



COMMODITY PROFILE- LEAD

Lead is a metallic chemical element with a symbol Pb. It is a heavy, soft, grey-blue metal present in a large variety of products. It is one of the oldest metals. The Romans used it for pipes and in solder. It was one of the first metals mined in North America, where it was sought after especially for making shot.

Lead is one of man's most valuable commodities in present scenario. The metal is mined and processed in some 60 countries. It is a naturally occurring element and is usually associated with other minerals, notably zinc, silver and copper. Lead is usually found in ore with zinc, silver and (most abundantly) copper, and is extracted together with these metals. Trace amounts of other elements, including gold, are sometimes found with lead ore. The main lead mineral is galena (PbS), which contains 86.6% lead.

Importance and Uses

Lead is a dense, ductile, very soft, highly malleable, bluish-white metal that has poor electrical conductivity. As lead is very malleable and resistant to corrosion, it is extensively used in building construction, e.g., external coverings of roofing joints. Lead is also poisonous, as are its compounds, and therefore is dangerous to human health.

The single most important commercial use of lead is in the manufacture of lead-acid storage batteries for automotive, industrial and consumer purposes which account for 75 percent of the world's demand for lead, while use in pigments and other compounds account for 12 percent. Other uses include lead foil, plumbing, solder, sound proofing, ammunition, addition to glass to block harmful radiation from television and computer screens and as an ultraviolet ray protector in PVC plastics. It is also used in alloys such as fusible metals and

antifriction metals. Shot lead is an alloy of lead, antimony, and arsenic. Lead has many commonly used compounds. Commercially importance is of the lead oxides, which have many uses. Red lead is lead tetroxide, Pb_3O_4 ; lead peroxide or dioxide, PbO_2 , is used in matches, as a mordant in dyeing, and as an oxidizing agent. White lead, $2PbCO_3 \cdot Pb(OH)_2$ (basic lead carbonate), is an important pigment used in paints, putty, and ceramics



Global Scenario

Lead is traded mostly as soft lead, animated lead, lead alloys and copper-based lead scrap. Lead ore is mined in many countries around the world, though three quarters of world output comes from only six countries: China, Australia, USA, Peru, Canada and Mexico. China and Australia are the leading suppliers of lead in the world. Small amounts are mined in several countries of Europe, with the biggest producer being Sweden. China, India, Japan, USA and European Union are the main consumers of lead in the world.

Table 1: World Lead Supply & Usage (2004-08)

Qty in Thousand Tonnes	2005	2006	2007	2008	2009
Mine Production	3423	3525	3626	3896	4031
Refined Production	7624	7935	8126	8653	8815
Lead Usage	7786	8063	8182	8648	8771

Source: ILZSG

In 2008, there was a surplus in world supply of refined lead metal of 5,000 tonnes. This is the first time, when world refined production has exceeded usage since 2002. In 2009, world supply of refined metal increased more due to increased output. China continued to be both the largest producer and consumer of lead in the world in 2009.

World Lead Production

Most of the world's lead is mined in the China, Australia, the United States and Peru. The supply of lead comes mainly from the mine production but recycling of scrap account a large share in the metal production. The lead scrap, 90 percent comes from the battery industry, is recycled. So in the lead metal production, each contributes about 50 percent of supply. As lead is mined as co-product with zinc, its supply can be affected by a factor related to the zinc metals.

Table 2: Country-wise Lead Mine Production (in Thousand Tonnes)

Country	2006	2007	2008	2009
China	1331	1402	1543	1760
Australia	621	589	594	525
United States	429	444	410	415
Europe	246	284	301	320
Peru	313	329	345	302
Total	2940	3048	3193	3322
World Total	3525	3626	3896	4031

Source: ILZSG

Global lead mine production in 2009 was 4.03 million tonnes, 3.5% higher from the previous year. The world's top lead mine producing countries in 2009 are China, Australia and the United States. China alone accounts for 44 percent of world lead mine production.

