

Mineral Industry Surveys

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ZINC IN MARCH 2002

Domestic mine production in March, at 65,900 metric tons (t), was about 5% higher than in February and was about 3% higher than production in March 2001. Smelter production, at 16,900 t, was about 15% lower than the previous month's production and was nearly 45% below production in March 2001. Apparent consumption in March, at 86,300 t, was about 1% lower than consumption in February, but was about 12% higher than consumption in March of last year.

The Platts Metals Week composite price for North American Special High Grade zinc in March declined by more than 5%, to 40.30 cents per pound of zinc metal; the price was nearly 19% lower than it was in March 2001.

Big River Zinc Corp. (a subsidiary of Korea Zinc Co. Ltd.) will start the upgrade of its zinc refinery in Sauget, IL, in mid-June with work continuing through September. The main objective of the 3-month project is to rebuild the fluidized bed roasters and the acid scrubbing section. Related projects include replacement of a small wet ball mill with a larger dry mill, improvement of the leaching circuit, mechanization of cathode stripping, and overhaul of the transformer. Two additional projects include purchases of additional equipment to increase production of powdered zinc and to increase zinc recovery from furnace skimmings. These upgrades will improve reliability and decrease labor and maintenance costs (Platts Metals Week, 2002).

Noranda Inc. of Canada has decided to sell its CEZinc refinery in Valleyfield, Quebec, to a newly created income fund, in which Noranda will retain 49% interest. The remaining 51% interest in the fund, which has been created especially to buy the zinc refinery, will be sold to investors. Noranda is to continue to manage the plant and will enter into a 15-year supply and processing agreement covering 550,000 metric tons per year (t/yr) of zinc concentrates. In 2002, the refinery is expected to produce about 270,000 t of zinc, a small increase from 266,000 t in 2001. A further increase to 280,000 t is planned for 2003. CEZinc is one of the largest zinc processing facilities in the world; Noranda estimates that it supplied about

15% of zinc demand in the United States and about 35% of demand in Canada (Metal Bulletin, 2002).

According to London-based CRU International Ltd., Western smelter capacity will increase by about 3.5% in 2002 as last year's expansions have their first full year of higher production. This increase is in addition to a Chinese smelter capacity increase (25% higher than in 2000) and a planned 37% increase of former East Soviet Bloc capacity between 2001 and 2006. These increases will create a global capacity that will be about 800,000 t/yr more than consumption. It will take until 2006 for this excess capacity to be absorbed even if no new plants or expansions, other than those already committed, are commissioned anywhere. However, mine production will most likely be unable to supply enough concentrate for the smelters to operate fully, holding down production of refined zinc metal and, hopefully for the zinc industry, increase the price of refined zinc. Price induced mine closures in 2001, which removed about 450,000 t of concentrate from the market, could reach capacity losses of 550,000 t by 2005. Any dramatic increase in zinc prices, however, could upset this scenario; already a moderately improved price and favorable treatment charges are causing some miners to reevaluate the status of their idled mines (CRU International Ltd., 2000^{§1}). For example, Boliden Ltd. is to reopen its Myra Falls zinc mine (Vancouver Island, British Columbia) that has been closed since December 2001. The company has decided to reopen the mine following the implementation of a new efficiency plan agreed upon by trade unions, employees, suppliers, and customers. Boliden believes that the plan, which includes a 17% reduction of the workforce and adjustments in salary and contract terms with suppliers and contractors, will allow Myra Falls to produce profitably despite relatively low zinc prices. Although Outokumpu Oy has not yet decided whether to reopen

¹References that include a section twist (§) are found in the Internet Reference Cited section.

its Tara zinc-lead mine in Ireland, it is inching in that direction. In March, the company approved improvements that should assure profitable operation of Tara if Outokumpu decides to reopen the mine. This decision will be made by midyear and will depend not only on the progress of improvements but also on zinc market conditions. The Tara Mine is capable of producing about 200,000 t/yr of zinc in concentrate (Mining Journal, 2002d).

