

Mineral Industry Surveys

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ZINC IN FEBRUARY 2002

Estimated domestic mine production in February, at 62,700 metric tons (t), was about 2% lower than in January and about 1% lower than production in February 2001. Smelter production, at 19,800 t, was about 5% more than in January but was about 37% less than a year before. Apparent U.S. consumption, at 67,600 t, was slightly higher than in January, but was about 13% lower than in February 2001.

The Platts Metals Week composite price for North American Special High Grade zinc dropped to 38.23 cents per pound, or by about 3%; compared with February 2001, it declined by more than 24%.

Zinc mine closures and falling stocks have created a tight concentrate market and pushed treatment charges down to between \$140 and \$150 per metric ton, from an average of \$191 in 2001. This shift in treatment charges put financial pressure on smelters that led some to reduce production or even close for extended periods of time, which were used for extensive maintenance of facilities. For example, in addition to the cuts announced by Teck Cominco Ltd. and Outokumpu Oy, Big River Zinc Corp. confirmed a planned closure of its Sauget, IL, smelter for 3 months beginning mid-June. With this latest announcement, market-related cuts now total 100,000 t. But, as often is the case, one producer's restraint in the face of overproduction, can be another producer's opportunity as some companies announced reopening of mines closed since zinc prices began declining.

Canadian base-metal producer Boliden Ltd. is to reopen its Myra Falls zinc mine on Vancouver Island in southern British Columbia. After an agreement was reached with unions, staff, and suppliers, Boliden is in a position to reopen the mine and increase its zinc production. The company is planning to reduce its workforce by 17% and is expecting to reach an operating profit in the third quarter of this year. The mine was closed down in December 2001 in response to historical lows in the metal market. The mine produced about 10,000 t of zinc in concentrate in the fourth quarter of 2001 before it ceased production (Platts Metals Week, 2002b).

Teck Cominco Ltd. disclosed the results of a feasibility study for the San Nicolas copper-zinc deposit in the central Mexican State of Zacatecas. Because zinc will be the primary metal produced during the first years of operation, the company plans to wait for zinc prices to improve before making a final decision. The San Nicolas sulfide deposit is characterized by an upper high-grade zinc zone and a lower copper-rich zone, and is open at depth. A significant amount of copper mineralization exists below the defined mineral reserves and could be accessible from the bottom of the pit when mining is terminated. The study envisages a 15,000-ton-per-day operation producing copper and zinc concentrates. A 3-kilometer-long access road is needed to link the future mine with an existing paved highway, and a 30-km-long power line is required to connect the site to an existing power grid. Capital costs are estimated at \$246 million. The plan is based on mineral reserves totaling 65 million metric tons (Mt) grading 1.32% copper, 2.04% zinc, 32 grams per metric ton (g/t) silver, and 0.5 g/t gold (Northern Miner, 2002b).

Inmet Mining Corp. has signed an agreement with Noranda Inc, both from Canada, whereby either company can initiate the sale of Inmet's 3.3% net proceeds interest in the Antamina zinc-copper mine in Peru now that output is at capacity. The 3.3% interest stems from Inmet's share in Antamina that was sold to Noranda and Rio Algom Ltd. for \$48 million plus future payments equivalent to 3.3% of free cash flow from the project. If Inmet initiates the sale of its shares to Noranda, it will cost \$15 million and increase to \$22.5 million by July 2003. Noranda's call option is for \$25 million in cash until the end of 2003, when both options expire (Northern Miner, 2002a).

The Peruvian privatization commission, COPRI, has awarded the Yauricocha polymetallic mine to Sociedad Minera Corona, the runner-up in a recent auction. The original winner, Cía Minera Casapalca S.A., refused to pay its winning bid for the mine because the terms of the agreement were not met—2002 output from the Yauricocha Mine had already been sold by the

government, a fact not disclosed until 6 days after the sale was finalized. This latest privatization leaves Morocochoa as the only zinc mine still under state ownership (Mining Journal, 2002c).

Outokumpu Oy of Finland has announced that its board of directors approved an improvement program at its idled 200,000-ton-per-year Tara zinc mine in Ireland following a positive feasibility study. A decision to restart, probably in June, will be made in May, depending on the zinc market and other issues. Mine improvement work is to start immediately and is expected to cost up to \$19 million. During the improvement phase, the number of employees will increase to more than 400 from 140 during the care and maintenance phase that began in November 2001. When the mine reopens, the workforce will increase to 670. Outokumpu will continue to seek alternative ownership structures for Tara as part of its decision to exit base metal mining. According to the company, this effort will not impede implementation of the improvement program (Platts Metals Week, 2002d).

