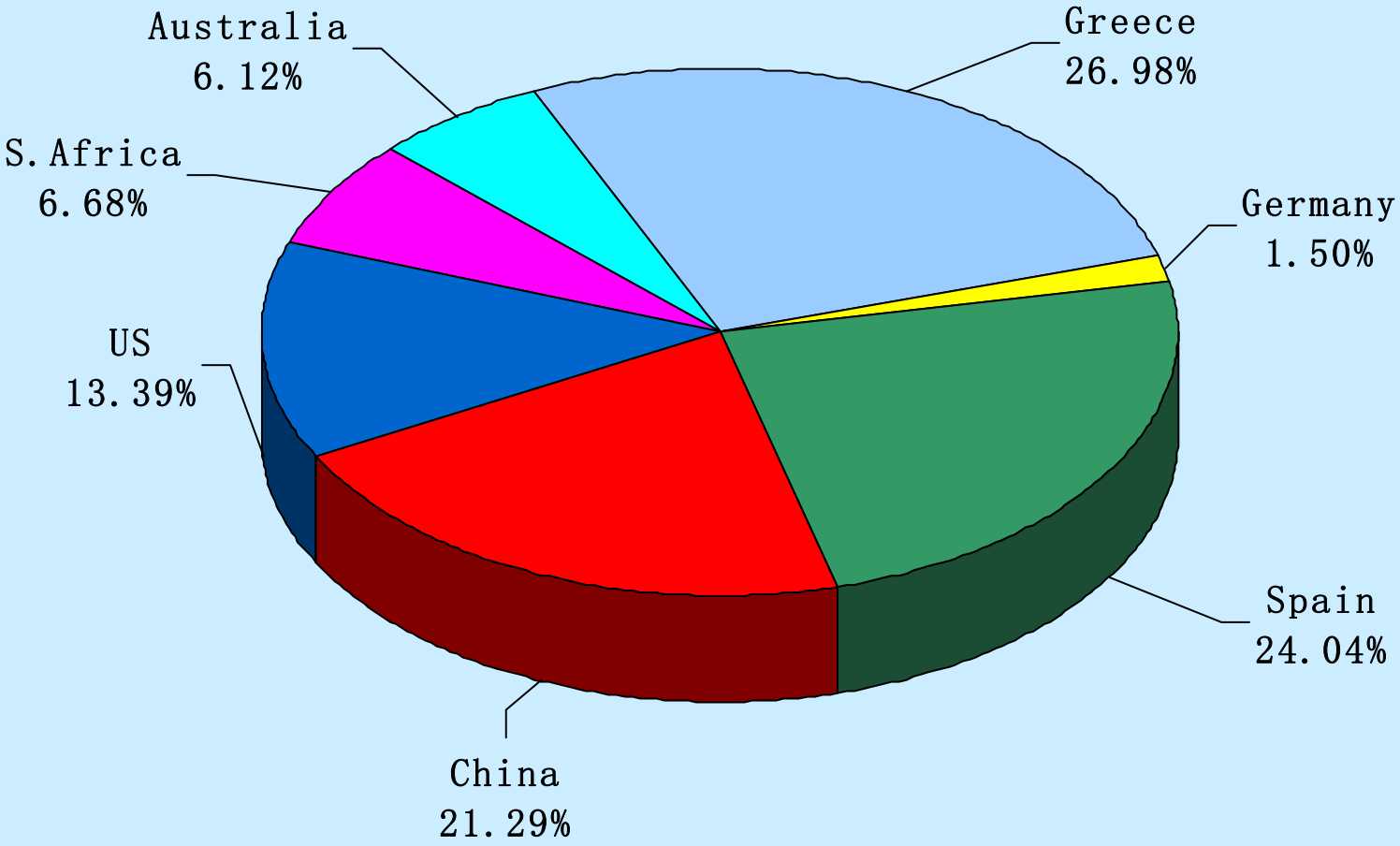
Belgium EMD Imports by Country

Jan. – Nov. 2009, Subtotal:16,093 MT



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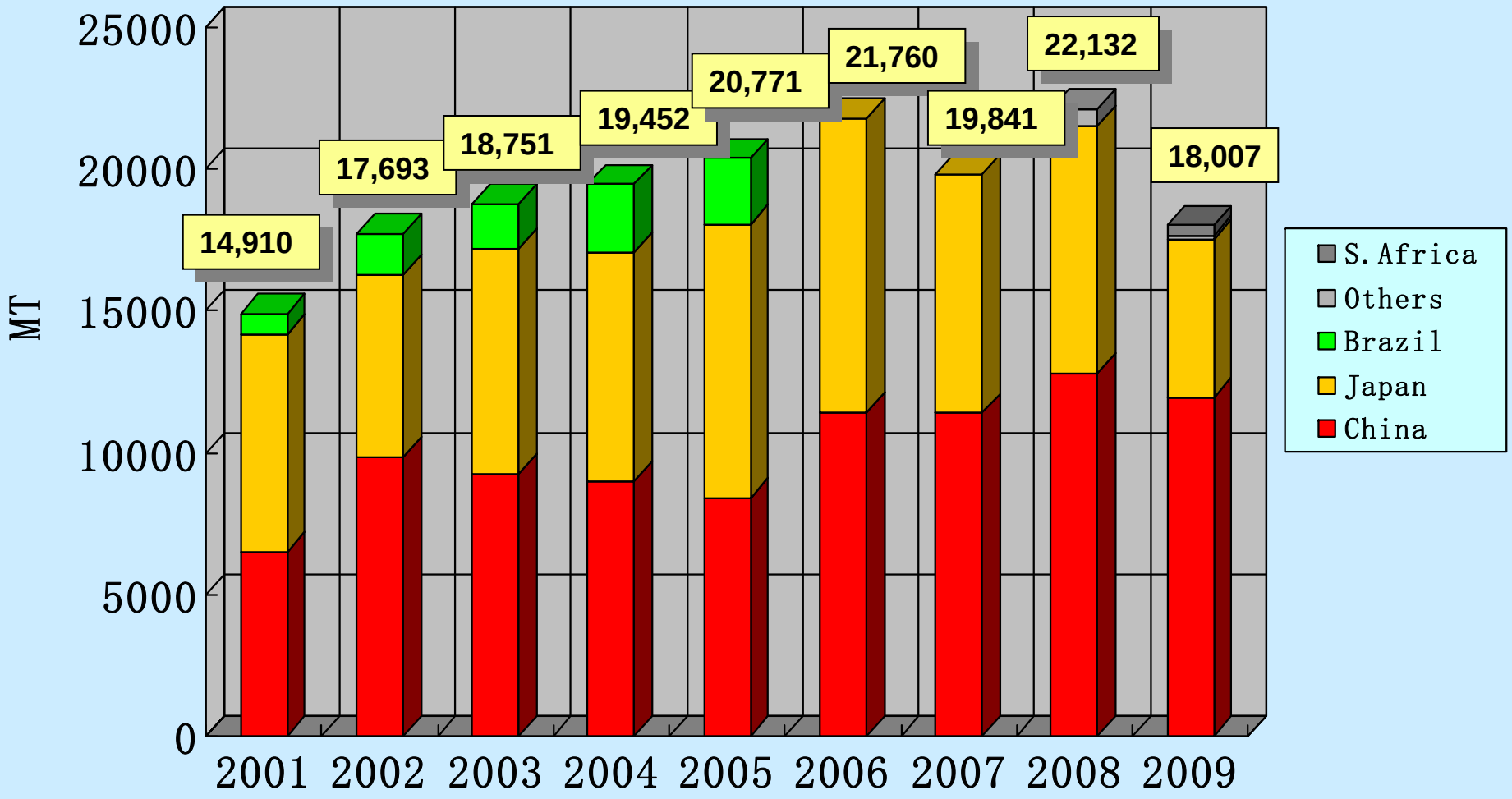
