

# Mineral Industry Surveys

## For information, contact:

Peter N. Gabby, Lead Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4957, Fax: (703) 648-7757  
E-mail: [pgabby@usgs.gov](mailto:pgabby@usgs.gov)

Joshua I. Martinez (Data)  
Telephone: (703) 648-7961  
E-mail: [jimartinez@usgs.gov](mailto:jimartinez@usgs.gov)  
Fax: (703) 648-7975

**Internet:** <http://minerals.usgs.gov/minerals>

## LEAD IN MAY 2004

Domestic mine production, based on the net quantity of lead recovered from concentrate, was 31,200 metric tons (t) in May according to the U.S. Geological Survey. This was a decrease of 11% from that of April. Mine production for the first 5 months of 2004 was 170,000 t, down by 10% compared with that of the same period in 2003. Secondary refinery production, 96,100 t, decreased by 2% in May, and reported consumption, 114,000 t, dropped by 1% compared with that of the previous month. Secondary production and reported consumption were both up for the first 5 months of 2004 compared with that of the same period in 2003, 2% and 3%, respectively.

According to the Platts Metals Week published quotations for May, the average North American producer price increased to 53.68 cents per pound, a 0.3% increase, while the average London Metal Exchange Ltd. (LME) cash price (U.S. dollars) increased to \$808.45 per metric ton, a 7% advance compared with these prices in April. These are significantly higher prices when compared with May 2003 averages, up 23% and 57%, respectively. The LME May prices ranged from a low of \$735 per ton (May 10) to a high of \$925 per ton (May 27).

The slow decline in LME stocks continued, falling below 60,000 t by the end of May.

In the United States, the lead market continued to be tight in May, with many lead producers commenting that this was the busiest second quarter for many years. According to the Battery Council International statistics, North American shipments of starting-lighting-ignition (SLI) original equipment vehicle batteries were up 7.4% year-on-year for the first quarter of 2004 (January-March). The first quarter 2004 shipments of SLI replacement batteries were also up, 7.1%, but the moving 12-month average was down 0.9% year-on-year, suggesting a longer term trend for replacement battery demand is still downwards (CRU International Ltd., 2004a).

European demand for lead remained weak in May. Many in the lead industry had predicted European 2004 demand would rise by up to 5%, but one major smelter estimated business had actually dropped by as much as 10% in some sectors. On the supply side, technical, financial, and labor problems were believed to be the cause of the shutdown at Société des

Fonderies de Plomb de Zellidja's lead smelter in Morocco for most of May (CRU International Ltd., 2004a).

The Asian lead market remained firm. China exported 158,000 t of refined lead in the first 4 months (January-April) of the year, up 9% year-on-year. While some lead was being offered in response to rising prices, most of these exports (including those of May) were to fulfill contract commitments with mainly Asian consumers. China's refined lead surplus was still predicted to be over 400,000 t for the year (CRU International Ltd., 2004a). Chinese primary lead production for 2003 was estimated to be 1,240,000 t, more than 40% of world production. Chinese mine production for 2003 was estimated to be 820,000 t of lead in concentrates. Chinese primary lead smelting capacity for 2004 was estimated to be more than 2,000,000 tons per year (more than double that of 1999), and CRU forecasts that by 2007 Chinese primary output will exceed that of the entire Western world. With this kind of under-utilized capacity, Chinese smelters continue to dominate the spot market for lead concentrates, with treatment charges remaining at about \$50 per ton. When there is an interruption in the normal flow of concentrates to smelters, the displaced concentrates usually are diverted to China. In the recent past, lead concentrates from Doe Run Company's Missouri operations, from Peru, and from Morocco have been exported to China (CRU International Ltd., 2004b).

Doe Run's La Oroya (Peru) smelter refined lead production slipped by 6.1% in 2003 to 112,000 t, compared with that of 2002. The smelter planned to produce at least 120,000 t of lead in 2004, which meant competing with China for concentrates. The smelter appeared to be on schedule with 30,000 t produced in the first quarter of 2004 (CRU International Ltd., 2004b).

