

## ZINC

(Data in thousand metric tons of zinc content, unless noted)

**Domestic Production and Use:** The value of zinc mined in 1995 was about \$700 million. Essentially all came from 25 mines, and 74% of it came from only 5 mines. More than 88% of the total mine output was from Alaska, Missouri, New York, and Tennessee; Alaska alone accounted for about one-half. Three primary and seven secondary smelters refined metal of commercial grade in 1995. About 75% of slab zinc consumption was in Illinois, Indiana, Michigan, New York, Ohio, and Pennsylvania. Of the total slab zinc consumed, about 53% was used in galvanizing, 20% in zinc-base alloys, 13% in brass and bronze, and 14% in other uses. Zinc compounds and dusts were used principally by the agricultural, chemical, paint, and rubber industries. Major coproducts of zinc mining and smelting were cadmium, germanium, lead, silver, and sulfur.

<b>Salient Statistics—United States:</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995<sup>e</sup></b>
Production: Mine, recoverable	518	523	488	570	600
Primary slab zinc	253	272	240	217	225
Secondary slab zinc <sup>1</sup>	122	128	141	139	140
Zinc from old scrap	119	132	109	116	120
Imports for consumption:					
Ore and concentrate	45	45	33	27	20
Slab zinc, scrap, and compounds	637	740	805	892	910
Exports: Slab zinc, scrap, and compounds	112	120	52	79	55
Ore and concentrate	382	307	311	389	400
Shipments from Government stockpile	—	—	18	39	15
Consumption: Apparent, slab zinc	933	1,040	1,140	1,190	1,230
Apparent, all forms	1,170	1,280	1,350	1,420	1,460
Industrial demand	835	964	1,090	1,180	1,210
Price, average, cents per pound:					
Domestic producers	52.8	58.4	46.2	49.3	53.0
London Metal Exchange, cash	50.7	56.2	43.6	45.3	47.0
Stocks, slab zinc, yearend	79	75	74	71	73
Employment: Mine and mill <sup>e</sup>	2,100	2,300	2,500	2,700	2,700
Smelter primary <sup>e</sup>	1,500	1,500	1,300	1,000	1,000
Net import reliance <sup>2</sup> as a percent of industrial demand	24	30	45	42	41

**Recycling:** In 1995, an estimated 370,000 tons of zinc in waste and scrap, including 120,000 tons in old scrap, was recovered in the form of slab zinc, brass, zinc-base alloys, dust, oxide, and other chemicals. Another 40,000 tons of zinc in scrap was exported, whereas 45,000 tons was imported.

**Import Sources (1991-94):** Ore and concentrate: Mexico, 46%; Peru, 32%; Canada, 11%; and other, 11%. Metal: Canada, 63%; Mexico, 11%; Spain, 7%; Peru, 6%; and other, 13%. Combined total: Canada, 61%; Mexico, 13%; Peru, 7%; Spain, 6%; and other, 13%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Most favored nation (MFN)</b>	<b>Canada</b>	<b>Mexico</b>	<b>Non-MFN<sup>3</sup></b>
			<b>12/31/95</b>	<b>12/31/95</b>	<b>12/31/95</b>	<b>12/31/95</b>
	Ore and concentrate	2608.00.0030	1.4¢/kg on lead content	0.5¢/kg on lead content	Free	3.7¢/kg on zinc content.
	Unwrought metal	7901.11.0000	1.5% ad val.	0.4% ad val.	Free	5.0% ad val.
	Alloys, casting-grade	7901.12.1000	15.8% ad val.	5.7% ad val.	15.2% ad val.	45.0% ad val.
	Alloys	7901.20.0000	15.8% ad val.	5.7% ad val.	Free	45.0% ad val.
	Waste and scrap	7902.00.0000	Free	Free	Free	11.0% ad val.
	Hard zinc spelter	2620.11.0000	1.2% ad val.	0.4% ad val.	1.2% ad val.	5.0% ad val.
	Zinc oxide	2817.00.0000	Free	Free	Free	5.5% ad val.

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**Depletion Allowance:** 22% (Domestic), 14% (Foreign).

**Government Stockpile:**

**Stockpile Status—9-30-95**

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 95
Zinc	273	1.9	273	8.2

**Events, Trends, and Issues:** Domestic mine production increased 5% in 1995, primarily because of increased output at the Red Dog Mine in Alaska, the leading producer in the United States. Exports of zinc ore and concentrates also increased slightly, to 400 tons. The United States is expected to remain the world's largest exporter of zinc concentrates and importer of zinc metal for at least the next decade, because of inadequate refinery production capacity. Available primary annual capacity in 1995 was 326,000 tons.

Domestic zinc consumption continued its upward trend of the last 5 years, led by galvanizing and alloy production. The United States is the largest consumer of zinc and zinc products, but domestic metal production capacity accounts for less than one-third of the supply; Canada and Mexico were the leading sources of zinc to the United States. The North American Free Trade Agreement, which went into effect on January 1, 1995, lowered tariffs on zinc and zinc-containing products from Canada and Mexico.

Only 8.2 tons of zinc was sold from the National Defense Stockpile through September. Sales did not begin until April because of a 6-month suspension of sales imposed by Congress in response to industry concerns. The fiscal year 1996 Annual Materials Plan (AMP) authorizes 45,359 tons for disposal. The FY 1996 AMP also includes a provision that suspends sales if the world price falls more than 5% below the price on the date of enactment.

**World Mine Production, Reserves, and Reserve Base:**

	Mine production <sup>4</sup>		Reserves <sup>5</sup>	Reserve base <sup>5</sup>
	1994	1995 <sup>e</sup>		
United States	598	630	16,000	50,000
Australia	995	1,000	17,000	65,000
Canada	984	1,100	21,000	56,000
China	780	850	5,000	9,000
Mexico	382	380	6,000	8,000
Peru	665	700	7,000	12,000
Other countries	<u>2,400</u>	<u>2,410</u>	<u>72,000</u>	<u>130,000</u>
World total (may be rounded)	6,810	7,070	140,000	330,000

**World Resources:** Conventional identified zinc resources of the world are about 1.8 billion tons. Zinc-bearing coals, mostly in the central United States, also have a resource potential of millions of tons of zinc that could be recovered during coal beneficiation.

**Substitutes:** Aluminum, plastics, and magnesium are major competitors as diecasting materials. Aluminum, steel, and plastics substitute for galvanized sheet. Plastic coatings, paint, and cadmium and aluminum alloy coatings replace zinc for corrosion protection; aluminum alloys are used in place of brass. Many elements are substitutes for zinc in chemical, electronic, and pigment uses.

<sup>e</sup>Estimated.

<sup>1</sup>Recovered from both new and old scrap.

<sup>2</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>3</sup>See Appendix B.

<sup>4</sup>Zinc content of concentrate and direct shipping ore.

<sup>5</sup>See Appendix C for definitions.