

# Lead

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Canada is an important world producer and supplier of refined lead, ranking eighth in 2004 after China, the United States, Germany, Japan, Australia, the United Kingdom, and Mexico. In Canada, primary lead is produced mainly as a co-product of zinc mining. Recycling of lead, mainly from scrapped car batteries, is an important source of refined lead in Canada, representing nearly 50% of the total refined production.

## HISTORY

Lead has been known since ancient times and is one of several metals that were discovered during the early periods of human history. Some experts believe that lead was used as early as 5000 B.C. The oldest archaeological evidence of lead use by humans is a figurine found in the Dardanelles area of Asia Minor dating from 3800 B.C.

Lead was used in coinage in China about 2000 B.C. and it was mined by the Greeks from about 1200 B.C. to make coins, ornaments, weights and many other articles. One of lead's most enduring uses has been as pipe for the transportation of water. Romans manufactured lead pipes in one standard length and in several diameters, and used it extensively in municipal water systems. The Latin word for lead is *plumbum*, which led to the modern English words "plumber" and "plumbing" and to the chemical symbol for lead, Pb.

## LEAD IN CANADA

An outcrop of lead-zinc ore was discovered in the Kootenay region of British Columbia in the 1820s. Active prospecting in the area dates from 1865 and mining commenced shortly thereafter. In the early years, the ores from British Columbia were sent to the United States for smelting and refining.

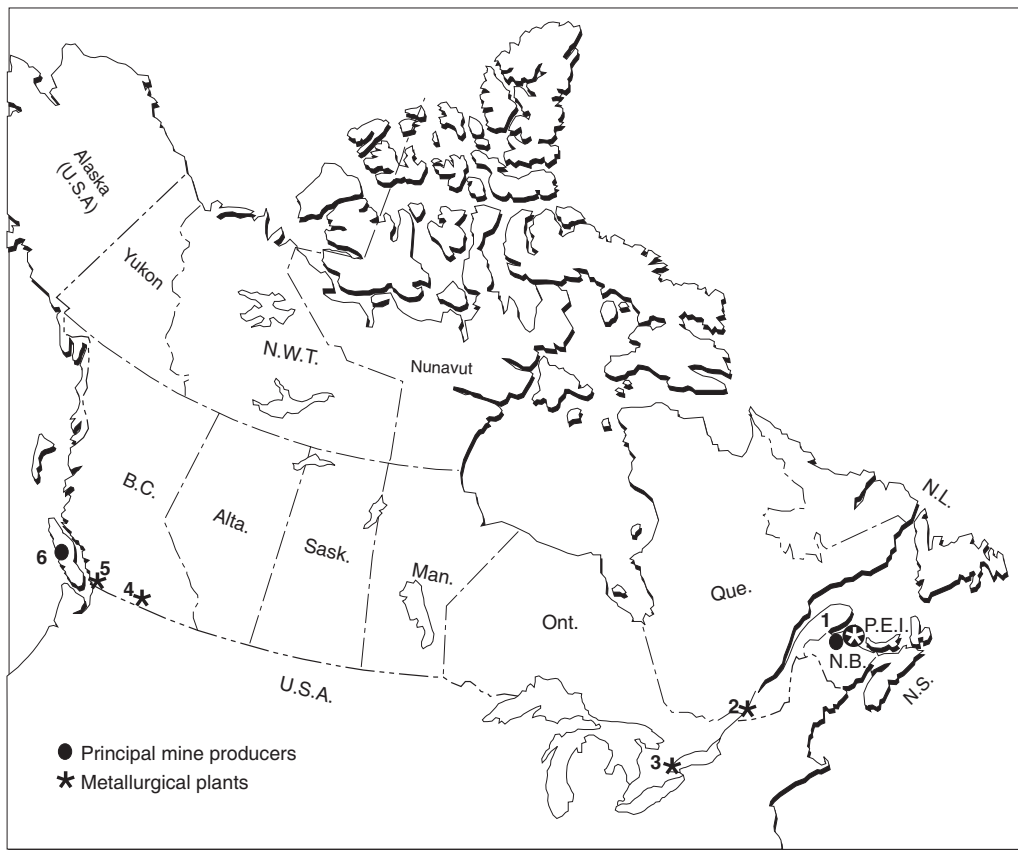
The now-famous Sullivan mine started operation near Kimberly, British Columbia, in the early 1900s and continued to produce lead until its closure in December 2001. By 1914, the Sullivan mine was the largest lead producer in Canada, a position it held for 50 years until the Pine Point mine in the Northwest Territories completed its first year of operation in 1966. Pine Point closed in 1988. The Kingdon mine at Galetta, on the Ottawa River near Arnprior, Ontario, was discovered in 1884, operated briefly in the 1880s, and was reactivated in 1914, producing lead and zinc ore until the early 1930s. The discovery of lead and zinc ores by the Geological Survey of Canada on Baffin Island in the mid-1950s led to the development of the Nanisivik mine in the mid-1970s. The mine closed in September 2002. The discovery of lead-zinc on Little Cornwallis Island in 1971 led to the development of the Polaris mine. Operated by Teck Cominco Limited, the mine had the distinction of being the most northerly base-metal mine until its closure at the end of August 2002 after 20 years of operation.