Exide Technologies, one of the world's largest producers and recyclers of lead-acid batteries (operations in 89 countries) completed reorganization on May 6, and its new common stock began trading on the NASDAQ under the symbol XIDE (Platts Metals Week, 2004).

The vice president of Doe Run gave a presentation at the Battery Council International, 116th Convention (May 2-5, Indian Wells, CA) reviewing recent trends and the 5-year

outlook for lead-acid vehicle batteries. The following is a summary of the presentation: World motor vehicle production has gone from under 49 million vehicles in 1990 to more than 60 million vehicles in 2003. Europe and North America have experienced modest growth (1%), while Japan's production has declined. South Korea, Mexico, and Brazil have doubled their vehicle production since 1990. Chinese vehicle production, less than one million in 1996, was over three million in 2003 (a nearly 20% annual growth rate). China's fast rate of growth is predicted to continue for the rest of the decade, with vehicles destined for both export (mainly Asian) and to meet internal demand. Original equipment battery shipments in North America are predicted to increase at only a 1% annual rate through 2008. Replacement battery shipments in the United States grew dramatically from 1980 to 1994, then leveled off. This was the result of two factors—longer-lasting batteries and the importation of Mexican batteries into the United States (over 12 million by 2003). SLI batteries are also being imported from China, South Korea, and Brazil at significantly higher rates recently—2 million from China, 1.7 million from South Korea, and over 0.5 million from Brazil in 2003. The amount of lead in imported SLI batteries is well over 165,000 t annually and growing. These imports will eventually be recycled in North America, and the lead will be sold into a market with stagnant or declining demand. This in turn will likely result in less need for North American primary lead production (Amistadi, 2004).

The National Defense Stockpile (NDS) aggregated cash disposal (sale) of lead in May under the monthly Basic Ordering Agreement, DLA-Lead-005, was 3,850 t (4,243 short tons) for an approximate value of \$3,200,000. Sales of lead in the first 8

months of fiscal year 2004 (October 2003 through May 2004) totaled 35,266 t (38,873 short tons) (Defense National Stockpile Center, 2004).

### **Update**

At the end of June, LME stocks had dropped to 45,125 t. According to Ryan's Notes, LME lead prices in June ranged from a high on June 2 of \$925 per ton to a low on June 9 of \$811 per ton and ending the month at \$868 per ton. The strike at Nova Pb Incorporated's secondary plant in Quebec ended, and workers returned to work June 21 (Ryan's Notes, 2004a). Glencore's Porto Vesme smelter in Italy planned a slow-paced startup in July (Ryan's Notes, 2004b).

### **References Cited**

- Amistadi, R.L., 2004, 2003 Battery shipment review & five-year forecast report: Paper presented at Battery Council International, 116th Convention, Indian Wells, CA, May 2-5, 2004.
- CRU International Ltd., 2004a, Market commentary: CRU Monitor—Lead, June, 12 p.
- CRU International Ltd., 2004b, Market commentary: CRU Monitor—Lead & Zinc Concentrates, June, 12 p.
- Defense National Stockpile Center, 2004, Stockpile announces lead sales for May 2004: Fort Belvoir, VA, U. S. Defense National Stockpile Center news release, June 4, 1 p.
- Platts Metals Week, 2004, Exide exits Chap 11, to trade on NASDAQ: Platts Metals Week, v. 75, no. 19, May 10, p. 12.
- Ryan's Notes, 2004a, Strike at Nova Pb ends: Ryan's Notes, v. 10, no. 26, June 21, p. 4.
- Ryan's Notes, 2004b, Glencore's Porto Vesme: Ryan's Notes, v. 10, no. 26, June 28, p. 6.

