

Mineral Industry Surveys

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ZINC IN MAY 2004

Domestic mine production in May, at 56,100 metric tons (t), was about 4% lower than in April and more than 17% lower than in May 2003, according to the U.S. Geological Survey. Smelter production, at 28,600 t, was about 3% lower than in April but was nearly 28% higher than a year before. Apparent consumption, at 106,600 t, was about 4% higher than during the previous month, and was about 32% higher than in May 2003.

The Platts Metals Week average monthly composite price for North American Special High Grade zinc was 51.76 cents per pound in May, slightly lower than during the previous month, but nearly 36% higher than in May 2003.

The U.S. mine production in the first 5 months of 2004 was about 10% lower than during the same period in 2003 owing to processing problems at Red Dog Mine (Alaska) and, to a lesser extent, at Pend Oreille Mine (Washington). By the end of the first quarter of 2004, the Red Dog mill output was 20% below that of the third quarter of 2003. Mill output at Pend Oreille reportedly had fallen below 50% of design capacity. Concentrate from both mines is sent to Teck Cominco's Trail Smelter in British Columbia, Canada. Capital expenditures at Pend Oreille totaled \$74 million by the end of 2003. Probable reserves at the mine amount to 5.7 million metric tons (Mt) grading 7.7% zinc and 1.4% lead, and additional inferred resources amounted to 3.3 Mt grading 6.6% zinc and 1.3% lead. At full capacity, annual mill throughput is 730,000 t, yielding about 55,000 metric tons per year (t/yr) of zinc in concentrate and 11,000 t/yr of lead in concentrate with significant germanium byproduct (CRU International Ltd., 2004¹).

Xstrata plc of Switzerland approved the development of the Black Star lead and zinc open pit mine at Mount Isa in northwest Queensland, Australia. The mine is expected to supply 1.5 million metric tons per year of ore to supplement current output from the George Fisher and Mount Isa underground mines, also in Queensland. Development should start as soon as the required Queensland State Government approvals are received, with 6 months of pre-strip mining likely to begin in the second half of 2004. Start of commercial

production is scheduled for 2005 (CRU International Ltd., 2004). Drilling in the Black Star Mine area has defined a mineral resource of 24.2 Mt grading 5.1% zinc, 2.7% lead, and 54 grams per metric ton (g/t) silver. The stripping ratio associated with mining these initial reserves is around 4:1, with a planned pit depth of 200 meters (Metal-Pages, 2004b).

Kazzink AO, which accounts for over 60% of Kazakhstan zinc production, was awarded a tender for the exploration and development of the Dolinnoe and Obrucheyskoe deposits near the town of Ridder in eastern Kazakhstan. The two deposits are adjacent to each other and will be developed as one mine. About 600,000 t/yr of ore is to be mined from both deposits, yielding about 25,600 t of zinc and 1.6 t of gold. Early in 2004, Kazzink purchased the Shaimerden zinc oxide deposit in northern Kazakhstan from ZincOx Resources plc of the United Kingdom (Metal-Pages, 2004a).

Korea Zinc Co. Ltd. expected to produce about 430,000 t of zinc at its Onsan refinery, an increase of 2.4% over 2003 output. Youngpoong Corp. (a subsidiary of Korea Zinc) was in the process of expanding Sukpoo's refinery capacity to 280,000 t/yr from the existing 230,000 t/yr. Korea Zinc also owns the Sun Metals refinery near Townsville, Queensland, Australia, which has a nameplate capacity of 170,000 t/yr. Production at this facility, however, was to remain between 190,000 t/yr and 200,000 t/yr, the same as in 2003. Korea Zinc's third refinery, the 110,000-t/yr capacity plant in Sauget, IL, operated by Big River Zinc Corp. (a subsidiary of Korea Zinc Co. Ltd.), was expected to produce about 94,000 t of zinc in 2004, slightly more than in 2003 (Platts Metals Week, 2004a).