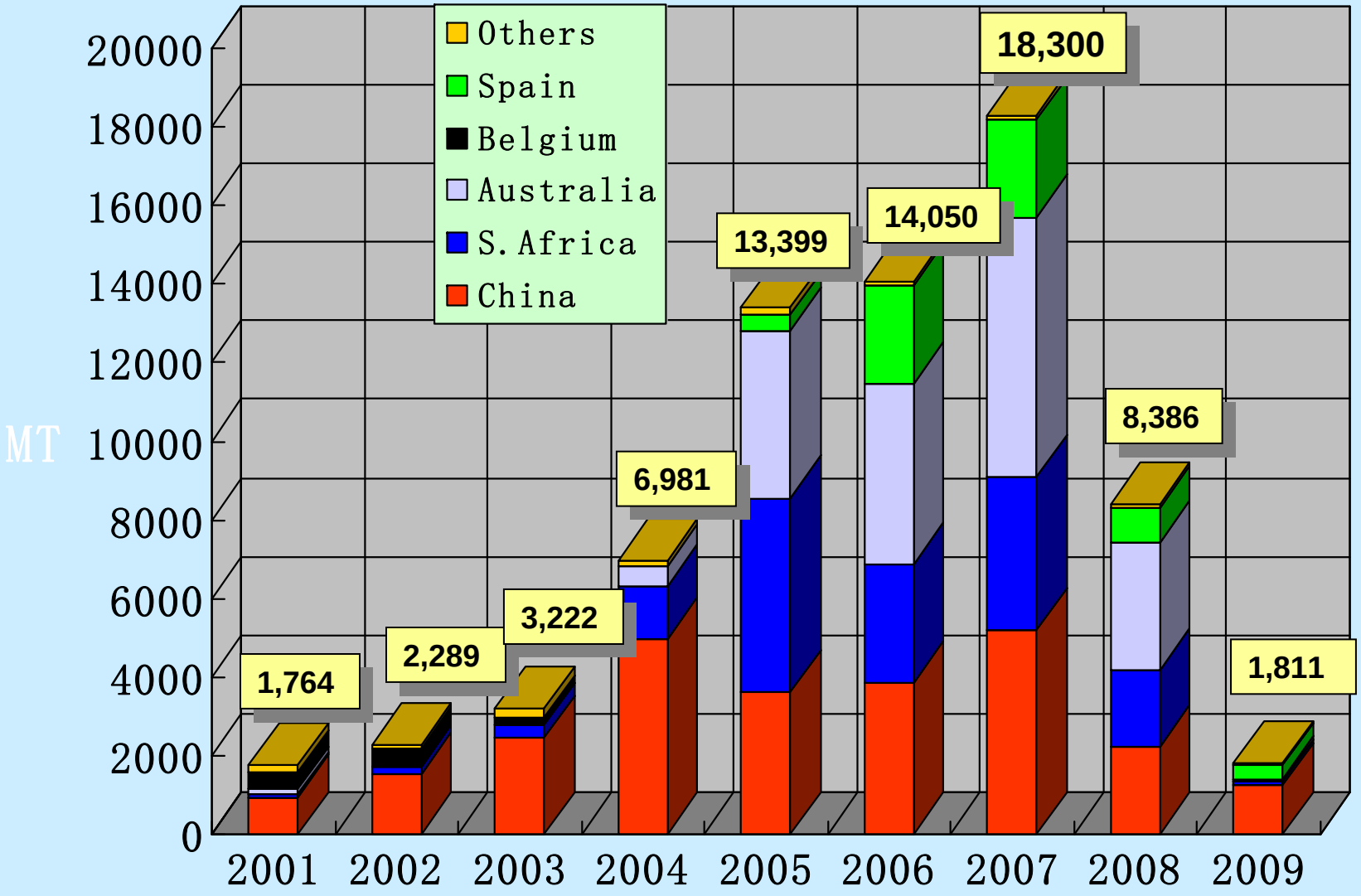
Indonesia EMD Imports by Country
2001 – 2009



Indonesia became the largest EMD import country in the world in 2009.