TABLE 1  
SALIENT LEAD STATISTICS IN THE UNITED STATES<sup>1</sup>

(Metric tons, lead content, unless otherwise specified)

	2003		2004		
	Year <sup>p</sup>	January - May	April	May	January - May
Production:					
Mine (recoverable)	449,000	188,000	35,100 <sup>r</sup>	31,200	170,000
Primary refinery	245,000	NA	NA	NA	NA
Secondary refinery:					
Reported by smelters/refineries	1,140,000	461,000 <sup>r</sup>	95,700 <sup>r</sup>	93,900	469,000
Estimated	--	4,650 <sup>r</sup>	967 <sup>r</sup>	948	4,740
Recovered from copper-base scrap <sup>c</sup>	11,400	6,250	1,250	1,250	6,250
Total secondary	1,150,000	472,000 <sup>r</sup>	97,900 <sup>r</sup>	96,100	480,000
Stocks, end of period:					
Primary refineries	NA	NA	NA	NA	NA
Secondary smelters and consumers	107,000	85,000 <sup>r</sup>	65,800 <sup>r</sup>	68,300	68,300
Imports for consumption:					
Ore and concentrates	-- <sup>r</sup>	--	--	NA	1 <sup>2</sup>
Refined metal	175,000	89,300	15,400	NA	56,500 <sup>2</sup>
Consumption:					
Reported	1,390,000	559,000 <sup>r</sup>	115,000	114,000	575,000
Undistributed <sup>c</sup>	--	17,300 <sup>r</sup>	3,560	3,540	17,800
Total	1,390,000	577,000 <sup>r</sup>	119,000	118,000	593,000
Exports:					
Ore and concentrates	253,000	60,900	7,020	NA	64,300 <sup>2</sup>
Bullion	593	369	--	NA	24 <sup>2</sup>
Wrought and unwrought lead	123,000	33,900	4,030	NA	36,100 <sup>2</sup>
TEL/TML preparations, based on lead compounds	517	353	11	NA	170 <sup>2</sup>
Exports (gross weight): Scrap	92,800	41,900	5,120	NA	22,700 <sup>2</sup>
Platts Metals Week North American producer price (cents per pound)					
	43.76	43.57	53.51	53.68	51.08

<sup>c</sup>Estimated. <sup>p</sup>Preliminary <sup>r</sup>Revised. NA Not available. -- Zero.

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

<sup>2</sup>Includes data for January - April only; May data were not available at time of publication.

TABLE 2  
MONTHLY AVERAGE LEAD PRICES

	North American producer price cents/lb	LME		Sterling exchange rate \$/£
		\$/metric ton	£/metric ton	
2003:				
May	43.60	463.10	285.45	1.622352
December	44.30	691.69	394.89	1.751605
Year	43.76	514.62	313.88	1.634750
2004:				
March	51.94	885.98	485.18	1.826100
April	53.51	753.21	418.05	1.801710
May	53.68	808.45	452.66	1.785995

Source: Platts Metals Week.

TABLE 3  
CONSUMPTION OF PURCHASED LEAD-BASE SCRAP<sup>1</sup>

(Metric tons, gross weight)

Item	Stocks	Net	Consumption	Stocks
	April 30, 2004			receipts
Battery-lead	13,200 <sup>r</sup>	99,300	98,000	14,500
Soft lead	W	W	W	W
Drosses and residues	1,920 <sup>r</sup>	1,800	1,830	1,890
Other <sup>2</sup>	1,500	1,890	2,050	1,340
Total	16,700 <sup>r</sup>	103,000	102,000	17,800
Percent change from preceding month	XX	-2.0	-3.3	+6.7

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Other." XX Not applicable.

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

<sup>2</sup>Includes solder, common babbitt, antimonial lead, cable covering, type metals, and other lead-base scrap not elsewhere classified.

TABLE 4  
LEAD, TIN, AND ANTIMONY RECOVERED FROM  
LEAD-BASE SCRAP IN MAY 2004<sup>1</sup>

(Metric tons)

Product recovered	Secondary metal content		
	Lead	Tin	Antimony
Soft and calcium lead	68,900	--	--
Remelt lead	W	W	W
Antimonial lead	24,500	W	W
Other <sup>2</sup>	W	W	--
Total lead-base	93,900	41	354

W Withheld to avoid disclosing company proprietary data; included in "Total."