Perilya Ltd. of Australia has conditionally agreed to acquire the Broken Hill lead-zinc-silver mine in western New South Wales from the administrators of Pasminco Ltd. for \$46 million. The settlement is expected around mid 2002. According to a preliminary proposal, Perilya would pay Pasminco \$12.8 million at the time of acquisition and two additional payments of \$2.6 million each during the following 6 months. Subsequently, Pasminco would begin receiving \$1.70 for every ton of ore that is treated until these payments total \$12.8 million, which—on the basis of a proposed production of 2.45 million tons per year (Mt/yr)—would take about 3 years. The remaining payment of \$15.2 million would be conditional on zinc prices. Broken Hill produced 179,000 t of zinc and 75,400 t of lead in concentrate during 2001 (Metal Bulletin, 2002).

Kagara Zinc Ltd. of Australia has upgraded its resource estimate for the King Vol zinc deposit, which is part of its Mount Garnet operation in northern Queensland. The estimate includes data from recent drilling and stands at 1.15 Mt grading 18.5% zinc, 1.1% copper, 1% lead, and 48 g/t silver in the indicated and inferred categories. The company plans to increase its exploration budget to \$1 million in 2002, from \$0.3 million in 2001, because the King Vol deposit remains open along strike and depth, and there is a potential to find additional resources (Mining Journal, 2002a). The cost of exploration will be financed from a \$390,000 credit Kagara Zinc received from the Bank of Western Australia. This credit will also give time for the company to obtain financing for the development of the Mount Garnet project, which Kagara Zinc hopes to start by late April 2002 (CRU International Ltd., 2002). Consolidated Broken Hill Ltd., an unsuccessful bidder for the Pasminco's Broken Hill assets, is hoping to work with Perilya toward an integrated development of the Broken Hill area where it owns a mining lease (Mining Journal, 2002b).

According to some experts, China may become a net importer of zinc metal in 2002. This observation is based on

slowing smelter expansions in China, declining mine production, and limited foreign sources for zinc concentrate. China's four major smelters are all importing concentrate due to declining domestic production and a consequent increase in price, which now is as much as imported zinc concentrate. Chinese mine output peaked in 2000, and after a mine accident in mid 2001 that prompted the closure of many small private mines, output in 2002 is anticipated to decline by about 200,000 t. Antaiko, the Chinese information agency, estimates that imports of zinc concentrate may reach 350,000 t in 2002 (Platts Metals Week, 2002c).

Update

The closure of Big River's Sauget refinery will take about 23,000 t of zinc from the market. The company, owned by Korea Zinc Co. Ltd., said it will close the refinery for major repairs and modifications. The renovations will include replacement of old and inefficient fluidized bed roasters that are among the oldest operational roasters in the world and will include installation of labor-saving devices in order to make the facility more competitive when it reopens. Existing roasters were installed at the end of the 1960s and have reached the end of their economic life. Low zinc metal prices and the loss of a domestic source of concentrate for the refinery were factors contributing to the closure. The shortfall in domestic supply of zinc concentrate was caused by closures of Coy, Immel and Young Mines in Tennessee by Grupo Mexico S.A. de C.V. The lost concentrate has been largely replaced with imported Peruvian concentrate, which has the needed low iron content. This is important for the refinery because there are no treatment facilities for the leach residues. Through a combination of inventory and metal purchases from its parent company and other suppliers, Big River is expected to meet its customer commitments (Platts Metals Week, 2002a).