Japan EMD Imports by Country

2001 - 2009



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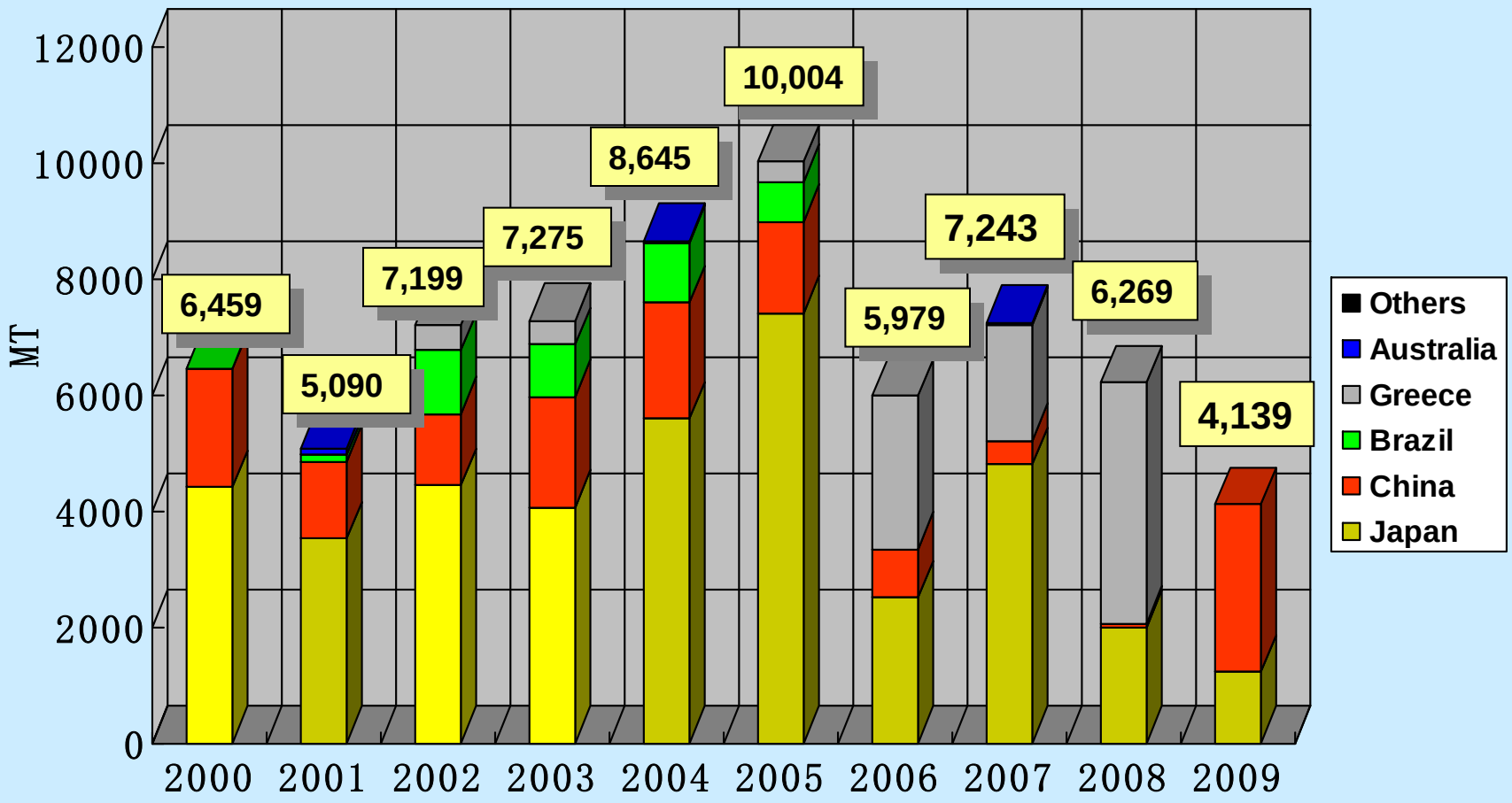
Singapore EMD Imports by Country
2000 – 2009