-- Zero.

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

<sup>2</sup>Includes cable lead, lead-base babbitt, solder, type metals, and other products.

TABLE 5  
CONSUMPTION OF LEAD IN THE UNITED STATES<sup>1</sup>

(Metric tons, lead content)

Uses	2003		2004		
	Year <sup>p</sup>	January - May <sup>r</sup>	April	May	January - May
Metal products:					
Ammunition, shot and bullets	48,800	21,700	4,780	4,120	23,000
Brass and bronze, billet and ingots	2,810	1,310	317	251	1,600
Cable covering, power and communication and calking lead, building construction	4,790	2,510	322 <sup>r</sup>	395	1,880
Casting metals	31,700	13,900	2,780	2,780	13,900
Sheet lead, pipes, traps and other extruded products	25,900	9,970	1,930	1,880	9,050
Solder	6,310	661	105	171	1,210
Storage batteries, including oxides	1,170,000	468,000	97,600	97,400	488,000
Terne metal, type metal, and other metal products <sup>2</sup>	23,200	6,340	1,270	1,270	6,350
Total metal products	1,310,000	524,000	109,000	108,000	545,000
Other oxides and miscellaneous uses	78,300	35,000	6,120	6,110	30,100
Total reported	1,390,000	559,000	115,000	114,000	575,000
Undistributed consumption <sup>c</sup>	--	17,300	3,560	3,540	17,800
Grand total	1,390,000	577,000	119,000	118,000	593,000

<sup>c</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>Includes lead consumed in foil, collapsible tubes, annealing, plating, galvanizing, and fishing weights.