The United Nations Mission in Kosovo (UNMIK) is seeking potential investors for the Trepca lead-zinc-silver mines and processing complex, now under UNMIK administration. Interested parties will have until July to visit the complex and conduct investigations of its assets. UNMIK plans to evaluate offers in August and September and award contracts by the end of 2002. The Trepca complex consists of three clusters of mines and a lead smelter: The Cicavica, Crnac, and Belo Brdo Mines, located near a concentrator at Leposavic in the far north of Kosovo; the Ajvalija, Novo Brdo, and Kisnica-Badovac Mines, which are near the Gračanica concentrator in the west-central part of Kosovo, just southwest of the capital, Pristina; and the Stari Trg Mine, the Prvi Tunel concentrator, zinc refinery, and lead smelter near Mitrovica, in the north-central region. At the northern cluster, resources at the Crnac Mine amount to 1.4 million metric tons (Mt) grading 3.5% zinc, 11.7% lead, and 166 grams per metric ton (g/t) silver. The Belo Brdo Mine is estimated to have an additional 2 Mt of resources grading 7.7% zinc, 8.2% lead, and 112 g/t silver. Resources at Cicavica are not known. Resources at the west-central section comprise 1.2 Mt grading 18.8% zinc, 9.6% lead, and 126 g/t silver at Ajvalija and 2.3 Mt grading 7.5% zinc, 4.9% lead, and 136 g/t silver at Novo Brdo; the Kisnica-Badovac Mines are reportedly flooded. Concentrates from these mines would not necessarily be processed at Trepca's smelting and refining operations because the potential restart of these operations is still under investigation. Restart of the Stari Trg Mine and the Prvi Tunel concentrator is also being evaluated (Mining Journal, 2002c).

The Brazilian industrial conglomerate Votorantim Inc. has acquired a 97% interest in the country's second largest zinc producer, Cia Paraibuna de Metais, from Parapanema SA for \$107 million. Votorantim already is Brazil's largest zinc producer—it owns Companhia Mineira de Metais (CMM)—and the new acquisition will make it the country's sole producer. Consequently, the acquisition may be reviewed by the Brazilian authorities. Paraibuna was first offered to Teck Cominco Ltd. but Teck's first tender was rejected and time for exclusive negotiating rights expired before the second bid was submitted. The sale allows Paraibuna to concentrate on its other interests, mainly in copper and tin. Paraibuna has an annual capacity of 95,000 t/yr of refined zinc and returned to

full production at the end of 2001 after a period of electricity rationing in Brazil forced the company to reduce output to 47,000 t/yr. CMM also reportedly is operating at its full capacity of 160,000 t/yr after finishing a 50,000-t/yr-capacity expansion in 2001. Both operations are based in the State of Minas Gerais, in southern Brazil (Mining Journal, 2002b).

Construction of the Skorpion zinc mine and refinery in southern Namibia is proceeding on schedule and should produce its first high-grade zinc metal ingot in October 2002, according to Anglo Base Metals Ltd. (a subsidiary of Anglo American plc. in the United Kingdom). Although construction costs have been higher than planned thus far due to increased costs of foreign currency-denominated procurements, the project is anticipated to finish under budget. Construction is divided into 95 individual packages and procurement contracts covering key processing facilities, including plants for atmospheric leaching, purification, zinc solvent extraction, and sulfuric acid production (Mining Journal, 2002a).

International Lead and Zinc Research Organization, Inc. (ILZRO) has published a study conducted at the University of Pittsburgh's Eye and Ear Institute indicating that a diet rich in zinc and antioxidants may delay or even prevent vision loss caused by age-related macular degeneration. The 7-year study, which involved nearly 5,000 people at ages 55 to 80, found that those in the intermediate and later stages of the disease lowered their risk of disease progression by 25% when they took high doses of vitamins C & E, beta-carotene, and zinc. Their risk of losing vision to advanced disease dropped by 19% (ILZRO Environmental Update, 2001).