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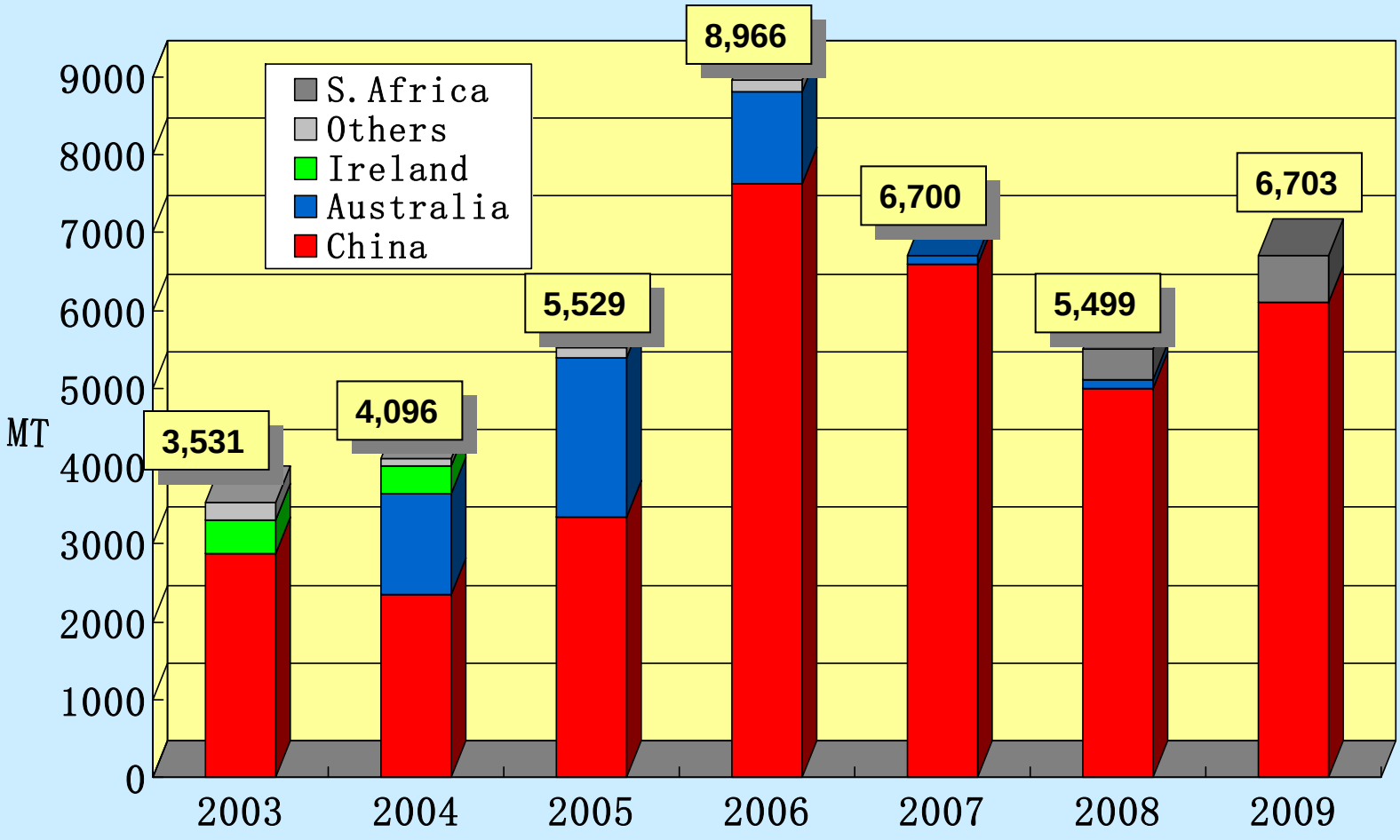
India EMD Imports by Country
2003 - 2009



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2009 China EMD Market Review

- China primary Mn battery output in 2009 reached 30.4 billion pieces similar to that in 2008, of which 8.04 billion pieces for alkaline battery with additional 8 billion pieces for coin battery.
- China EMD output in 2009 reached record 181,500 MT with balanced production and sales after staggering at around 160,000 MT for 3 years in row, and supporting the development of China primary battery industry as No. 1 in the world.
- In 2009, about 10,000MT of EMD have been used for the manufacture of the cathode materials for primary/secondary lithium batteries in China,
- China EMD export in 2009 discontinued its downward trend with 38,700 MT exported similar to that in 2008, but still suffering from lower price in global market.
- China alkaline EMD gradually introduced to high end markets like Europe & Singapore.
- China EMD capacity increased to 230,000 MT in 2009 accounting for 60.29% of global total capacity. China EMD oversupply situation is still continuing and developing.

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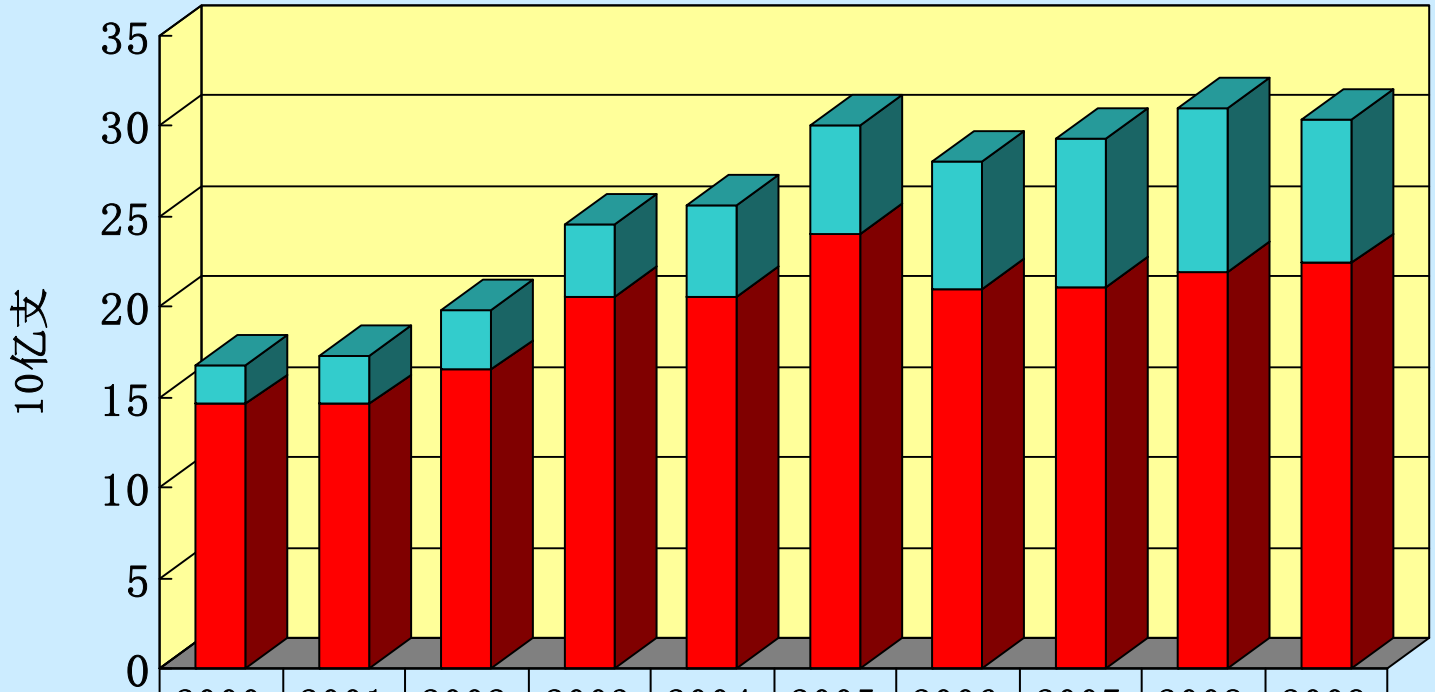
The Production of Primary MnO_2 Battery in China 2000 - 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Alkaline	2.2	2.7	3.3	4	5	6	7	8.2	9	8
C-Zn	14.6	14.6	16.5	20.6	20.6	24	21	21.1	21.97	22.4