Today Noranda Inc.'s operation at the Brunswick mine near Bathurst, New Brunswick, is the largest producer of lead. Lead has been mined in every province and territory with the exception of Alberta, Saskatchewan and Prince Edward Island. Operations in 2004 are shown in Figure 1.

## USES

The largest single use of lead today is in the manufacture of the lead-acid storage battery, a vital part of every automobile. The average car battery contains about 10 kg of lead. Lead-acid batteries for automotive, industrial and consumer purposes account for over 70% of the world's demand for lead. In the communications industry, lead is still used extensively as protective sheathing for underground and underwater cables, including transoceanic cable systems. Certain lead compounds are used as paint pigments. Red lead (lead oxide) is the basic paint primer for iron and steel. Lead's corrosion-resistant nature also makes it suitable for applications in sheeting for roofing purposes, while its radiation attenuation properties prevent the emission of harmful radiation from television, video and computer screens.

**Figure 1**  
**Lead Producers in Canada, 2004**



Numbers refer to locations on map above.

**LEAD-PRODUCING MINES**

1. Brunswick, Noranda Inc.
6. Myra Falls, Breakwater Resources Ltd.

**WEB SITE**

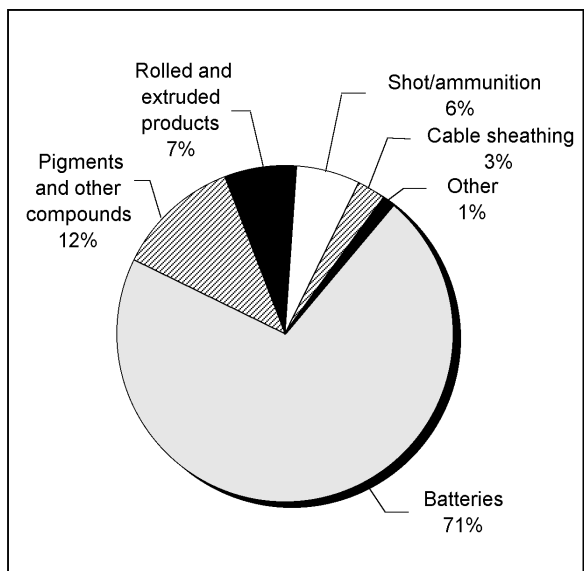
- [www.noranda.com](http://www.noranda.com)  
[www.breakwater.ca](http://www.breakwater.ca)

**LEAD METALLURGICAL PLANTS**

1. Belledune, Noranda Inc.
2. Nova Pb Inc.  
General Smelting Company of Canada
3. Tonolli, Tonolli Canada Ltd.
4. Trail, Teck Cominco Limited
5. Metalex Products Ltd.

- [www.noranda.com](http://www.noranda.com)  
[www.novapb.com](http://www.novapb.com)  
[www.generalsmeltingofcanada.ca](http://www.generalsmeltingofcanada.ca)  
[www.teckcominco.com](http://www.teckcominco.com)  
[www.metalexleadrecycling.com](http://www.metalexleadrecycling.com)

**Figure 2**  
**Western World Lead Markets, 2004**



Source: International Lead and Zinc Study Group.

decline in refined output, will continue to keep markets tight for lead. Overall, taking into consideration the information provided by the member countries of the International Lead and Zinc Study Group, it is expected that there will be a deficit of about 105 000 t in the Western World market for refined lead metal in 2005. This should translate into higher prices over the coming months with lead prices expected to average about US\$950/t in 2005.

*Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 64. (2) Information in this review was current as of May 31, 2005. (3) This and other reviews, including previous editions, are available on the Internet at [www.nrcan.gc.ca/mms/cmy/com\\_e.html](http://www.nrcan.gc.ca/mms/cmy/com_e.html).*

#### NOTE TO READERS

**The intent of this document is to provide general information and to elicit discussion. It is not intended as a reference, guide or suggestion to be used in trading, investment, or other commercial activities. The author and Natural Resources Canada make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.**

## NATURAL OCCURRENCE

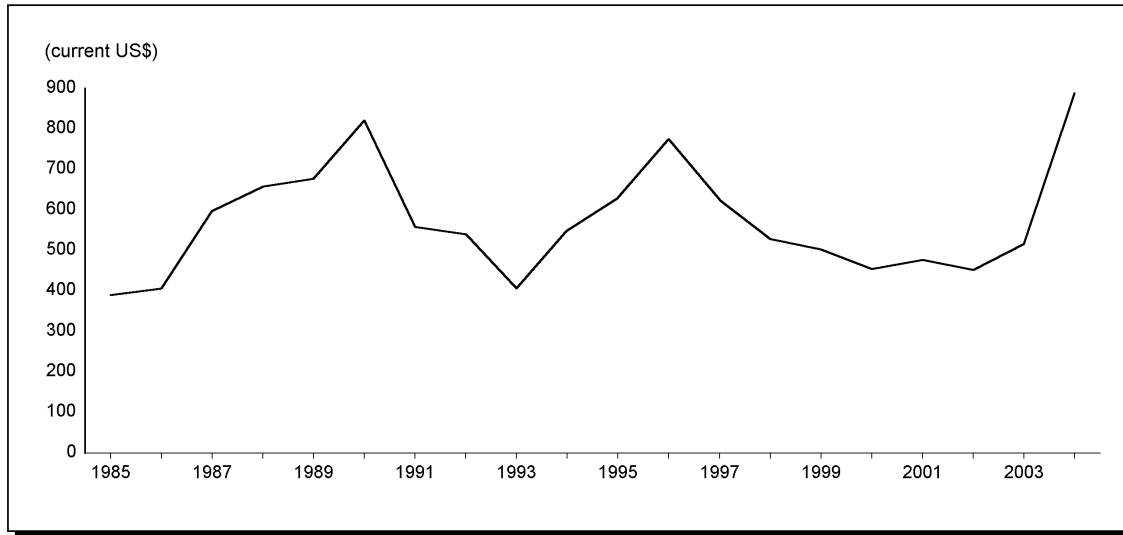
Almost all lead is obtained from sulphide ores in which the most common lead mineral is galena (PbS). It is usually found in combination with other sulphide ores, most frequently those of zinc, and also those of copper. Other lead-containing minerals include cerrusite (PbCO<sub>3</sub>) and anglesite (PbSO<sub>4</sub>).

## PRICE OUTLOOK

Cash London Metal Exchange (LME) settlement prices for lead started the year at just over US\$750/t and reached \$970/t before falling back to below \$700/t at the end of April. For the remainder of the year, lead prices increased on falling inventories to reach a maximum of US\$1056/t on December 31. Overall, cash settlement prices for lead averaged US\$888.41/t, representing the best average price for lead since 1996 and a 59% increase over the previous year. LME stocks continued their steady decline from a maximum of 108 975 t at the start of January to a minimum of 32 425 t in September, ending the year at 40 700 t.

Lead concentrate markets have been particularly tight as more older mines close and fewer new projects with significant amounts of lead come on stream. The tight market is already being reflected by lower treatment charges and cutbacks at some smelters. Increased demand in Asian markets, particularly China, coupled with an overall

**Figure 3**  
Average LME Cash Settlement Prices for Lead, 1985-2004



Source: London Metal Exchange.

