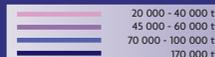


Thousand metric tons, situation in 2003.



Trade flows of lead in quantity, 2002.



Production, consumption and trade of lead.

The United Nations SITC (revision 2) defines lead as lead, and lead alloys, unwrought SITC 6851.

For thousands of years, people have been using lead in countless ways. Lead is a soft metal with a low melting point, and these properties make it very easy to handle and shape. Its very high resistance to corrosion makes it ideal for weatherproofing buildings and for protecting equipment used to manufacture acids. Lead's very high density also makes it particularly suitable for radiation shielding. However, the most important use of lead today, accounting for three quarters of lead use, is in lead-acid batteries, which provide portable electric power in a variety of forms, from automobile batteries and standby emergency batteries to power for recreational and industrial electrical vehicles.



Lead ingots at a battery factory in El Salvador.

Processing and use

Primary lead is produced from mines, while secondary lead comes from recycled lead products. The most common lead ore is galena, or lead sulfide, which often contains other elements such as zinc and silver. Indeed, lead ores are the main source of global silver production. After mining and concentration, the lead concentrate is smelted and refined to remove other elements. Recycled lead accounts for slightly more than half of refined lead consumption, and the proportion is increasing, partly as a result of government incentives to promote the recycling of used batteries in many countries.

Lead use has increased very slowly over the past decade – a little over 1% per year, on average. The low rate of growth results mainly from the phasing out of certain end uses – for example, in petrol and paints – because of health-related restrictions. Asian countries, particularly China, account for a rapidly increasing portion of consumption.

Health hazards and regulations

Lead exposure in humans is associated with a range of effects on different parts of the body. These effects vary from subtle biochemical changes that may cause nausea, headaches, vomiting and tiredness to severe clinical symptoms such as lead poisoning (saturnism), which can affect the nervous and reproductive systems, red blood cell synthesis and kidney functioning. Lead abatement measures in the workplace and the abolition of leaded petrol have dramatically reduced levels of occupational and population lead exposure.

Under the terms of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, leaded scrap, such as used lead-acid batteries, is classified as a hazardous waste. This means that trade is restricted and leaded scrap cannot be shipped from any country listed in Annex VII (essentially OECD and EU member countries) to any country not listed in Annex VII. (Although this part of the Convention has not entered into force, countries are applying it in their

national legislation.) Trade between non-Annex VII countries is not restricted, but it is subject to regulations for the transboundary movement of hazardous waste. These regulations require that prior informed consent be obtained from the country receiving the scrap before transport from one country to another, and they specify that any country moving leaded scrap is responsible for ensuring that the scrap is handled and disposed of or recycled in an environmentally sound manner. The regulations have led to a shortage of lead for recycling in some developing countries.

Industry

Compared to some other parts of the international mining industry, lead mining is not very highly concentrated. The 10 largest companies control less than half of world production.

The world's 10 largest lead mining companies, 2002

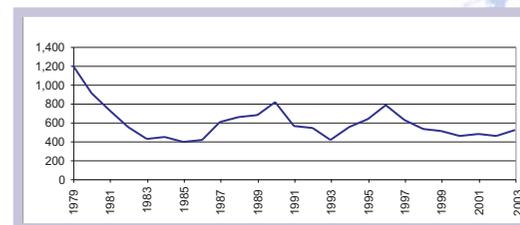
| Company | Country | Controlled production (thousand metric tons) | Share of world output (per cent) |
|-----------------------------|---------------|--|----------------------------------|
| Doe Run Co. | United States | 275.0 | 10.0 |
| BHP Billiton Ltd. | Australia | 251.2 | 9.2 |
| MIM Holdings Ltd. | Australia | 147.1 | 5.4 |
| Pasminco Ltd. | Australia | 142.0 | 5.2 |
| Teck Cominco Ltd. | Canada | 126.1 | 4.6 |
| Industrias Penoles SA de CV | Mexico | 84.0 | 3.1 |
| Volcan Cia Minera SA | Peru | 83.6 | 3.1 |
| Noranda Inc. | Canada | 77.0 | 2.8 |
| Western Metals Ltd. | Australia | 71.0 | 2.6 |
| Cia Minera Milpo SA | Peru | 65.2 | 2.4 |
| 10 largest companies | | 1,322.2 | 48.4 |
| All companies in China | China | 568.0 | 20.7 |

Source: Raw Materials Group, Stockholm, 2003.

Prices

Lead is traded on commodity exchanges, most importantly the London Metal Exchange (LME). The LME price is normally used as a basis in contracts between producers and consumers, both for lead ores and for metal. Prices fluctuate in a cyclical pattern and tend to follow developments in the business cycle.

Annual average lead prices on the London Metal Exchange, 1979–2003 (US\$/metric ton)



International cooperation

The International Lead and Zinc Study Group is an intergovernmental organization whose members gather regularly to exchange information on lead and zinc. The group is a globally recognized source of industry statistics and organizes semiannual meetings between producing and consuming countries, industry and government.

To learn more

UNCTAD/INFOCOMM, Market Information in the Commodities Area www.unctad.org/infocomm

International Lead and Zinc Study Group www.ilzsg.org/

International Lead and Zinc Research Organization www.ilzro.org/home.htm

International Lead Management Center www.ilmc.org

Lead Development Association International www.ldaint.org