Table 3: Country-wise Refined Lead Production (in Thousand Tonnes)

Country	2006	2007	2008	2009
China	2715	2788	3206	3708
Europe	1661	1779	1812	1663
United States	1303	1303	1280	1240
South Korea	240	260	270	290
Canada	250	237	259	260
Total	6169	6367	6827	7161
World Total	7935	8126	8653	8815

Source: ILZSG

China is a major producer in refined zinc followed by Europe and the United States. Lead refined production was 8.8 million tonnes in 2009, an increase of 1.87% over the previous year. A major influence on increase in production was due to a substantial 15% rise in China lead production to 3.7 million tonnes. However, there was a production decrease in Europe and the United States.

World Lead Consumption

World lead consumption accounted for 8.77 million tonnes in 2009. Overall global consumption increased by 1.4% over the previous year. This was largely due to a further strong increase in Chinese apparent demand of 20% and a partial recovery in usage in the United States after a sharp fall in 2008.

China is the largest consumer of Lead in the world followed by Europe and the United States.

Table 4: Country-wise Lead Consumption (in Thousand Tonnes)

Country	2006	2007	2008	2009
China	2213	2573	3211	3860
Europe	1973	1953	1850	1564
United States	1622	1510	1515	1426
Korea, Rep.	337	342	312	320
Japan	303	279	261	190
Total	6448	6657	7149	7360
World Total	8063	8182	8649	8771

Source: ILZSG

Export-Import of Lead

Major Exporters: The largest exporters of lead metal which mine large quantities of lead ore are China, Australia, Germany and Canada.

Major Importers: The major importing countries for lead are the United States, U.K., Germany, India and Spain.

In 2009, China has become a net importer of lead. In 2007 it exported a net 211,000 tonnes and in 2008 a net 2,700 tonnes. In Q1 2009, it imported 48,320t of refined lead, up 826% year-on-year.

Domestic Scenario

Lead Production in India

India's lead production rate is not stagnant as it keeps change year by year. India's production is highly effected by zinc because domestically lead mining is done as co-product of zinc and if any case the zinc supply is increased or decreased then it will same reflect to lead.

Table 5: Lead Production (in Thousand Tonnes)

Year	Lead Mine Production	Refined Lead Production
2004	51	49
2005	58	59
2006	66	104
2007	78	124
2008 (p)	85	136

Sources: Natural Resources Canada; ILZSG

p- Preliminary

Lead mined production in India was 78000 tonnes in 2007 and it is estimated to be around 85000 tonnes in 2008. It accounts for around 2% share in world production. Refined lead production is estimated to be 136 thousand tonnes in 2008.

Major Lead Producing Companies and Major Lead Mines in India

The domestic industry is characterized by the presence of only a few players in the primary segment. Binani Industries Limited and Hindustan Zinc Ltd. (HZL) are the major players in the domestic lead industry. HZL is one of the top ten lead mining companies by production volume worldwide.

In India, lead mines are found at Zawar, Rajpura-Dariba and Rampura- Agucha which are highly mechanised. The first two are underground mines. Rampura-Agucha is an opencast mine.

Lead Consumption

Annual demand for lead is nearly 1.8 lakh tonnes. India imports nearly 50 percent of its lead requirement every year. In India, Lead is mainly used in batteries, mainly car batteries.

Table 6: Lead Consumption (in Thousand Tonnes)

Year	Refined Lead Consumption
2004	150
2005	160
2006	170
2007	175
2008 (p)	184

Sources: Natural Resources Canada; ILZSG

p- Preliminary

Refined lead consumption is estimated at 184 thousand tonnes in 2008. It accounts for around 2% share in world consumption.