## TARIFFS

Item No.	Description	Canada			United States	EU	Japan
		MFN	GPT	USA	Canada (1)	Conventional Rate (1)	WTO (2)
2607.00	Lead ores and concentrates	Free	Free	Free	Free	Free	Free
78.01	Unwrought lead						
7801.10	Refined lead						
7801.10.10	Pig and block	Free	Free	Free	Free	2.5%	Free-2.70 yen/kg
7801.10.90	Other	2.5%	Free	Free	Free	2.5%	Free-2.70 yen/kg
7801.91	Other: Containing by weight antimony as the principal other element	Free	Free	Free	Free	2.5%	Free to 2.8%
7801.99.10	Lead bullion	2.5%	Free	Free	Free	Free	Free-2.8%
7801.99.20	Lead alloys	2.5%	Free	Free	Free	2.5%	3% or 4.50 yen/kg
7801.99.90	Other, unwrought lead	2.5%	Free	Free	Free	2.5%	Free-4.50 yen/kg
7802.00	Lead waste and scrap	Free	Free	Free	Free	Free	2.1%
7803.00	Lead bars, rods, profiles and wire						
7803.00.10	Bars and rods, not alloyed	2.5%	Free	Free	Free	5%	3%
7803.00.90	Other	3%	Free	Free	Free	5%	3%
7804.11	Lead sheets, strip and foil of a thickness (excluding any backing) not exceeding 0.2 mm						
7804.11.10	Of lead-tin alloys, whether or not containing antimony	Free	Free	Free	Free	5%	3%
7804.11.90	Other	3%	Free	Free	Free	5%	3%
7804.19	Lead plates, sheet, strip and foil, n.e.s.						
7804.19.10	Not alloyed, of a thickness exceeding 0.2 mm but not exceeding 5 mm, and a width exceeding 600 mm	2.5%	Free	Free	Free	5%	3%
7804.19.20	Of lead-antimony-tin alloys	2.5%	Free	Free	Free	5%	3%
7804.19.90	Other	2.5%	Free	Free	Free	5%	3%
7804.20	Powders and flakes						
7804.20.10	Powders, not alloyed	2.5%	Free	Free	Free	Free	3%
7804.20.20	Alloyed powders; flakes	2.5%	Free	Free	Free	Free	3%
7805.00	Lead tubes, pipes, and tube or pipe fittings	3%	Free	Free	Free	Free-5%	3%
7806.00	Other articles of lead	3%	Free	Free	Free	Free-5%	3%

Sources: Canadian Customs Tariff, effective January 2005, Canada Border Services Agency; Harmonized Tariff Schedule of the United States, 2005; Official Journal of the European Union (October 30, 2004 Edition); Customs Tariff Schedules of Japan, 2004.

(1) The customs duties applicable to imported goods originating in countries that are Contracting Parties to the General Agreement on Tariffs and Trade or with which the European Community has concluded agreements containing the most-favoured-nation tariff clause shall be the conventional duties shown in column 3 of the Schedule of Duties. (2) WTO rate is shown; lower tariff rates may apply circumstantially.

**TABLE 1. CANADA, LEAD PRODUCTION (1) AND TRADE, 2002-04, AND USE, 2001-03**

Item No.	2002		2003		2004 (p)		
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)	
<b>SHIPMENTS</b>							
New Brunswick	71 551	50 801	72 914	52 571	68 833	79 778	
British Columbia	6 256	4 442	20 020	14 434	2 289	2 653	
Nunavut	23 523	16 701	-	-	-	-	
Total	101 330	71 944	92 934	67 005	71 122	82 431	
Mine output (2)	97 177	..	81 264	..	76 726	..	
Refined production							
Primary	136 896	..	118 506	..	131 015	..	
Recycled	114 664	..	104 927	..	110 382	..	
Total	251 560	..	223 434	..	241 397	..	
<b>EXPORTS</b>							
2603.00.20	Lead content of copper ores and concentrates	-	-	820	1 464	2 527	2 035
2607.00	Lead ores and concentrates	42 305	27 454	7 605	5 220	596	270
2607.00.20	Lead content of lead ores and concentrates						
Venezuela	-	-	-	-	596	270	
Belgium	7 985	3 357	-	-	-	-	
China	11 479	4 341	7 588	2 944	-	-	
Germany	22 807	15 064	-	-	-	-	
Total	42 271	22 762	7 588	2 944	596	270	
2608.00.20	Lead content of zinc ores and concentrates						
Belgium	6 289	2 107	4 860	1 618	4 523	2 640	
Poland	3 316	1 079	3 010	1 031	3 534	2 171	
Peru	1 307	427	-	-	-	-	
Romania	-	-	4 603	1 681	-	-	
Russia	-	-	1 188	507	-	-	
Total	10 912	3 613	13 661	4 837	8 057	4 811	
7801.10	Unwrought lead						
Refined lead							
United States	134 752	108 847	121 626	88 728	118 325	136 097	
Italy	-	-	391	327	5 088	5 212	
Netherlands	4 003	2 558	5 005	3 214	4 498	4 740	
Ireland	3 003	1 957	496	374	-	-	
Other countries	434	355	164	172	877	979	
Total	142 192	113 717	127 682	92 815	128 788	147 028	
7801.91	Lead, unwrought, containing by weight antimony as the principal other element						
United States	17 601	15 981	20 553	16 325	20 102	23 132	
China	1 801	573	220	90	-	-	
Other countries	946	511	839	497	693	614	
Total	20 348	17 065	21 612	16 912	20 795	23 746	
7801.99	Lead, unwrought, n.e.s.						
United States	20 061	17 788	25 707	20 820	28 625	35 317	
China	1 010	347	2 209	1 914	8 427	9 908	
Belgium	-	-	260	191	4 963	5 530	
Malaysia	7 396	5 715	4 992	3 946	3 180	3 871	
Thailand	1 267	959	180	159	1 198	1 260	
Mexico	655	514	2 781	2 162	410	483	
Other countries	1 736	1 435	2 652	2 375	641	753	
Total	32 125	26 758	38 781	31 567	47 444	57 122	
7802.00	Lead waste and scrap						
United States	352	369	817	568	928	646	
Other countries	49	31	210	385	180	146	
Total	401	400	1 027	953	1 108	792	
7803.00	Lead bars, rods, profiles and wire						
United States	416	537	533	1 227	587	1 460	
Other countries	15	62	164	232	60	70	
Total	431	599	697	1 459	647	1 530	
7804.11	Lead sheets, strip and foil of a thickness (excluding any backing) <0.2 mm	2	8	1	2	3	6