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TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons, unless otherwise specified)

	2001	2002			
	January- December p/	January	February	March	January- March
Production:					
Mine, zinc content of concentrate	798,000	63,800	62,700	65,900	192,000
Mine, recoverable zinc	761,000	61,300	60,400	63,700	185,000
Smelter, refined zinc	299,000	18,800	19,800	16,900	55,600
Oxide (gross weight)	57,800	NA r/	NA r/	NA	NA
Consumption:					
Refined zinc, reported	453,000	31,200	31,300 r/	30,700	93,200
Ores e/ (zinc content)	228	19	19	19	57
Zinc-base scrap e/ (zinc content)	223,000	18,600	18,600	18,600	55,800
Copper-base scrap e/ (zinc content)	211,000	17,600	17,600	17,600	52,800
Aluminum- and magnesium-base scrap e/ (zinc content)	1,360	113	113	113	339
Total e/	889,000	67,500	67,600	67,100	202,000
Apparent consumption, metal 2/	1,040,000	90,000 r/	87,100 r/	86,300 3/	263,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	XX	10,800	11,000	9,900	XX
Consumer 5/	XX	60,900 r/	61,600	62,000	XX
Merchant	XX	12,600	11,400	10,400	XX
Total	XX	84,300 r/	84,000	82,200	XX
Shipments of zinc metal from Government stockpile	17,900 r/	220 r/	-- r/	202	422
Imports for consumption:					
Refined (slab) zinc	813,000	67,100	67,500	NA	135,000 6/
Oxide (gross weight)	72,000	5,750	5,010	NA	10,800 6/
Ore and concentrate (zinc content)	84,000	10,300	9,000	NA	19,300 6/
Exports:					
Refined (slab) zinc	1,180	86	98	NA	183 6/
Oxide (gross weight)	11,300	871	786	NA	1,660 6/
Ore and concentrate (zinc content)	696,000	6,920	19,900	NA	26,800 6/
Waste and scrap (gross weight)	44,000	2,440	4,580	NA	7,020 6/
Price:					
London Metal Exchange, average, dollars per metric ton	\$885.43	\$792.86	\$770.86	\$818.96	\$794.23
Platts Metals Week North American Special High Grade, average, cents per pound	43.96	39.23	38.23	40.30	39.25

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 February only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
2001:				
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
March	11,000	16,900	18,000	9,900
January-March	XX	55,600	53,100	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:				
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	NA r/	NA r/	NA r/	NA r/
February	NA r/	NA r/	NA r/	NA r/
March	NA	NA	NA	NA
January-March	XX	NA	NA	XX

r/ Revised. NA Not available. 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
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	2001	2002			January- March
	January- December p/	January r/	February	March 2/	
Galvanizing:					
Sheet and strip	432,000 r/	37,800	37,400 r/	37,200	112,000
Other	146,000	13,900	13,400 r/	13,400	40,700
Total	578,000 r/	51,700	50,700 r/	50,600	153,000
Brass and bronze	148,000	14,500	14,800 r/	14,600	44,000
Zinc-base alloy	190,000	18,000	16,100 r/	15,600	49,700
Other uses 3/	123,000 r/	5,600	5,600	5,500	16,700
Grand total	1,040,000	90,000	87,100 r/	86,300	263,000

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 5
AVERAGE MONTHLY ZINC PRICES 1/

Period	North American	LME cash	
	¢/lb.	¢/lb.	\$/t
2001:			
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
March	40.30	37.15	818.96
January-March	39.25	36.03	794.23

1/ Special High Grade.

Source: Platts Metals Week.