Demand for refined lead increased in the recent years owing to growing demand for lead-acid batteries. The lead-acid battery industry accounted for about 85% of total lead demand in India. A sudden growth in the automobile sector plus the boom in the information technology and telecom sector has resulted in increased demand for batteries, which mainly use lead. The second ranked application for lead, representing about 8% of total consumption, is the chemical industry, which used lead in the form of lead-based pigments and other compounds.

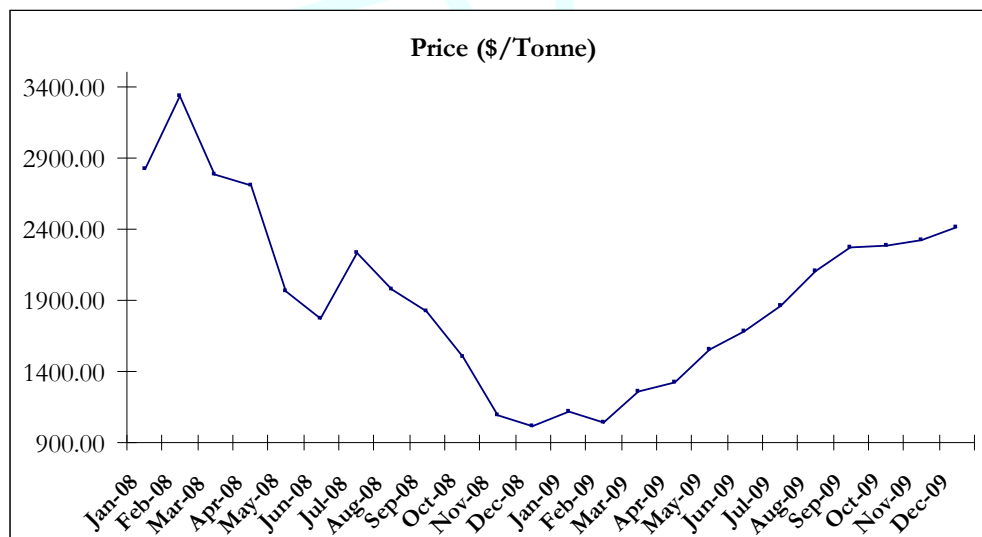
Import and Export

India is not an exporting country of lead and its products and the exports have been miniscule. In India, import quantity fluctuates every year due to changing custom duties and government policy. By 2007, imported primary lead accounted for 40-50 percent of demand, domestic lead firms contribute 15-20 percent and the rest comes from recycled sources.

Lead Prices

Lead prices started increasing from 2006 and continued the trend throughout the first three quarters of 2007. The ongoing economic growth in emerging industrialized nations such as China and India drove strong global demand for lead in 2007. The main driver for price rise was higher use of lead in China for vehicle fleet expansion, production of automotive batteries for export, investment in telecommunications and information technology.

Lead Futures Prices at LME (2008 – 2009)



Source: Reuters

Seize the right opportunity

In 2008, lead prices succumbed to a pressure of global financial turmoil, as fall in demand for batteries put breaks on demand for this metal. Lead prices declined continuously in 2008 and fell from its highs of \$3335 per tonne in February 2008 to \$1013 per tonne in December 2008.

In 2009, lead prices showed increasing trend. In 2009, there was expectation of lead production cut due to severe cuts by zinc miners as lead is produced primarily as a by-product from zinc mines. Also other reason for price rise was that China became a net importer of lead in 2009 from a net exporter of lead. The low level of LME stocks and tight supply in the market supported the prices.

Factors affecting Lead Prices

- Demand for lead in SLI (starter-lights-ignition)-type batteries
- Demand from the major lead consuming countries
- Global lead supply
- Lead inventories at London Metal Exchange warehouses
- Global economic situation

Futures Trading of Lead at Major Exchange

- London Metal Exchange (LME)

References

- International Lead & Zinc Study Group (ILZSG)
- www.metalworld.co.in
- www.basemetals.com

INDIAN
COMMODITY EXCHANGE
Seize the right opportunity