2007 Annual Report on Chinese Indium Market

1. Properties, applications and distributions of indium

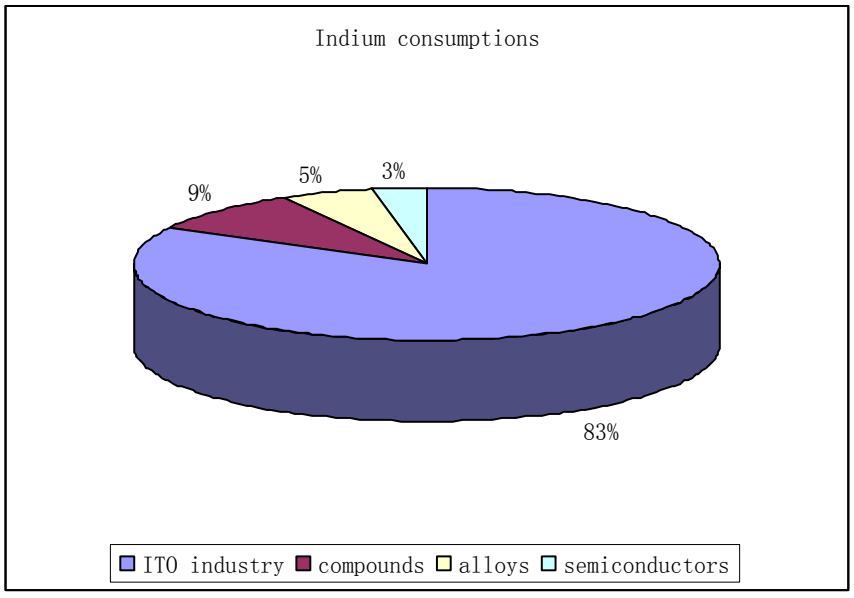
1.1 Properties

Indium is a very soft, ductile, silvery-white metal that has a bright luster. It was discovered in 1863 by Ferdinand Reich and H. T. Richter. Its density is 7.31 g/cm³ (20℃) ,melting point at 156.60℃ and boiling point at 2072℃.

Indium occurs predominantly in the zinc-sulfide ore mineral, sphalerite. The average indium content of zinc deposits from which it is recovered ranges from less than 1 part per million to 100 parts per million. Although the geochemical properties of indium are such that it occurs with other base metals—copper, lead, and tin—and to a lesser extent with bismuth, cadmium, and silver, most deposits of these metals are subeconomic for indium. Indium is not mined directly; rather it is extracted from the refuse when zinc and other materials are refined.

1.2 Applications

Major uses of indium were coatings in ITO manufacturing, 83%; compounds, 9%; alloys, 5% and semiconductor, 3%.



1.3 Distributions

China is a major indium producer in the world, with other suppliers in America, Canada, Japan and so on. China has 13,014t of indium reserves, scattering in 15 districts, with Yunnan Province accounting for 40%, Guangxi Province 31.4%, Inner Mongolia 8.2%, Qianghai Province 7.8% and Guangdong 7%.

2. Indium supply and demand

Global Indium supply and demand in 2006 and 2007

	2006 (t)	Ratio	2007 (t)	Ratio
Primary Indium	585[R]	47%	549	44%
Recycled Indium	667[R]	53%	700	56%
Total Supply	1252[R]	100%	1249	100%
ITO industry	846[R]	84%	1100	83%
Others	161[R]	16%	225	17%
Total demand	1007[R]	100%	1325	100%
Balance	+245	-	-76	-

Note: R stands for revised

2.1 Indium Supply

Current indium supply involves primary indium and recycled indium, with the former mainly coming from China, South Korea, Canada and Japan and the latter from Japan, Korea and Taiwan province.