Update

Australian mining company Rio Tinto Ltd. completed the sale of its subsidiary Zinkgruvan Mining AB of Sweden to South Atlantic Ventures Ltd. of British Columbia, Canada, for \$100 million plus \$5.3 million in working capital, on top of the \$1 million deposit already paid in March 2004. Zinkgruvan produced 48,000 t of zinc in concentrate in 2003, down from 65,700 t in 2002 (Platts Metals Week, 2004b). Throughout its long existence, Zinkgruvan has continued to explore the zinc-lead-silver orebody near Akersund on Lake Vattern in northern

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

Sweden. By the end of 2003, proven reserves at this location amounted to 7.9 Mt grading 9.9% zinc, 5.2% lead, and 103 g/t silver (South Atlantic Ventures, Ltd., undated§).

Virginia Gold Mines Inc. and Noranda Inc. have signed an agreement on the Coulon project, located near Fontanges Airport in the James Bay area of Quebec, Canada. The agreement stipulates that Noranda will invest a minimum of \$1 million per year, and Virginia Gold Mines will be the operator of the project up to the completion of a positive pre-feasibility study. Recent exploration returned values of up to 15.4% zinc, 3.1% lead, 0.5% copper, and 117 g/t silver. Virginia Gold Mines is a mining and exploration company headquartered in Quebec with a working capital of over \$17 million and listed on the Toronto Stock Exchange (Virginia Gold Mines Inc., 2004§).

References Cited

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Platts Metals Week, 2004b, Rio Tinto sells Zinkgruvan to S. Atlantic: Platts Metals Week, v. 75, no. 23, June 7, p. 12.

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Metal-pages, 2004a (June 18), New mines to up Kazakh Zn production, accessed July 8, 2004, at URL <http://www.metal-pages.com>.
Metal-pages, 2004b (June 23), Xstrata approves Black Star zinc/lead project, accessed July 2, 2004, at URL <http://www.metal-pages.com>.
South Atlantic Ventures, Ltd., [undated], Welcome, accessed July 22, 2004, at URL <http://www.sa-ventures.com>.
Virginia Gold Mines Inc., 2004 (June 23), Coulon project signing of an \$8.25 million agreement, accessed June 23, 2004, at URL <http://www.virginia.qc.ca>.

TABLE 1
SALIENT ZINC STATISTICS¹

(Metric tons, unless otherwise specified)

	2003	2004			
	January- December	March	April	May	January- May
Production:					
Mine, zinc content of concentrate	768,000	57,900	58,500	56,100	288,000
Mine, recoverable zinc	738,000	55,600	60,100 ^r	53,900	281,000
Smelter, refined zinc	272,000	28,900	29,600	28,600	141,000 ^e
Consumption:					
Refined zinc, reported	423,000	36,600	36,700	35,900	180,000
Ores ^e (zinc content)	727	61	61	61	303
Zinc-base scrap ^e (zinc content)	191,000	15,900	15,900	15,900	79,400
Copper-base scrap ^e (zinc content)	176,000	14,700	14,700	14,700	73,400
Aluminum-and magnesium-base scrap ^e (zinc content)	1,430	120	120	120	598
Total ^e	791,000	67,300	67,400	66,600	334,000
Apparent consumption, metal ²	1,050,000	90,500	102,000	106,000 ³	497,000 ³
Stocks of refined (slab) zinc, end of period:					
Producer ⁴	XX	5,960	7,300	7,660	XX
Consumer ⁵	XX	54,800	55,700	54,500	XX
Merchant	XX	9,890	9,910	10,400	XX
Total	XX	70,700	72,900	72,600	XX
Shipments of zinc metal from Government stockpile	13,600	3,220	3,680	16,200	26,500
Imports for consumption:					
Refined (slab) zinc	758,000	71,100	61,200	NA	262,000 ⁶
Oxide (gross weight)	98,300	9,870	9,640	NA	36,600 ⁶
Ore and concentrate (zinc content)	164,000	52,900	2,740	NA	95,300 ⁶
Exports:					
Refined (slab) zinc	1,680	261	197	NA	788 ⁶
Oxide (gross weight)	12,100	1,700	1,020	NA	4,610 ⁶
Ore and concentrate (zinc content)	841,000	8,970	10,400	NA	36,000 ⁶
Waste and scrap (gross weight)	50,200	6,110	4,160	NA	19,700 ⁶
Price:					
London Metal Exchange, average, dollars per metric ton	\$827.32	\$1,105.37	\$1,032.28	\$1,027.93	\$1,053.89
Platts Metals Week North American Special High Grade, average, cents per pound	40.63	55.25	52.09	51.76	52.57