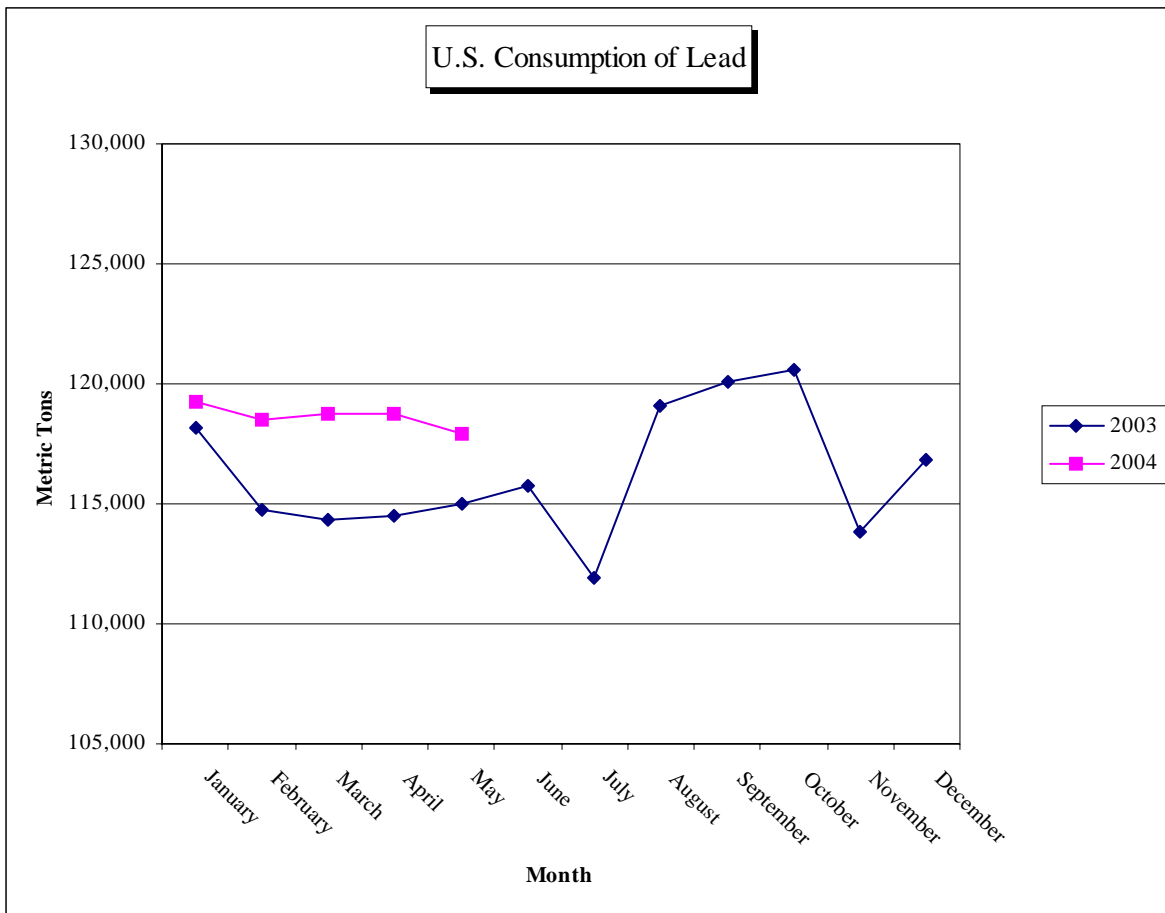


TABLE 6  
CONSUMER AND SECONDARY SMELTER STOCKS, RECEIPTS,  
AND CONSUMPTION OF LEAD<sup>1</sup>

(Metric tons, lead content)

Type of material	Stocks		Consumption	Stocks
	April 30, 2004	Net receipts		May 31, 2004
Soft lead	34,600 <sup>r</sup>	64,800	63,100	36,200
Antimonial lead	16,300 <sup>r</sup>	32,500	31,700	17,100
Lead alloys	W	19,400	19,400	W
Copper-base scrap	W	58	50	W
Total	65,800 <sup>r</sup>	117,000	114,000	68,300

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

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

TABLE 7  
U.S. EXPORTS OF LEAD, BY CLASS<sup>1</sup>

(Metric tons)

	2003		2004		
	Year	April	March	April	January -
					April
Lead content:					
Ore and concentrates	253,000	21,200	40,900	7,020	64,300
Bullion	593	12	16	--	24
Materials excluding scrap	123,000	7,970	7,650	4,030	36,100
TEL/TML preparations, based on lead compounds	517	60	99	11	170
Total	377,000	29,200	48,700	11,100	101,000
Gross weight: Scrap	92,800	9,750	7,410	5,120	22,700

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 8  
U.S. IMPORTS OF LEAD BY TYPE OF MATERIALS AND BY COUNTRY OF ORIGIN<sup>1</sup>

(Metric tons, lead content)

Country of origin	General imports					Imports for consumption				
	2003		2004			2003		2004		
	Year	January - April	March	April	January - April	Year	January - April	March	April	January - April
<b>Base bullion:</b>										
Argentina	5	--	--	--	--	5	--	--	--	--
Mexico	--	--	1	--	1	--	--	1	--	1
Germany	1	--	--	--	--	1	--	--	--	--
Total	6	--	1	--	1	6	--	1	--	1
<b>Pigs and bars:</b>										
Australia	10,100	10,100	--	--	--	107	--	--	1,890	1,890
Canada	167,000	56,700	12,300	11,900	49,000	167,000	56,700	12,300	11,900	49,000
China	1	--	--	--	2	1	--	--	--	2
Germany	--	--	43	42	129	--	--	43	42	129
Mexico	8,270	5,060	1,160	1,410	4,900	8,270	5,060	1,160	1,410	4,900
Other	259	41	56	71	516	259	41	56	197	642
Total	186,000	72,000	13,600	13,400	54,500	175,000	61,900	13,600	15,400	56,500
Grand total	186,000	72,000	13,600	13,400	54,500	175,000	61,900	13,600	15,400	56,500

-- Zero.

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

Source: U.S. Census Bureau.