2.1.1 Primary indium supply

2.1.1.1 Global primary indium supply

Country	2006 (t)	Ratio	2007 (t)	Ratio
China	326[R]	56%	249	45%
South Korea	70[R]	12%	90	16%

Japan	50[R]	8%	80	15%
Canada	54[R]	9%	75	14%
Others	85[R]	15%	55	10%
Total	585[R]	100%	549	100%

Note: R stands for revised

2.1.1.2 Chinese primary indium supply

Provinces	2006 (t)	Ratio	2007 (t)	Ratio
Hunan	120	37%	95	38%
Guangxi	96	29%	67	27%
Guangdong	55	17%	39	16%
Others	55	17%	48	19%
Total	326	100%	249	100%

2.1.2 Recycled indium supply

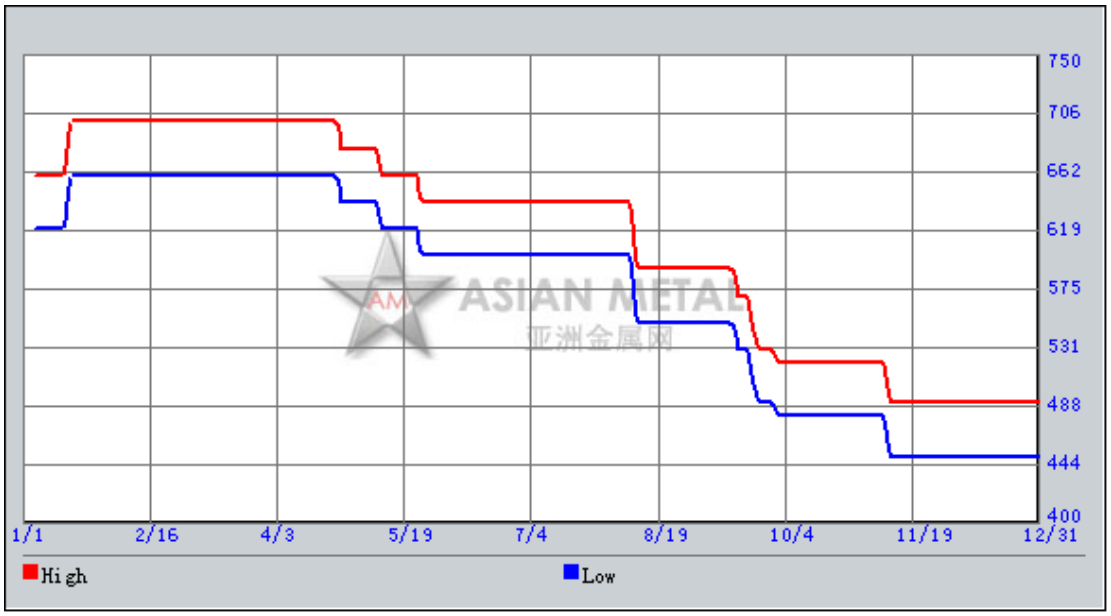
With recycled indium technology continues to improve, the recycled indium volume increases from 667t in 2006 to 700t in 2007.

2.1 Indium demand

Consumption in	2006 (t)	Ratio	2007 (t)	Ratio
ITO industry	846[R]	84%	1100	83%
Others	161[R]	16%	225	17%
Total	1007[R]	100%	1325	100%

Note: R stands for revised

3. Analysis on indium price trend in 2007



(Indium 99.99%min price FOB China in 2007)

Early January in 2007, the export price of indium 99.99%min increased from USD620-660/kg to USD660-700/kg. The price increase was a result of Chinese government imposing 15% export duty on indium exports. However the price did not increase by 15%, due to indium inventories in Hong Kong warehouses and lack of spot purchases from Japanese consumers.

Although spot deals remained in small volumes in consecutive February, March and April, most participants watched the market, not lowering the prices from USD660-700/kg, because of potential policy change – indium export quota policy.

