ZINC

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

<u>Domestic Production and Use</u>: The value of zinc mined in 2000, based on contained zinc recoverable from concentrate, was about \$973 million. It was produced in 6 States by 19 mines operated by 8 mining companies. Alaska, Missouri, New York, and Tennessee accounted for 98% of domestic mine output; Alaska alone accounted for about three-fourths of production. Three primary and 12 large- and medium-sized secondary smelters refined zinc metal of commercial grade in 2000. Of zinc metal consumed, about 75% was used in Illinois, Indiana, Michigan, New York, Ohio, and Pennsylvania, mostly by steel companies. Of the total zinc consumed, about 57% was used in galvanizing, 17% in zinc-base alloys, 13% in brass and bronze, and 13% in other uses. Zinc compounds and dust were used principally by the agriculture, chemical, paint, and rubber industries. Major coproducts of zinc mining and smelting, in order of decreasing tonnage, were lead, sulfur, cadmium, silver, gold, and germanium.

Salient Statistics—United States:	<u>1996</u>	<u> 1997</u>	<u> 1998</u>	<u> 1999</u>	2000 ^e
Production: Mine, zinc in ore ¹	628	632	755	843	860
Primary slab zinc	226	226	234	240	265
Secondary slab zinc	140	140	134	131	135
Imports for consumption:					
Ore and concentrate	15	50	46	75	70
Refined zinc	827	876	879	966	970
Exports: Ore and concentrate	425	461	552	531	535
Refined zinc	2	4	2	2	2
Shipments from Government stockpile	15	32	26	22	40
Consumption: Apparent, refined zinc	1,210	1,260	1,290	1,340	1,400
Apparent, all forms	1,450	1,490	1,580	1,610	1,670
Price, average, cents per pound:					
Domestic producers ²	51.1	64.6	51.4	53.5	56.0
London Metal Exchange, cash	46.5	59.7	46.5	48.8	51.0
Stocks, slab zinc, yearend	76	88	68	84	92
Employment: Mine and mill, number ^e	2,700	2,500	2,400	2,500	2,600
Smelter primary, number ^e	1,000	1,000	1,000	1,000	1,000
Net import reliance ³ as a percent of					
apparent consumption:					
Refined zinc	69	70	71	72	71
All forms of zinc	57	59	58	60	60

Recycling: In 2000, an estimated 410,000 tons of zinc was recovered from waste and scrap; about one-third was recovered in the form of slab zinc and the remainder in alloys, oxide, and chemicals. Of the total amount of scrap recycled, 320,000 tons was derived from new scrap and 90,000 tons was derived from old scrap. About 20,000 tons of scrap was exported, mainly to Taiwan, and 24,000 tons was imported, mainly from Canada.

Import Sources (1996-99): Ore and concentrate: Peru, 52%; Mexico, 24%; Australia, 12%; and other, 12%. Metal: Canada, 57%; Mexico, 10%; Spain 7%; and other, 26%. Combined total: Canada, 55%; Mexico, 10%; Peru, 7%; and other, 28%.

Tariff: Item	Number	Normal Trade Relations⁴ 12/31/00
Ore and concentrate	2608.00.0030	Free.
Unwrought metal	7901.11.0000	1.5% ad val.
Alloys, casting-grade	7901.12.1000	3% ad val.
Alloys	7901.20.0000	3% ad val.
Waste and scrap	7902.00.0000	Free.
Hard zinc spelter	2620.11.0000	Free.
Zinc oxide	2817.00.0000	Free.

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

ZINC

Government Stockpile:

Stockpile Status—9-30-00⁵

	Uncommitted	Committed	Authorized	Disposal plan	Disposals
Material	inventory	inventory	for disposal	FY 2000	FY 2000
Zinc	137	8	137	45	42

Events, Trends, and Issues: The reopening of the Clinch Valley Mine in Tennessee and increased output at the Red Dog Mine in Alaska, which supplies more than one-half of total U.S. output, increased production of zinc concentrate by about 3% in 2000. U.S. mine production greatly exceeded smelter capacity, necessitating exports of concentrate. More than one-third of all concentrate exports, which were supplied entirely by Red Dog, was processed at the Trail smelter in Canada; the remaining two-thirds went mainly to Asian smelters. The United States is the world's largest exporter of zinc concentrates; it is also the largest importer of zinc metal. Most of the increase in zinc metal production was supplied by CalEnergy LLC, which began producing zinc metal from a brine residue in 1999. Additional increases in zinc metal output were the result of improved efficiencies at all three U.S. primary smelters.

Domestic consumption of zinc metal continued to increase in 2000, mainly because of increased use of galvanized steel. The United States is the largest consumer of zinc and zinc products, but domestic metal production capacity, both primary and secondary, accounts for less than one-third of the quantity consumed. Canada and Mexico are the leading sources of zinc for the United States because of their geographical proximity and because all three main forms of zinc trade—concentrate, metal, and scrap—can be imported duty-free from those sources.

World Mine Production, Reserves, and Reserve Base:

	Mine production ⁷		Reserves ⁸	Reserve base ⁸	
	<u>1999</u>	2000°			
United States	843	860	25,000	80,000	
Australia	1,160	1,250	34,000	85,000	
Canada	1,010	900	11,000	31,000	
China	1,370	1,400	33,000	80,000	
Mexico	360	360	6,000	8,000	
Peru	900	900	7,000	12,000	
Other countries	<u>2,400</u>	<u>2,300</u>	72,000	130,000	
World total (may be rounded)	8,040	8,000	190,000	430,000	

World Resources: Identified zinc resources of the world are about 1.9 billion tons.

<u>Substitutes</u>: Aluminum, steel, and plastics substitute for galvanized sheet. Aluminum, plastics, and magnesium are major competitors as diecasting materials. 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.

^eEstimated

¹Zinc recoverable after smelting and refining was reported for mine production in prior Mineral Commodity Summaries.

²Platt's Metals Week price for North American Special High Grade zinc.

³Defined as imports - exports + adjustments for Government and industry stock changes.

⁴No tariff for Canada and Mexico for items shown.

⁵See Appendix B for definitions.

⁶American Metal Market, 1999, Cominco agrees to buy zinc: American Metal Market, v. 107, no. 178, September 15, p. 6.

⁷Zinc content of concentrate and direct shipping ore.

⁸See Appendix C for definitions.