*Excluding 8 billions pcs of button cells produced in 2009.

Data Source: China Battery Industry Association

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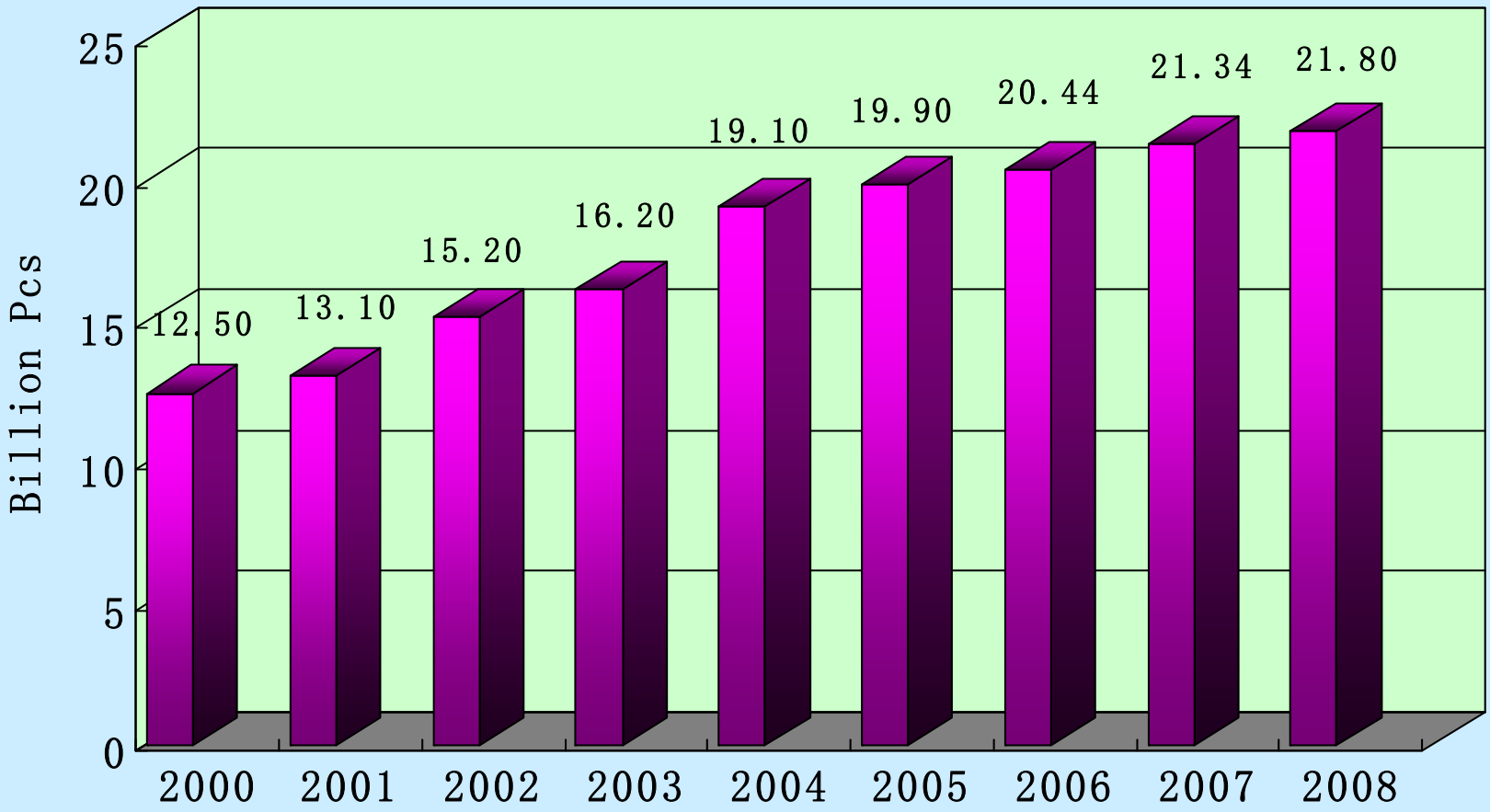
China Exports of Primary MnO_2 Battery

2000-2008



Data Source: China Battery Industry Association

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Statistic Data of EMD Business in China