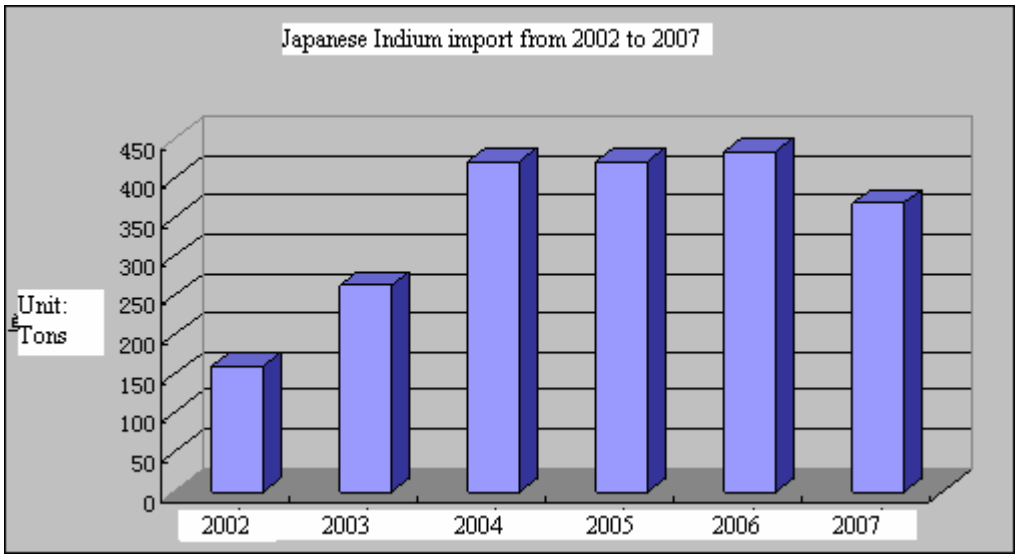
From April, 2007 fiscal year started in Japan, but Japanese consumers did not increase their purchases, which dampened Chinese suppliers' confidence in the market. The price of indium 99.99%min decreased to USD660-700/kg late April and further to USD600-640/kg late May. Although some participant anticipated that the potential policy of export quota might stimulate purchases, yet major consumers did not enter the market.

In the second half of 2007, the indium export quota policy is implemented, but the price of indium 99.99%min continued to drop to USD450-490/kg, due to consecutive few spot purchases.

It is unanimously agreed that the reasons for continuous indium price decrease include: (1) Japanese ITO manufacturers have indium inventories, recycled indium and long-term

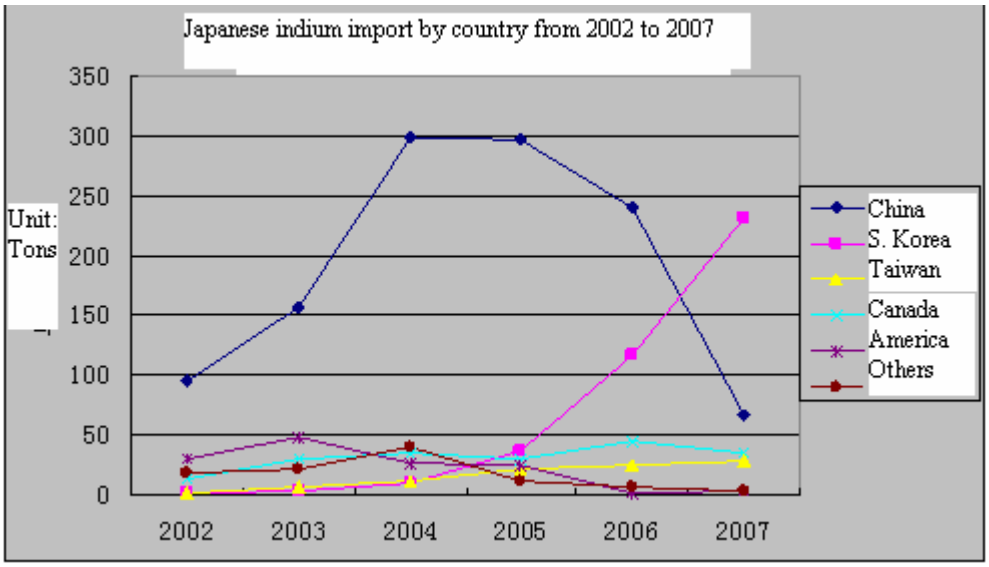
contract supply from South Korea and Canada; (2) Japanese consumers benefit from decreasing purchases from China in 2006, so they kept the purchase volume in small quantities in 2007 and continued to weaken dependence on Chinese indium supply; (3) The profits in LCD industry went down and the growth rate did not go as fast as expected, so downstream consumers refused to accept indium high prices; (4) The frequent policy changes in China dampened consumers' purchasing interests.

4. Analysis on Japanese indium import



(Source: Japanese Customs)

The period from 2002 to 2004 witnessed fast growth in Japanese demand for indium, with an increase of 65% in 2003 from 2002 and an increase of 59% in 2004 as against 2003, while the past three years (from 2004 to 2006) was seeing stable demand in Japan, with the demand volume in a range of 420-430t.



