



COMMODITY PROFILE – ZINC

Zinc is a blue-gray, metallic element, with atomic symbol Zn. Zinc is the fourth most common metal in use, trailing only iron, aluminium, and copper. Zinc ores contain 5 -15% zinc. Over 95% of the world's zinc is produced from zinc blende (ZnS). About 70% of the world's zinc originates from mining, while the remaining 30% comes from recycling secondary zinc. Zinc is recycled at all stages of production and use – for example, from scrap that arises during the production of galvanized steel sheet, from scrap generated during manufacturing and installation processes, and from end-of-life products.

Properties & Uses

Zinc is a moderately good conductor of electricity and is relatively resistant to corrosion in air or water, and therefore is used as a protective layer on iron products to protect them from rusting.

The largest use of zinc is as a protective coating for iron. The process is called galvanizing. Zinc is a key ingredient in galvanized steel that helps limit rust and corrosion. The second largest use of zinc is as an alloy. Brass is an important alloy because it is hard and corrosion resistant. Its strength and electrical conductivity make it useful in electrical plugs. The remaining zinc consumption is for making paint, chemicals, agricultural applications, in the rubber industry, in TV screens, fluorescent lights and for dry cell batteries. Main application areas are: construction (45%) followed by transport (25%), consumer goods & electrical appliances (23%) and general engineering (7%).

Zinc Mining/Extraction Process

Primary or mining production constitutes 70% of total zinc production, while rest 30% comes from recycling of scrap, which is also called secondary production. In nature, zinc is

available in the form of zinc sulphide (ZnS) due to high affinity with sulphur. ZnS is the most common ore followed by Zinc Carbonate (Calamine/Smithsonite) and Zinc Silicate. Zinc ore contains 5-15% of zinc. The principal processes by which zinc is extracted from its ores are pyro-metallurgical processes and hydro-metallurgical processes. Zinc concentrate contains 55% of zinc and rest 45% is copper, lead, and iron.

Secondary zinc production uses process scrap from zinc slabs, zinc oxides and zinc dust. Zinc is also often recovered from the furnace dust of galvanized steel making plants. Using pyrometallurgical refinement techniques, the zinc can be recovered.



Global Scenario

World Zinc Production

Global zinc production has seen a significant growth in last few years on rising demand from the construction industry. Mine production has risen from 8.8 mln tons in 2000 to 11.7 mln tons in 2008, registering a 33% growth in last 9-years, while compounded annual growth rate is reported to be 3.7%.

Asia, Europe and America are the major regions for zinc production, accounting for 54%, 23% and 17% respectively of the global zinc production. The production in Asian countries, especially in China and India, remains growing fast in 2008.

Zinc is mined mostly in China, Australia, Peru, Europe, Canada, Mexico and the US. China is the largest producer of Zinc mine output with 30% contribution to total output followed by Peru and Australia. EU-17 is the fourth largest producer and account for 8-9% of total global production.

World Zinc Consumption

China is also the largest zinc consuming country in the world. Other major zinc consumers are Europe, United States, Japan and Korea. Global refined zinc consumption accounted for 11.4 million tonnes in 2008, a rise of 1.6% from the previous year. Increase in zinc metal usage was driven primarily by further growth in China, where apparent demand increased by 11.6% and to a lesser extent by increases in India and Indonesia. Usage in the United States contracted by 2.6%, in Japan by 3.1% and in Europe by a significant 8.1%