2006-2009

Items	2006	2007	2008	2009
Producers	16	14	14	14
Capacity (tpa)	200,000	210.000	216,000	230,000
Total Output (t)	160,000	159,839	159,238	181,520
C-Zn Grade (t)	-	78,387	90,159	93,889
Alkaline Grade (t)	-	81,542	69,079	87,631
Export (t)	52,758	47,057	38,947	38,720
Import (t)	7,942	6,161	2,999	1,147
Export ratio	32.97%	29.44%	24.45%	21.33%

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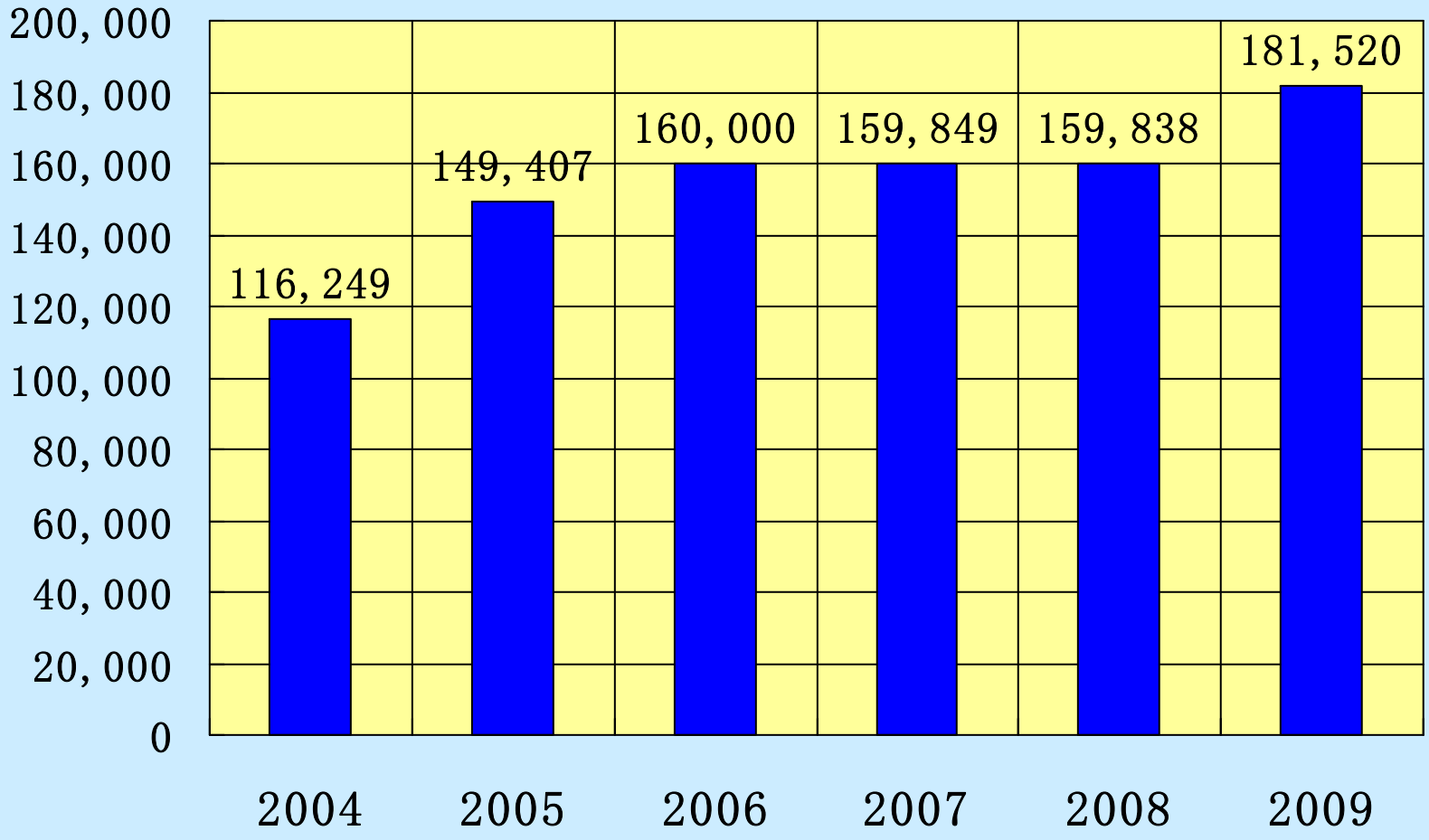
2004-2009 China EMD Production Unit: MT