(Source: Japanese Customs)

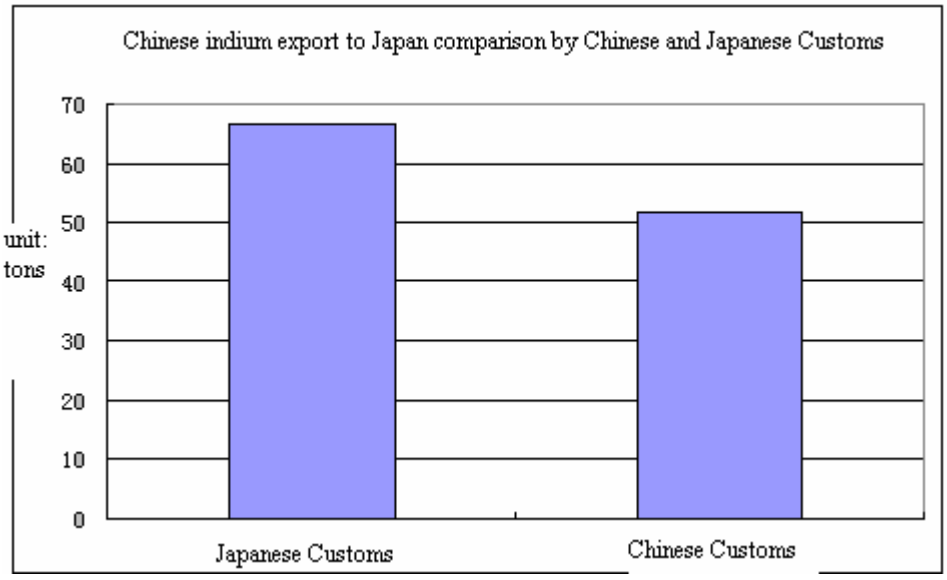
Japan imported 422t of indium in 2005 and among the leading import sources were China, S. Korea, Taiwan province, Canada and America, which accounted for 70%, 9%, 5%, 7% and 6% of the total import volume respectively.

Japanese import volume was around 433t in 2006, with the amount from China, S. Korea, Taiwan province, Canada and America taking a respective percentage of 55.3%, 26.7%, 5.7%, 10.2% and 0.3% among the total amount.

The year of 2007 witnessed a total import of 368t of indium metal to Japan, with the amount from China, S. Korea, Taiwan province, Canada and America taking a percentage of 18%, 63%, 8%, 9% and 1% respectively.

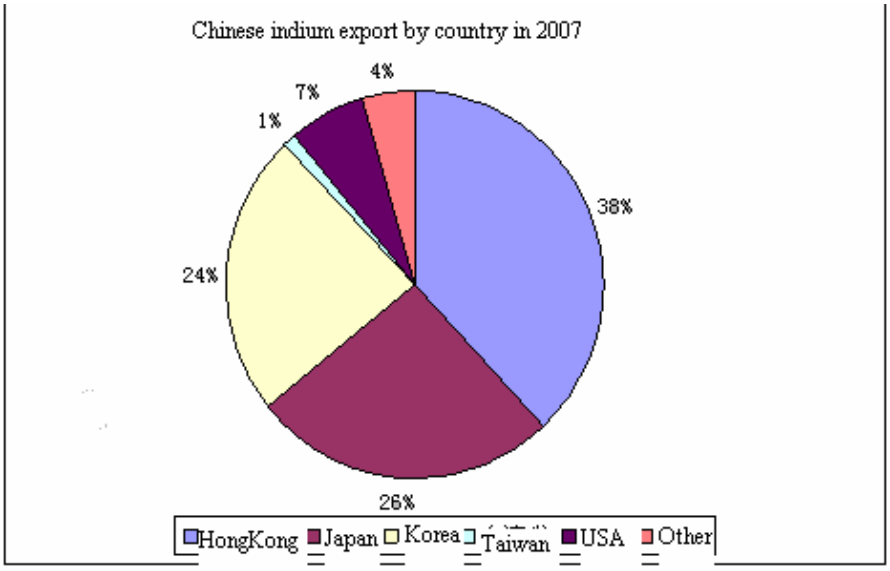
Japan reduced long-term contracts with Chinese suppliers, increasing purchases, mainly through long-term contracts, from other supply sources in 2006, which helped Japanese consumers to get indium stably and prevented the potential price fluctuation in the Chinese spot market. In 2007, Japanese consumers continue to take the purchasing strategy and China prohibited indium tolling trade, so the indium export from China to Japan decrease significantly by 72% in 2007 as against that in 2006. The small-volume purchases from Japanese consumers and smuggled indium depressed the market to remain slow in 2007.