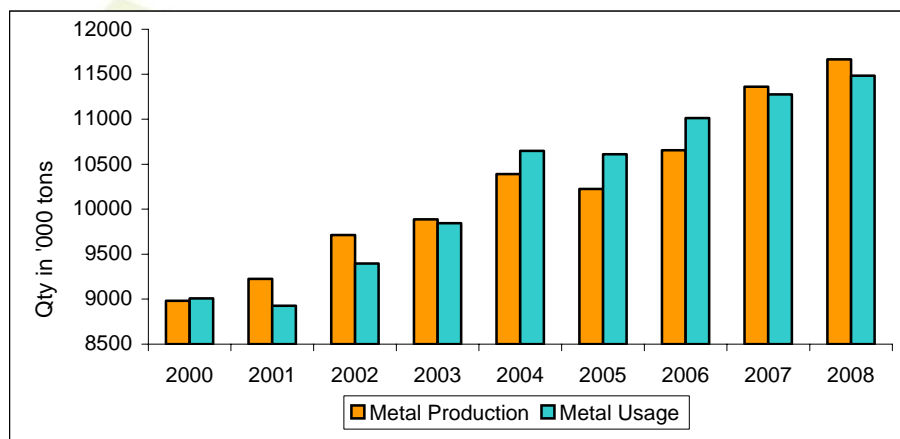
Supply Status in 2008-09

Zinc prices have tumbled on back of weak global demand in 2008/09, which has affected the profitability of many mining companies. This price fall resulted in production cut in Belgium, Brazil, Bulgaria, Japan, the Netherlands, the Russian Federation, US, closure of the refineries at Datteln in Germany, Balkhash in Kazakhstan and Copsa Mica in Romania.

In 2008, global zinc mine production increased by 3.9% to 11.6 million tons, refined metal production by 5.1% to 11.9 million tons, and consumption by 3.8% to 11.8 million tons. This leaves an excess of 150,000 tons of metal on the market, with a larger surplus anticipated in 2009.

Zinc production is expected to fall significantly in Australia, Canada, China, Peru, Portugal and the US in 2009. However, these reductions will be partially offset by the opening of new capacity in Finland and Spain, and higher production in Bolivia, India, Iran and Pakistan. In 2009, the production is estimated at 10.8 mln tons from production of 11.6 mln tons in 2008.

Fig. 1: World Zinc Production and Usage



Source: ILZSG

Major exporters: Australia, Peru, US, Canada, Ireland, Spain, Sweden, Mexico and Turkey.

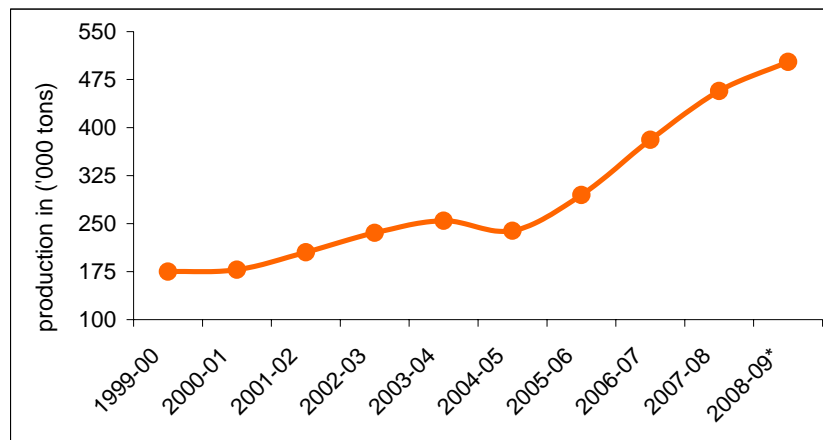
Major Importers: South Korea, Japan, Spain, Belgium, China, France, Canada, Finland, Germany, Italy and Netherlands.

Domestic Scenario

Zinc Production in India

India accounts for 4% of total zinc production in the world. Zinc annual production is of about 4.8 lakh tonnes in 2008. India hopes to become self reliant in zinc production by 2010.

Fig. 2: Zinc Production Trend



Source: Industry Analysis Service center for Monitoring Indian Economy

Note: * Indicates estimated production

Zinc Consumption

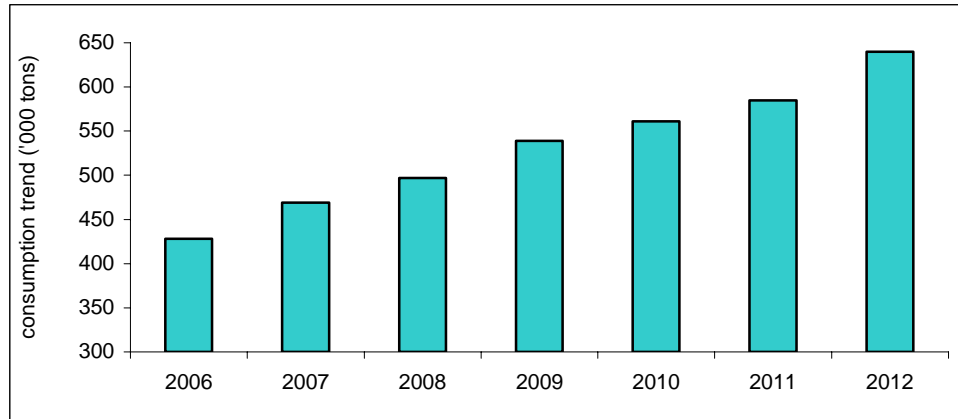
India is one of the fastest growing regions of zinc consumption in the world. The current Indian demand for zinc stands at around 4.7 lakh tons that is fulfilled with the help of domestic production and imports too. Zinc consumption in the last years has increased in India. Growth in steel sector is the main factor behind the rise in domestic consumption as 70 percent of India's zinc use is accounted by steel galvanizing.