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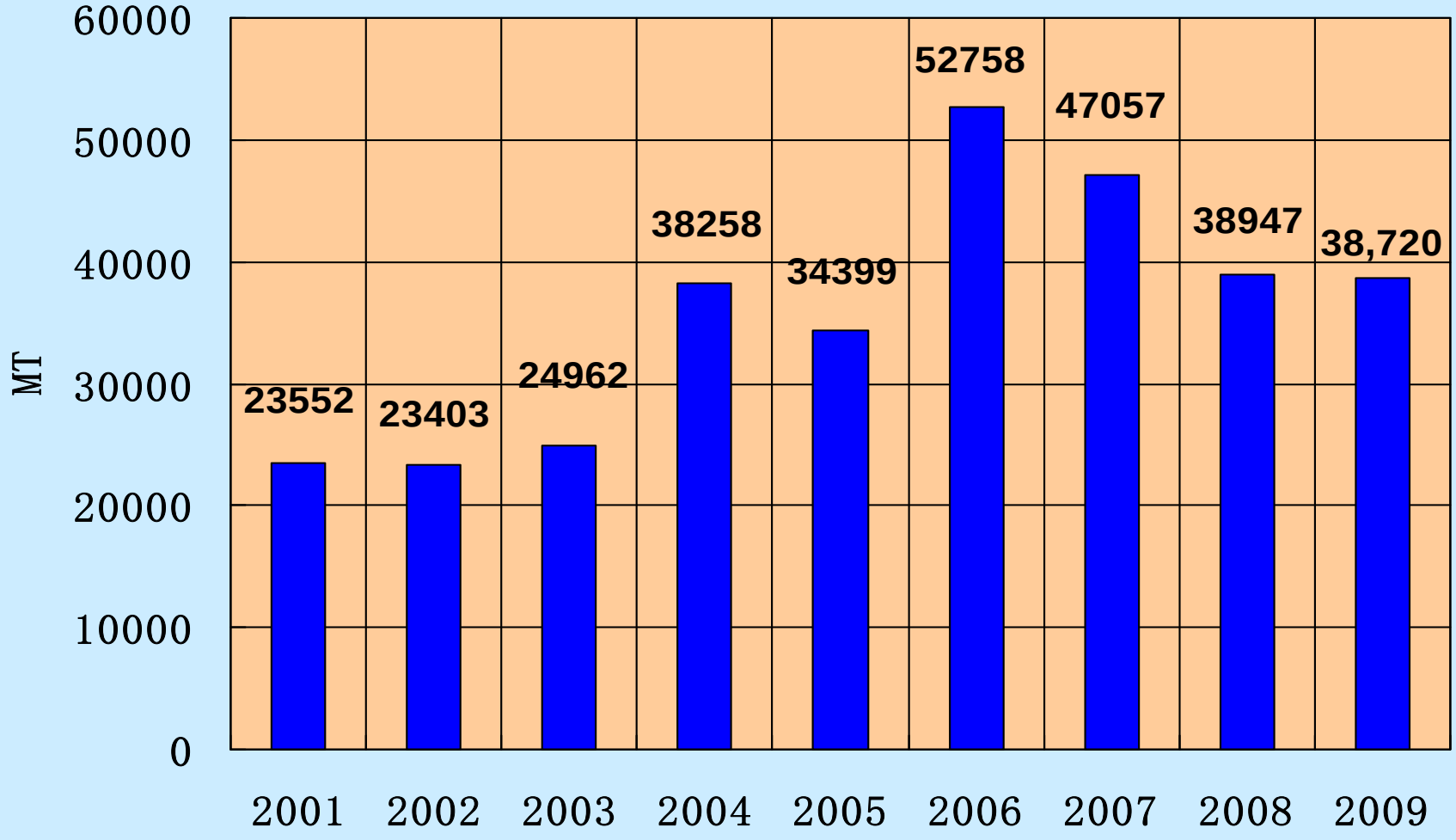
2001-2009 China EMD Exports



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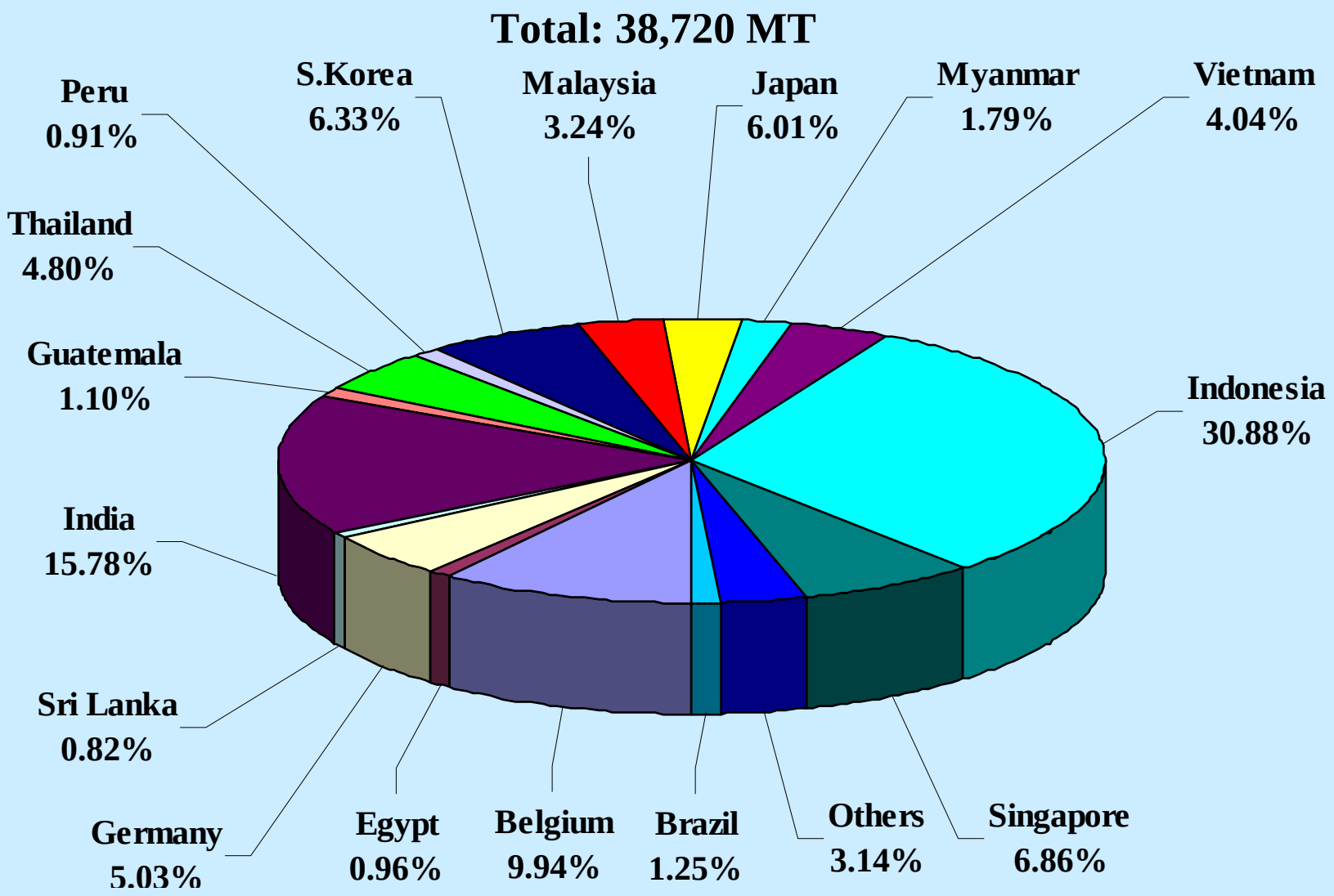
2009 China EMD Exports by Country