^eEstimated. ^rRevised. NA Not available. XX Not applicable. -- Zero.

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

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

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

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

⁵Includes an estimate for companies that report annually.

⁶Includes data through April only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES¹

(Metric tons)

Month	Beginning stocks ²	Production	Shipments	Ending stocks ²
2003:				
May	8,340	22,400	23,500	7,300
June	7,300	24,200	23,700	7,770
July	7,770	22,100	21,500	8,360
August	8,360	23,500	23,600	8,230
September	8,230	21,600	22,100	7,790
October	7,790	21,800	21,300	8,300
November	8,300	23,500	23,800	8,010
December	8,010	20,200	20,500	7,660
Year	XX	272,000	273,000	XX
2004:				
January	7,660	26,900	28,100	6,440
February	6,440	26,900	28,100	5,230
March	5,230	28,900	28,200	5,960
April	5,960 ^e	29,600	28,300	7,300
May	7,300 ^e	28,600	28,300	7,660
January-May	XX	141,000	141,000	XX

^eEstimated. XX Not applicable.

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

²Includes stocks held at locations other than smelters.

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

TABLE 3
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO
INDUSTRY USE AND PRODUCT¹

(Metric tons)

Industry and product	2003	2004			January- May ²
	January- December	March	April	May ²	
Galvanizing:					
Sheet and strip	442,000	37,000	41,200	43,300	203,000
Other	146,000	12,400	14,900	15,900	71,900
Total	588,000	49,500	56,100	59,200	275,000
Brass and bronze	167,000	15,500	17,300	17,400	82,600
Zinc-base alloy	222,000	18,800	21,100	22,000	103,000
Other uses ³	70,700	6,800	7,300	7,600	36,200
Grand total	1,050,000	90,500	102,000	106,000	497,000

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

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

³Includes 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 4
AVERAGE MONTHLY ZINC PRICES¹

Period	North	LME cash	
	American ¢/lb.	¢/lb.	\$/t
2003:			
May	38.18	35.17	775.33
June	38.87	35.85	790.31
July	40.54	37.52	827.19
August	40.10	37.08	817.48
September	40.07	37.10	817.81
October	43.70	40.71	897.54
November	44.80	41.47	914.16
December	47.85	44.33	977.35
Year	40.63	37.53	827.32
2004:			
January	49.93	46.11	1,016.62
February	53.84	49.32	1,087.26
March	55.25	50.14	1,105.37
April	52.09	46.82	1,032.28
May	51.76	46.63	1,027.93
January-May	52.57	47.80	1,053.89

¹Special High Grade.

Source: Platts Metals Week.

TABLE 5
U.S. EXPORTS OF ZINC¹

Material	2003		2004 ²			
	Quantity (metric tons)	Value (thousands)	April		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,680	\$1,760	197	\$224	788	\$908
Ore and concentrate (zinc content)	841,000	337,000	10,400	5,010	36,000	13,600
Waste and scrap (gross weight)	50,200	32,600	4,160	3,820	19,700	17,400
Powders, flakes, dust (zinc content)	6,550	9,090	607	1,060	2,600	4,640
Oxide (gross weight)	12,100	15,200	1,020	1,490	4,610	6,620
Chloride (gross weight)	1,470	1,650	261	340	771	937
Sulfate (gross weight)	2,310	1,440	291	168	1,380	778
Compounds, other (gross weight)	183	472	3	16	43	137