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TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons, unless otherwise specified)

	2001		2002		January- February
	January- December p/	December	January	February	
Production:					
Mine, zinc content of concentrate	798,000	57,600	63,800 r/	62,700	126,000
Mine, recoverable zinc	761,000	55,400	61,300 r/	60,400	122,000
Smelter, refined zinc	299,000	18,400	18,800	19,800	38,700
Oxide (gross weight)	57,800	--	--	--	--
Consumption:					
Refined zinc, reported	453,000 r/	27,300 r/	31,200 r/	31,200	62,400
Ores e/ (zinc content)	228	19	19	19	38
Zinc-base scrap e/ (zinc content)	223,000	18,600	18,600	18,600	37,200
Copper-base scrap e/ (zinc content)	211,000	17,600	17,600	17,600	35,200
Aluminum- and magnesium-base scrap e/ (zinc content)	1,360	113	113	113	226
Total e/	889,000 r/	63,600 r/	67,500 r/	67,600	135,000
Apparent consumption, metal 2/	1,040,000	77,600 r/	91,800	89,000 3/	181,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	XX	7,380	10,800	11,000	XX
Consumer 5/	XX	59,600 r/	60,800 r/	61,600	XX
Merchant	XX	11,400	12,600	11,400	XX
Total	XX	78,300 r/	84,200 r/	84,000	XX
Shipments of zinc metal from Government stockpile	23,500	1,960 e/	1,960 e/	1,960 e/	3,920
Imports for consumption:					
Refined (slab) zinc	813,000	77,000	67,100	NA	67,100 6/
Oxide (gross weight)	72,000	5,260	5,750	NA	5,750 6/
Ore and concentrate (zinc content)	84,000	12,100	10,300	NA	10,300 6/
Exports:					
Refined (slab) zinc	1,180	87	86	NA	86 6/
Oxide (gross weight)	11,300	871	871	NA	871 6/
Ore and concentrate (zinc content)	696,000	31,300	6,920	NA	6,920 6/
Waste and scrap (gross weight)	44,000	3,960	2,440	NA	2,440 6/
Price:					
London Metal Exchange, average, dollars per metric ton	\$885.43	\$754.28	\$792.86	\$770.86	\$781.86
Platts Metals Week North American Special High Grade, average, cents per pound	43.96	37.48	39.23	38.23	38.73

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through January only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
2001:				
February	9,900	31,300	30,200	11,000
March	11,000	30,600	30,200	11,500
April	11,500	32,000	32,800	10,700
May	10,700	28,800	30,500	9,000
June	9,000	22,600	23,000	8,580
July	8,580	18,900	20,100	7,340
August	7,340	19,800	20,600	6,540
September	6,540	24,800	24,500	6,760
October	6,760	19,900	19,900	6,750
November	6,750	20,000	19,500	7,210
December	7,210	18,400	18,200	7,380
Year	XX	299,000	299,000	XX
2002:				
January	7,380	18,800	15,400	10,800
February	10,800	19,800	19,600	11,000
January-February	XX	38,700	35,000	XX

XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Period	Beginning stocks	Production	Shipments	Ending stocks
2001:				
February	3,820	9,800	9,360	4,260
March	4,260	10,300	10,200	4,340
April	4,340	10,200	10,100	4,410
May	4,410	8,870	10,200	3,090
June	3,090	2,440	4,100	1,430
July	1,430	605	1,190	844
August	844	1,360	70	2,140
September	2,140	3,450	174	5,410
October	5,410	1,430	4,600	2,240
November	2,240	--	2,240	--
December	--	--	--	--
Year	XX	57,800	61,200	XX
2002:				
January	--	--	--	--
February	--	--	--	--
January-February	XX	--	--	XX

XX Not applicable. -- Zero.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	2001		2002		
	January-December p/	December	January	February	January-February
Agriculture	1,190	--	--	--	--
Ceramics	2,770	--	--	--	--
Chemicals	13,900	--	--	--	--
Paints	1,970	--	--	--	--
Photocopying	1,830	--	--	--	--
Rubber	38,400	--	--	--	--
Other	1,120	--	--	--	--
Total	61,200	--	--	--	--

p/ Preliminary. -- Zero.

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO
INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	2001		2002		
	January-December p/	December r/	January	February 2/	January-February
Galvanizing:					
Sheet and strip	433,000	33,700	38,500 r/	38,100	76,600
Other	146,000 r/	12,000	14,300 r/	13,700	28,000
Total	579,000 r/	45,700	52,800 r/	51,900	105,000
Brass and bronze	148,000 r/	12,800	14,800 r/	15,100	29,900
Zinc-base alloy	190,000 r/	14,500	18,400 r/	16,500	34,800
Other uses 3/	125,000 r/	4,600	5,800 r/	5,600	11,400
Grand total	1,040,000	77,600	91,800	89,000	181,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Period	North American	LME cash	
	¢/lb.	¢/lb.	\$/t
2001:			
February	50.39	46.29	1,020.51
March	49.52	45.56	1,004.41
April	48.01	43.96	969.08
May	46.34	42.53	937.62
June	44.34	40.58	894.57
July	42.42	38.65	852.06
August	41.31	37.54	827.68
September	39.97	36.21	798.21
October	38.04	34.52	761.14
November	38.39	35.04	772.49
December	37.48	34.21	754.28
Year	43.96	40.16	885.43
2002:			
January	39.23	35.96	792.86
February	38.23	34.97	770.86
January-February	38.73	35.46	781.86