TABLE 6
U.S. EXPORTS OF ZINC 1/

Material	2002 2/					
	2001		February		Year to date	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,180	\$1,290	98	\$91	183	\$168
Ore and concentrate (zinc content)	696,000	285,000	19,900	5,630	26,800	9,050
Waste and scrap (gross weight)	44,000	22,800	4,580	2,880	7,020	4,060
Powders, flakes, dust (zinc content)	4,690	7,230	449	662	633	1,030
Oxide (gross weight)	11,300	17,600	786	962	1,660	2,490
Chloride (gross weight)	1,730	1,630	183	228	377	422
Sulfate (gross weight)	4,780	2,900	239	151	402	245
Compounds, other (gross weight)	227	499	3	10	18	44

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

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

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	2002 2/					
	2001		February		Year to date	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	813,000	\$773,000	67,500	\$55,600	135,000	\$111,000
Ore and concentrate (zinc content)	84,000	31,600	9,000	3,550	19,300	6,810
Waste and scrap (gross weight)	39,300	11,600	2,620	587	4,900	1,360
Powders, flakes, dust (zinc content)	26,700	45,000	2,590	3,970	5,370	8,180
Oxide (gross weight)	72,000	66,200	5,010	4,040	10,800	8,700
Chloride (gross weight)	946	1,020	--	--	102	100
Sulfate (gross weight)	16,200	7,330	1,140	720	2,780	1,530
Compounds, other (gross weight)	1,400	1,360	100	103	196	222

-- Zero.

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

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

Source: U.S. Census Bureau.

TABLE 8
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Period	Beginning inventory	Shipments	Ending inventory
2001:			
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	-- r/	120,000 r/
November	120,000 r/	-- r/	120,000 r/
December	120,000 r/	100 r/	120,000 r/
Year	XX	17,900 t/	XX
2002:			
January	120,000 r/	220 r/	120,000 r/
February	120,000 r/	-- r/	120,000 r/
March	120,000	202	120,000
January-March	XX	422	XX

r/ Revised. XX Not applicable. -- Zero.

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

Source: Defense Logistics Agency.

TABLE 9
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 2/		2001	2002 2/	
		February	Year to date		February	Year to date
Ore and concentrate (zinc content):						
Australia	17,200	5,760	16,000	17,200	5,760	16,000
Mexico	10,700	3,150	3,250	10,700	3,150	3,250
Peru	54,900	--	--	54,900	--	--
Other	1,150	87	88	1,150	87	88
Total	84,000	9,000	19,300	84,000	9,000	19,300
Blocks, pigs, or slab:						
Argentina	1,270	1,270	1,270	1,270	1,270	1,270
Australia	55,700	--	2,980	29,700	--	2,980
Brazil	17,900	5,940	5,940	17,900	5,940	5,940
Canada	442,000	36,800	76,800	438,000	36,800	76,800
China	31,800	2,940	2,940	7,260	6	6
Kazakhstan	88,900	8,000	15,000	88,900	8,000	15,000
Korea, Republic of	30,600	--	--	10,800	--	--
Mexico	141,000	12,900	25,000	140,000	12,900	25,000
Peru	48,800	2,170	6,750	47,600	2,170	6,750
Russia	14,400	--	252	14,400	--	252
Other	30,600 r/	390	566	17,600 r/	391	567
Total	903,000	70,400	137,000	813,000	67,500	135,000
Dross, ashes, fume (zinc content)						
	12,000	1,260	2,240	12,000	1,260	2,240
Grand total	999,000	80,700	159,000	909,000	77,700	156,000
Oxide (gross weight):						
Canada	47,500	3,180	6,840	47,500	3,180	6,840
Japan	1,110	15	69	1,110	15	69
Mexico	18,900	1,580	3,540	18,900	1,580	3,540
Netherlands	2,820	163	163	2,820	163	163
Other	1,620	69	146	1,620	69	146
Total	72,000	5,010	10,800	72,000	5,010	10,800
Other (gross weight):						
Waste and scrap	39,300	2,620	4,900	39,300	2,620	4,900
Sheets	7,240	70	103	7,240	70	103
Powders, flakes, dust (zinc content)	26,700	2,590	5,370	26,700	2,590	5,370

r/ Revised. -- Zero.

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

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

Source: U.S. Census Bureau.