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

²Data for May 2004 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF ZINC¹

Material	2003		2004 ²			
	Quantity (metric tons)	Value (thousands)	April		Year to date	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	758,000	\$647,000	61,200	\$67,600	262,000	\$284,000
Ore and concentrate (zinc content)	164,000	60,000	2,740	1,440	95,300	29,500
Waste and scrap (gross weight)	10,300	5,740	806	563	3,930	2,690
Powders, flakes, dust (zinc content)	27,400	41,200	2,130	3,520	8,190	13,300
Oxide (gross weight)	98,300	72,200	9,640	8,200	36,600	29,300
Chloride (gross weight)	663	914	79	62	234	269
Sulfate (gross weight)	25,800	11,700	2,390	1,170	9,760	4,590
Compounds, other (gross weight)	1,010	951	221	134	612	578

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

²Data for May 2004 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 7
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE¹

(Metric tons)

Period	Beginning inventory	Shipments	Ending inventory
2003:			
May	108,000	997	107,000
June	107,000	--	107,000
July	107,000	3,530	104,000
August	104,000	712	103,000
September	103,000	841	102,000
October	102,000	--	102,000
November	102,000	539	102,000
December	102,000	6,270	95,200
Year	XX	13,600	XX
2004:			
January	95,200	3,340	91,900
February	91,900	--	91,900
March	91,900	3,220	89,000
April	89,000	3,680	85,600
May	85,600	16,200	70,900
January-May	XX	26,500	XX

XX Not applicable. -- Zero.

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

Source: Defense Logistics Agency.

TABLE 8
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY¹

(Metric tons)

Material and country	General imports			Imports for consumption		
	2003	2004		2003	2004	
		April	Year to date		April	Year to date
Ore and concentrate (zinc content):						
Australia	43,400	--	19,300	43,400	--	19,300
Ireland	36,500	--	3,730	36,500	--	3,730
Mexico	9,400	--	2,890	9,400	--	2,890
Peru	74,600	2,740	68,900	74,600	2,740	68,900
Other	--	--	501	--	--	501
Total	164,000	2,740	95,300	164,000	2,740	95,300
Blocks, pigs, or slab:						
Australia	22,000	--	7,940	14,400	1,990	21,500
Brazil	27,600	3,130	8,000	22,400	3,150	8,030
Canada	498,000	40,600	163,000	498,000	40,600	163,000
China	23,800	--	--	48	1,070	3,330
Japan	50	--	--	--	--	196
Kazakhstan	19,700	--	2,310	19,700	--	2,310
Korea, Republic of	34,000	--	7,730	1,340	2,310	12,200
Mexico	141,000	6,950	40,300	141,000	6,950	40,300
Peru	43,400	--	2,830	42,900	--	4,870
Poland	1,600	--	--	1,600	--	--
Other	17,100	5,340	7,000	16,200	5,140	6,800
Total	829,000	56,000	239,000	758,000	61,200	262,000
Dross, ashes, fume (zinc content)	14,100	1,160	5,130	14,100	1,160	5,130
Grand total	1,010,000	59,900	339,000	936,000	65,100	362,000
Oxide (gross weight):						
Canada	47,300	3,770	15,500	47,300	3,770	15,500
China	575	5	87	575	5	87
Italy	770	1,060	3,620	770	1,060	3,620
Japan	965	96	350	965	96	350
Mexico	40,500	4,210	15,300	40,500	4,210	15,300
Netherlands	4,820	362	1,400	4,820	362	1,400
Other	3,420	142	397	3,420	142	397
Total	98,300	9,640	36,600	98,300	9,640	36,600
Other (gross weight):						
Waste and scrap	10,300	806	3,930	10,300	806	3,930
Sheets	1,790	397	687	1,790	397	687
Powders, flakes, dust (zinc content)	27,500	2,130	8,190	27,400	2,130	8,190

-- Zero.

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

²Data for May 2004 were not available at time of publication.

Source: U.S. Census Bureau.