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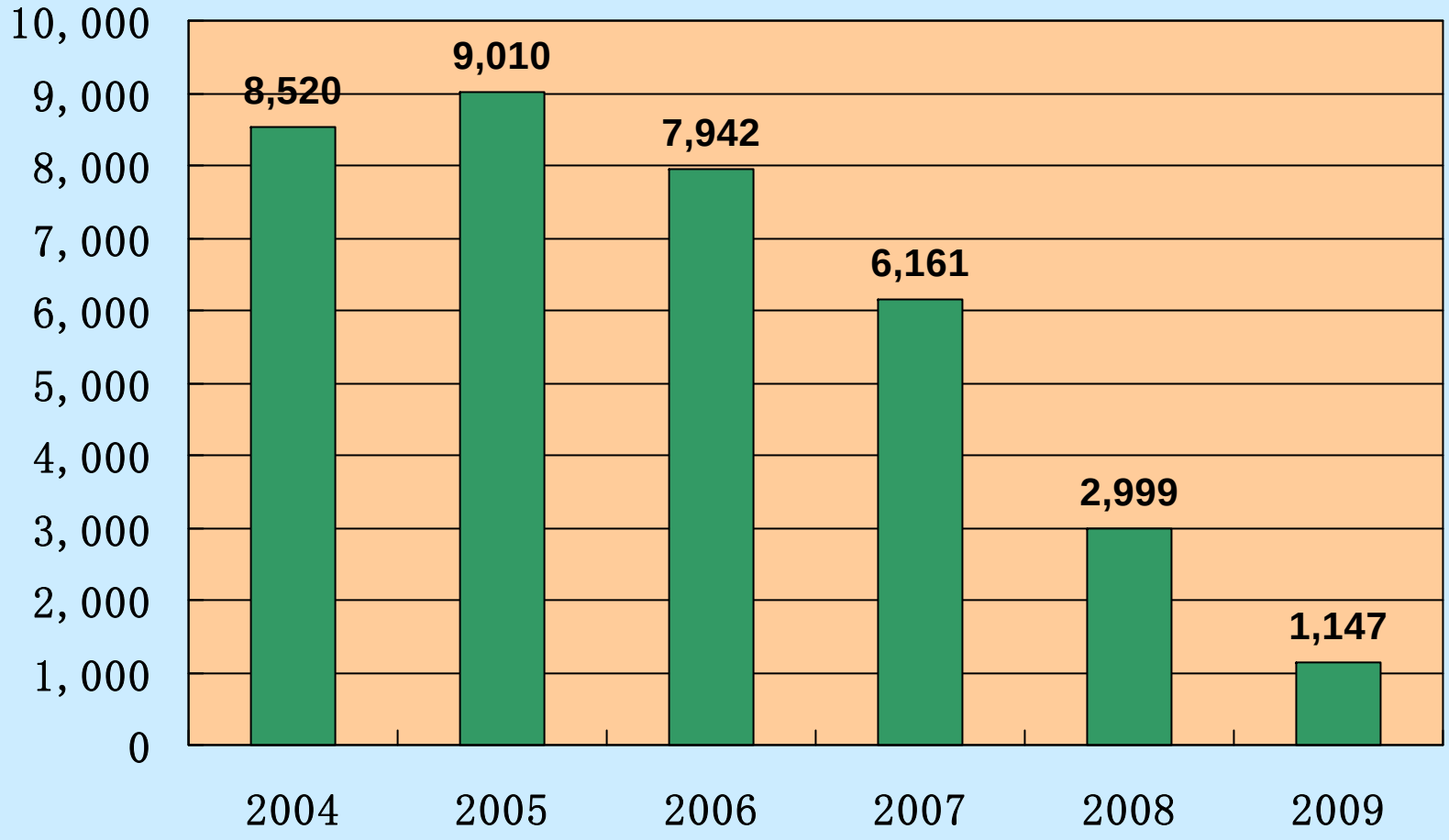
2004-2009 China EMD Imports

Unit: MT



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Market Prospect

- China economy keeps its steady growth with continuing implementation of various domestic stimulation policy; domestic demand for EMD is set to grow steadily accordingly.
- With the recovery of global economy, it is predicted 2010 will also witness a certain increase in global EMD demand.
- With the rapid growth of HEV and EV in recent years, the Li –ion battery industry has been expanding its capacity progressively, creating promising new market for EMD.
- However, fierce competition will still dominate EMD market due to oversupply.
- On Feb.24, 2010, Galaxy Resources Ltd.(Western Australia) announced a Pre Feasibility Study of a 40,000 tpa EMD plant to be sited in Zhangjiagang, Jiangsu, China, has been completed, and could expect to finalize a DFS by Q3 2010, complete construction of the EMD plant by Q4 2011.
- Only through improving its quality up to world level, can China EMD industry strengthen its competitiveness in global market.
- In the long run, with the gradual recovery of global economy and the entry of more high tech electronics into consumer market combined with burgeoning EV industry, it is certain the EMD demand will grow steadily.