TABLE 1 (cont'd)

Item No.	2002		2003		2004 (p)		
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)	
<b>EXPORTS (cont'd)</b>							
7804.19	Lead plates, sheet, strip and foil, n.e.s.						
	United States	1 453	2 134	1 347	1 963	1 122	1 987
	Other countries	..	2	3	2	35	53
	Total	1 453	2 136	1 350	1 965	1 157	2 040
7804.20	Lead powders and flakes						
		100	135	7	41	1	16
7805.00	Lead tubes, pipes, and tube or pipe fittings (i.e., couplings, elbows, sleeves)						
		30	73	31	73	62	161
7806.00	Other articles of lead						
	United States	..	5 592	..	6 131	..	7 165
	Other countries	..	41	..	110	..	331
	Total	..	5 633	..	6 241	..	7 496
	Total exports	..	197 591	..	163 549	..	247 053
<b>IMPORTS (3)</b>							
2607.00	Lead ores and concentrates						
	United States	13 558	46 949	18 552	73 616	34 516	78 316
	Peru	44 878	59 557	41 633	43 309	42 082	38 195
	Australia	4 201	12 018	10 705	14 370	19 125	15 074
	Other countries	8586	8 933	5527	8888	60	2625
	Total	71 223	127 457	76 417	140 183	95 783	134 210
2607.00.00.20	Lead content of lead ores and concentrates						
	Peru	44 833	50 465	38 257	26 807	42 038	27 974
	United States	10 817	11 019	15 756	14 186	31 659	21 762
	Australia	4 162	4 162	10 658	6 110	19 125	15 074
	Other countries	8 549	3 733	5 480	4 074	-	-
	Total	68 361	69 379	70 151	51 177	92 822	64 810
2608.00.00.20	Lead content of zinc ores and concentrates						
	United States	298	305	170	205	1 188	760
2616.10.00.20	Lead content of silver ores and concentrates						
		194	61	383	189	201	194
7801.10.10	Refined lead, unwrought, pig and block						
	United States	1 302	1 273	803	828	2 131	2 458
	Other countries	120	134	696	632	-	-
	Total	1 422	1 407	1 499	1 460	2 131	2 458
7801.10.90	Refined lead, unwrought, other						
	United States	136	148	23	26	248	288
	Spain	233	267	4	5	62	73
	Other countries	3	4	6	7	13	15
	Total	372	419	33	38	323	376
7801.91	Lead, unwrought, containing by weight antimony as the principal other element						
		15	20	104	125	309	337
7801.99	Lead, unwrought, other						
		311	481	654	771	494	518
7802.00	Lead waste and scrap						
	United States	41 058	7 354	40 965	6 779	44 780	10 812
	Other countries	358	108	423	118	640	337
	Total	41 416	7 462	41 388	6 897	45 420	11 149
7803.00	Lead bars, rods, profiles and wire						
	United States	1 253	2 136	1 413	2 415	675	2 595
	South Korea	9	16	245	512	173	578
	Japan	..	1	100	176	66	420
	Other countries	6	12	8	14	28	37
	Total	1 268	2 165	1 766	3 117	942	3 630
7804.11	Lead sheets, strip and foil of a thickness (excluding any backing) <0.2 mm						
	United States	134	175	91	124	1 654	2 086
	New Zealand	75	77	268	174	34	127
	Germany	20	16	22	19	67	90
	United Kingdom	57	73	13	19	13	29
	Other countries	3	4	3	7	2	3
	Total	289	345	397	343	1 770	2 335