According to Chinese Customs and Japanese Customs, the smuggled indium volume from China to Japan is around 14.8t in 2007.



(Sources: Japanese and Chinese Customs)

5. Analysis on Chinese indium export in 2007



(Source: Chinese Customs)

According to Chinese Customs statistics, China exported a total of 197 of indium metal in 2007, with the export volumes around 75t, 52t and 47t to Hong Kong, Japan and South Korea. Japan remains to be the major indium consumer, with larger demand than South Korea. However, Chinese indium export volumes to the two countries are almost the same. Some participants hold that Japanese consumers may purchase indium of Chinese origin indirectly through South Korean traders. The purchasing strategy helps Japanese consumers source indium metal and on the other hand, the covert purchases from

Chinese indium market stabilize the indium market.

6. Indium export policy changes in China in 2007

6.1 After having announced a series of export policies, including cancellation of export duty (13%), imposition of export duty (15%) and export license regulations, China issued the application criteria and processes for export quota on March 9th, 2007.

6.2 On May 31, 2007, China announced the list of 18 companies which met the requirements to apply for the export quota and implemented the export quota policy from June 18th. Late June, the export quota was issued to 15 companies, with a total of 120t. The following list is the 18 companies which met the requirements to apply for the export quota.

1、Liuzhou China Tin Group Co., Ltd.

2、Liuzhou Liyin Metal Materials Co., Ltd.

3、Liuzhou In-Ge Metal Co., Ltd.

4、Laibin Debang Industry & Trade Co., Ltd.

5、Guangxi Yintai Technology Co., Ltd.

6、Hunan Zhuye Torch Metals Import & Export Co., Ltd.

7、Hsikwangshan Twinkling Star I/E Co., Ltd.

8、Hunan Jingshi Group Industry Co., Ltd.

9、Xiangtan Zhengtan Nonferrous Metal Co., Ltd.

10、Nanjing Germanium Co., Ltd.

11、Nanjing Kinyu Electronic Materials Co., Ltd.

12、Jiangsu Sainty International Group Corp., Ltd.

13、Nanjing Foreign Economic & Trade Development Co., Ltd.

14、Wenzhou Smelter Co., Ltd.

15、Shenzhen Zhongjin Lingnan Nonfemet Co., Ltd.

16、Huludao Nonferrous Metal (Group) Import & Export Co., Ltd.

17、Yunnan Chengfeng Non-ferrous Metals. Co., Ltd.

18、China Minmetals Non-ferrous Metals. Co., Ltd.

6.3 On April 5th, 2007, China announced the commodity list whose tolling trade will be abolished and indium metal was on the list.

8112923000 Unwrought indium, indium scraps and powder Export

8112993000 Wrought indium and its products Export

6.4 On October 26th, China published the complementary application criteria and processes for export quota and issued the company which met the requirements in December. The company is Zhuzhou Keneng New Material Co., Ltd.

6.5 On December 19th, the Ministry of Commerce announced the total indium export quota is 240t in 2008.

6.6 On December 17th, China announced the export duty on indium in 2008, effective from January 1st, 2008. The interim duty rate of unwrought indium, indium scraps and powder (with the HS code: 81129230) is 15%.