Indian zinc demand is likely to grow 12-15 percent per annum compared with the global average of 5 percent.

The demand for zinc is expected to remain strong in the coming years on account of growth in the key zinc consuming industries like infrastructure, realty and manufacturing. Moreover,

the growth in automobile and consumer durables industry would also further aid the increase in consumption of zinc.

Fig. 3: Zinc Consumption Trend



Source: ILZSG

The demand of zinc has increased from 3.47 lakh tons in 2004 to 4.47 lakh tons in 2007. In 2012, zinc consumption is expected to touch 6.4 lakh tons which is linked to the growth in infrastructure sector.

Major Zinc Producing Companies and Major Zinc Mines in India

- Hindustan Zinc Ltd. (HZL)
- Binani Zinc Ltd. (BZL)

HZL is India's largest producer of zinc and is among the world's leading integrated producers. It accounts for market share of more than 60%. It has a metal production capacity of 754,000 tonnes per annum with its smelter operations situated in Chanderiya, Debari and Visakhapatnam. BZL is India's second largest zinc producer.

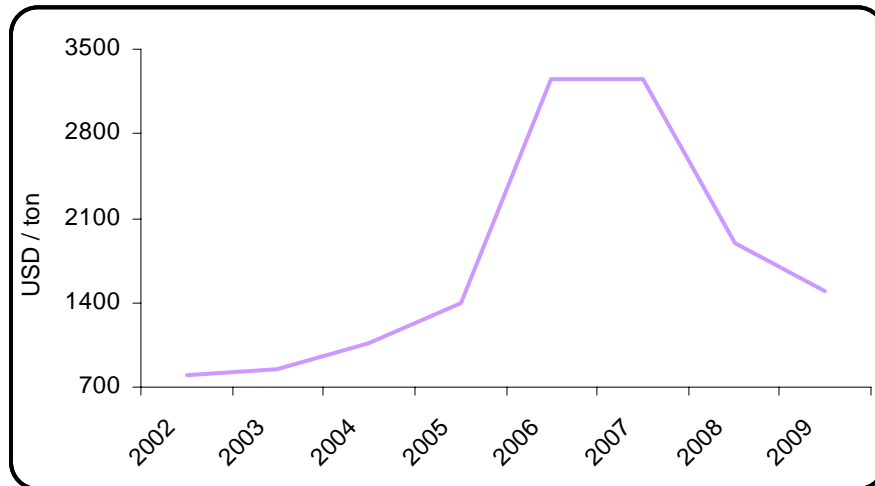
All the major zinc ore mines in India viz. **Rampura Agucha, Rajpura Dariba and Zawar mines are located in the state of Rajasthan** and all of these are under the control of Hindustan Zinc.

Zinc Prices

The largest zinc market in the world is the London Metal Exchange that affects the world demand and supply for zinc and consequently zinc prices also. The zinc prices set by the

Indian companies is based on the prices in the LME market. Indian importers get the zinc concentrate based on LME prices with deduction of the treatment charges. The final zinc product is sold with local premium. Hence, the global prices, being an imported commodity, have major influence on zinc market in India.

Fig. 4: LME - Zinc prices



Source: LME

Note: Three months forward LME daily avg. prices and Jan to Sept Avg. prices for 2009

Zinc prices surged at record higher levels, in 2007. Then zinc prices (annual avg.) have declined during 2008 and 2009.

Global zinc market has become oversupplied since late 2007 due to increase in capacity of mines, so zinc prices began retreating. Since April 2008, the LME zinc price has fallen about 65 per cent. This is mainly due to subdued demand on global economic slowdown. Prices have shown an indication of recovery during the second half of 2009.

Factors influences Zinc Prices

- Economic growth rate of major consuming countries
- LME zinc inventories

- Demand for steel
- Currency rates
- Prices of substitute metals like aluminium, plastic etc
- Freight rates
- Government regulation on imports

References

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