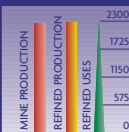
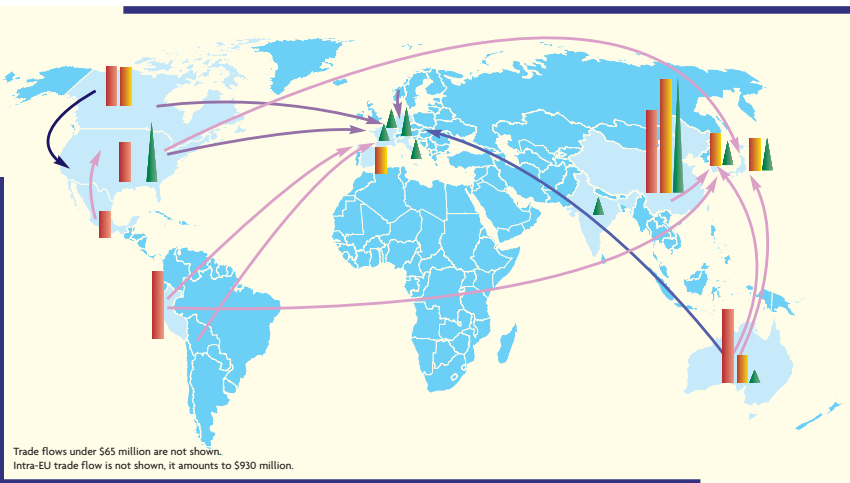


Thousand metric tons, situation in 2003.



Trade flows of zinc in value, 2002.



Trade flows under \$65 million are not shown. Intra-EU trade flow is not shown, it amounts to \$930 million.

**Production, consumption and trade of zinc.**

The United Nations SITC (revision 2) defines zinc as zinc ore and concentrates SITC code 2875 and zinc alloys, unwrought SITC code 686.1.

Zinc is the fourth most used metal and has applications in a wide range of industries. The principal commercially exploitable zinc mineral is the zinc iron sulphide sphalerite, which is also called blende. Zinc deposits often also contain other base metals such as lead and copper or precious metals such as silver.



Zinc roof at an airport.

**Processing**

Zinc is mined mainly underground. After mining and crushing, the ore is turned into a concentrate containing 50% to 60% zinc through flotation. The concentrate is converted into zinc oxide through roasting and is then leached and subjected to electrolysis in a smelter to obtain zinc metal.

**Production**

International zinc production is highly concentrated, with six countries accounting for more than 70% of world production and the rest supplied by around 40 other countries. China is by far the largest producer at

the smelting stage, followed by a few other countries that also account for large fractions of the world supply.

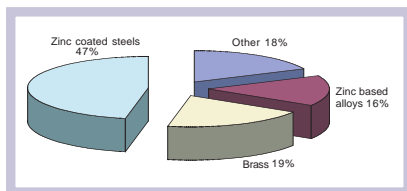
Since 1990, demand for zinc has increased by about 2.5% a year on average. Globally, about 30% of zinc used comes from recycled zinc scrap. As is true of most metals, developing countries in Asia, particularly China, have rapidly increased their share of global use, with China's share growing from 12% in 1995 to 18% in 2002.

**Uses**

The three leading uses of zinc are in steel galvanization, in brass production and in other alloys.

Galvanization, where zinc is used to protect steel against corrosion, is a rapidly growing use of zinc and constitutes its main market. Two methods are used to coat steel with zinc: application of molten zinc at 450°C (842°F) and electroplating. Brass is an alloy made up of zinc (10% to 40%) and copper and is widely used in the construction sector. Zinc oxide is used in the production of paint, printing ink, cosmetic products, soaps and other pharmaceutical products.

**Main uses of zinc (% of total uses)**



Source: International Lead and Zinc Study Group.

**To learn more**

Eurometaux  
[www.eurometaux.org](http://www.eurometaux.org)

International Lead and Zinc Study Group  
[www.ilzsg.org](http://www.ilzsg.org)

American Zinc Association  
[www.zinc.org](http://www.zinc.org)

Construction and transportation are the most important industries using zinc and its alloys. The construction sector, where zinc is used mainly for its water resistance, represents almost 50% of total use. Examples of uses include roofing and drain pipes. The transportation sector, especially the automotive industry, accounts for approximately a quarter of total zinc use. The proportion of zinc per vehicle is increasing owing to a growing emphasis on durability, which favours galvanized steel compared to other, less corrosion-resistant steel products, and owing to zinc's lightness, which allows reduced fuel consumption. At the beginning of the new millennium, the average weight of zinc per vehicle produced in the industrialized countries (Japan, the United States, Europe and Canada) was close to 10 kilograms per unit, and this trend should continue because of stricter environmental regulations. Zinc is also used in other transportation sectors, particularly in shipbuilding, where, melted with tin (no more than 2% of the latter), it protects hulls against corrosion caused by seawater.

**Industry**

The 10 largest zinc mining companies control 42% of world production, which is a relatively low share compared to the situation for other metals. Industry concentration at the smelting stage is also low.

**The world's 10 largest zinc mining companies, 2002**

| Company                     | Country        | Controlled production (thousand metric tons) | Share of world production (per cent) |
|-----------------------------|----------------|--|--------------------------------------|
| Pasminco Ltd.               | Australia      | 755.0  | 8.6                                  |
| Teck Cominco Ltd.           | Canada         | 713.9  | 8.2                                  |
| Noranda Inc.                | Canada         | 553.2  | 6.3                                  |
| Volcan Cia Minera SA        | Peru           | 319.6  | 3.7                                  |
| MIM Holdings Ltd.           | Australia      | 310.9  | 3.6                                  |
| Industrias Penoles SA de CV | Mexico         | 254.3  | 2.9                                  |
| Breakwater Resources Ltd.   | Canada         | 216.7  | 2.5                                  |
| Anglo American plc          | United Kingdom | 205.5  | 2.4                                  |
| BHP Billiton Ltd.           | Australia      | 190.7  | 2.2                                  |
| Western Metals Ltd.         | Australia      | 186.0  | 2.1                                  |
| Total, 10 largest           |                | 3,705.7                                      | 42.4                                 |
| China                       |                | 1,499.0                                      | 17.2                                 |

Source: Raw Materials Group, Stockholm, 2003.

**International zinc prices**

Since 1915, zinc has been traded mainly on the London Metal Exchange (LME). Price variations for zinc are somewhat smaller than for other metals, but they are still significant.

**International cooperation**

The International Lead and Zinc Study Group is an inter-governmental organization that regularly brings together its members in an international forum to exchange information on lead and zinc. This globally recognized source of industry statistics organizes semiannual meetings between producing and consuming countries, industry and government.

**Zinc cash prices on the London Metal Exchange, 1980–2002 (US\$/metric ton)**