1/ Special High Grade.

Source: Platts Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/ 2/

Material	2001		January 2002 2/	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,180	\$1,290	86	\$77
Ore and concentrate (zinc content)	696,000	285,000	6,920	3,420
Waste and scrap (gross weight)	44,000	22,800	2,440	1,180
Powders, flakes, dust (zinc content)	4,690	7,230	183	365
Oxide (gross weight)	11,300	17,600	871	1,530
Chloride (gross weight)	1,730	1,630	194	194
Sulfate (gross weight)	4,780	2,900	162	94
Compounds, other (gross weight)	227	499	15	34

1/ Data are rounded to no more than three significant digits.

2/ Data for February 2002 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/ 2/

Material	2001		January 2002 2/	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	813,000	\$773,000	67,100	\$55,500
Ore and concentrate (zinc content)	84,000	31,600	10,300	3,260
Waste and scrap (gross weight)	39,300	11,600	2,270	776
Powders, flakes, dust (zinc content)	26,700	45,000	2,780	4,210
Oxide (gross weight)	72,000	66,200	5,750	4,660
Chloride (gross weight)	946	1,020	102	100
Sulfate (gross weight)	16,200	7,330	1,640	808
Compounds, other (gross weight)	1,400	1,360	95	120

1/ Data are rounded to no more than three significant digits.

2/ Data for February 2002 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Period	Beginning inventory	Shipments	Ending inventory
2001:			
February	136,000	2,080	134,000
March	134,000	1,800	132,000
April	132,000	2,020	130,000
May	130,000	1,710	129,000
June	129,000	771	128,000
July	128,000	2,570	125,000
August	125,000	3,340	122,000
September	122,000	1,680	120,000
October	120,000	1,850 e/	118,000
November	118,000	1,960 e/	116,000
December	116,000	1,960 e/	114,000
Year	XX	23,500	XX
2002:			
January	114,000	1,960 e/	112,000
February	112,000	1,960 e/	111,000
January-February	XX	3,920	XX

e/ Estimated. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/ 2/

(Metric tons)

Material and country	General imports		Imports for consumption	
	2001	2002 January	2001	2002 January
Ore and concentrate (zinc content):				
Australia	17,200	10,200	17,200	10,200
Mexico	10,700	92	10,700	92
Peru	54,900	--	54,900	--
Other	1,150	--	1,150	--
Total	84,000	10,300	84,000	10,300
Blocks, pigs, or slab:				
Australia	55,700	2,980	29,700	2,980
Brazil	17,900	--	17,900	--
Canada	442,000	40,000	438,000	40,000
China	31,800	--	7,260	--
Kazakhstan	88,900	6,980	88,900	6,980
Korea, Republic of	30,600	--	10,800	--
Mexico	141,000	12,100	140,000	12,100
Peru	48,800	4,580	47,600	4,580
Russia	14,400	252	14,400	252
Other	31,900	175	18,900	175
Total	903,000	67,100	813,000	67,100
Dross, ashes, fume (zinc content)				
	12,000	974	12,000	974
Grand total	999,000	78,500	909,000	78,500
Oxide (gross weight):				
Canada	47,500	3,650	47,500	3,650
Japan	1,110	54	1,110	54
Mexico	18,900	1,970	18,900	1,970
Netherlands	2,820	--	2,820	--
Other	1,620 r/	77	1,620 r/	77
Total	72,000	5,750	72,000	5,750
Other (gross weight):				
Waste and scrap	39,300	2,270	39,300	2,270
Sheets	7,240	34	7,240	34
Powders, flakes, dust (zinc content)	26,700	2,780	26,700	2,780

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data for February 2002 were not available at time of publication.

Source: U.S. Census Bureau.