6.7 On January 2nd, 2008, China's Ministry of Commerce issued the first batch of export quota on indium for 2008.

Article: Indium and its related products Unit: Ton

No.	Company Name	Export quota
1	China Minmetals Non-ferrous Metals. Co., Ltd.	3
2	Jiangsu Sainty International Group Corp., Ltd.	4
3	Nanjing Foreign Economic & Trade Development Co., Ltd.	18

4	Liuzhou China Tin Group Co., Ltd.	22
5	Liuzhou Liyin Metal Materials Co., Ltd.	4
6	Wenzhou Smelter Co., Ltd.	1
7	Shenzhen Zhongjin Lingnan Nonfemet Co., Ltd.	3
8	Huludao Nonferrous Metal (Group) Import & Export Co., Ltd.	12
9	Hunan Zhuye Torch Metals Import & Export Co., Ltd.	29
10	Hsikwangshan Twinkling Star I/E Co., Ltd.	1
11	Yunnan Chengfeng Non-ferrous Metals. Co., Ltd.	2
12	Hunan Jingshi Group Industry Co., Ltd.	7
13	Nanjing Germanium Co., Ltd.	10
14	Nanjing Kinyu Electronic Materials Co., Ltd.	17
15	Guangxi Yintai Technology Co., Ltd.	9
16	Laibin Debang Industry & Trade Co., Ltd.	6
17	Xiangtan Zhengtan Nonferrous Metal Co., Ltd.	10
18	Liuzhou In-Ge Metal Co., Ltd.	3
19	Shuikoushan Nonferrous Metals Group Co., Ltd.	3
20	Zhuzhou Keneng New Material Co., Ltd.	4
	Total	168

The HS codes of indium and its related products include 8112923000 and 8112993000.

7. Forecasts on the indium market in 2007

7.1 Slow growth in ITO industry – major indium consuming industry

ITO manufacturers are major indium metal consumers, accounting for around 83% of total indium usage. Due to the slow growth in flat panel display industry, demand for indium metal from ITO manufacturers may reduce. Besides, the profits in flat panel display industry also decreases, so consumers have difficulties accepting indium high prices.

7.2 Growing demand for indium from CIGS solar cell industry

Under the background of ascending energy prices, governments and many prospective enterprises pay lots of attention to development of CIGS solar cells, green and environment-friendly energy. It is estimated that demand for indium metal from this industry was around 21t (50g/kW) in 2007 and the volume will reach 107-134t (40-50g/kW) in 2010.

7.3 Global indium supply

Many Chinese private-owned smelters halted production due to the weak demand in Chinese spot market in 2007. If the indium market continues to be slow in 2008, the supply from China will not increase sharply. Japanese indium supply is likely to go up, but the increasing volume depends on the indium content of zinc concentrate. Since the indium raw materials of Canadian and Korean producers come from Bolivia, the production of the two companies will not change greatly, if political situation is stable in Bolivia. Therefore, the global indium production is likely to remain stable or decrease slightly, if the market keeps slow in 2008, and vice versa.

7.4 Chinese government likely to reserve indium metal and crack down on smuggled indium

Chinese government announced a series of regulation policies on indium export in 2006 and 2007, including cancellation of export rebate, imposition of export duty and export quota, but the indium price was pressed because of rampant smuggled indium. Therefore, the government may curb smuggled indium in 2008. Besides, the indium reservation may put on the agenda out of strategic consideration.

7.5 Japanese purchasing policies

Japanese consumers reduced indium purchases from Chinese consumers by purchasing from South Korea, Japan and Canada and purchased indium of Chinese origin by buying from Korea-based traders, which effectively control the indium price in 2007. Japanese consumers may keep following the purchase policy in 2008.

7.6 Substitutes for indium

Indium is unlikely to be replaced in the application of flat screen panels, with its transparence, low resistivity and high K-value. The substitutes usually lead to losses in production efficiency or production characteristics. However, the substitute researches do not stop, so there are possibilities that indium metal may be replaced one day when some research outcome is commercialized.

7.7 Recycled indium

With the increasing recycled indium rate, the recycled indium volume will increase, which will, thus, help consumers to reduce purchases of primary indium metal and postpone their primary indium purchases.

In conclusion, the indium metal market will fluctuate under the above factors' influences. Demand from ITO and other consuming industries will increase continuously, and Chinese reservation and curbing smuggled indium policies may help stabilize indium market. However, the price increase may meet resistances because of slow growth in ITO industry, Japanese tactic purchasing policies and advanced recycled indium technologies. The slow indium market in 2007 makes many Chinese smelters stop production and reduction in supply side will help the price to go up.