**TABLE 3. ANNUAL AVERAGE LEAD PRICES,  
1980-2004**

	London Metal Exchange			
	Settlement		Three Months	
	(US\$/t)	(US¢/lb)	(US\$/t)	(US¢/lb)
1980	909.12	41.24	911.46	41.34
1981	734.73	33.33	750.12	34.03
1982	544.08	24.68	562.53	25.52
1983	425.27	19.29	440.55	19.98
1984	444.36	20.16	445.25	20.20
1985	394.10	17.88	394.12	17.88
1986	406.89	18.46	407.26	18.47
1987	597.41	27.10	567.38	25.74
1988	655.83	29.75	635.68	28.83
1989	676.14	30.67	659.36	29.91
1990	817.85	37.10	790.82	35.87
1991	557.84	25.30	568.90	25.81
1992	540.04	24.50	553.56	25.11
1993	406.38	18.43	420.36	19.07
1994	549.01	24.90	564.10	25.59
1995	630.51	28.60	638.88	28.98
1996	773.96	35.11	771.22	34.98
1997	624.08	28.31	633.01	28.71
1998	528.42	23.97	533.29	24.19
1999	502.24	22.78	508.89	23.08
2000	454.22	20.60	468.07	21.23
2001	476.04	21.59	483.24	21.92
2002	452.52	20.53	461.65	20.94
2003	515.66	23.39	517.53	23.48
2004	888.41	40.30	850.63	38.58

Source: International Lead and Zinc Study Group.

**TABLE 4. LME MONTHLY AVERAGE LEAD PRICES,  
2003 AND 2004**

	London Metal Exchange			
	Settlement		Three Months	
	(US\$/t)	(US¢/lb)	(US\$/t)	(US¢/lb)
<b>2003</b>				
January	444.66	20.17	455.61	20.67
February	475.83	21.58	479.77	21.76
March	456.67	20.71	465.12	21.10
April	437.38	19.84	447.02	20.28
May	463.50	21.02	465.98	21.14
June	468.02	21.23	471.38	21.38
July	514.78	23.35	508.09	23.05
August	496.52	22.52	500.38	22.70
September	521.27	23.65	522.77	23.71
October	587.33	26.64	583.83	26.48
November	622.33	28.23	620.15	28.13
December	692.07	31.39	683.95	31.02
<b>2004</b>				
January	758.38	34.40	744.50	33.80
February	888.47	40.30	852.35	38.70
March	886.48	40.20	855.07	38.80
April	753.67	34.20	749.83	34.00
May	808.89	36.70	768.24	34.80
June	871.32	39.50	816.73	37.00
July	939.59	42.60	869.66	39.40
August	921.79	41.80	863.40	39.20
September	935.45	42.40	888.59	40.30
October	932.76	42.30	893.05	40.50
November	967.80	43.90	941.75	42.70
December	974.90	44.20	946.02	42.90

Source: International Lead and Zinc Study Group.



**TABLE 5. MINE PRODUCTION OF LEAD, BY COUNTRY, 2000-2004**

	2000	2001	2002	2003	2004 (p)
	(000 tonnes)				
<b>EUROPE</b>					
Bulgaria	14	16	24	17	13
Greece	16	27	29	2	–
Ireland	57	45	32	50	65
Italy	3	4	4	5	6
Macedonia	24	20	15	5	–
Poland	51	53	57	42	40
Romania	19	17	18	16	17
Russia	14	14	19	24	22
Spain	51	36	6	2	–
Sweden	107	88	44	51	55
Serbia and Montenegro	4	5	–	–	–
<b>Total Europe</b>	<b>360</b>	<b>324</b>	<b>248</b>	<b>216</b>	<b>217</b>
<b>AFRICA</b>					
Morocco	82	77	62	41	46
Namibia	12	13	12	16	16
South Africa	75	51	50	40	37
Other Africa	8	8	7	6	6
<b>Total Africa</b>	<b>178</b>	<b>159</b>	<b>130</b>	<b>102</b>	<b>105</b>
<b>AMERICAS</b>					
Canada	149	154	97	81	77
Mexico	138	136	139	142	128
Peru	271	289	297	308	306
United States	458	463	449	458	438
Other Americas	37	38	40	41	43
<b>Total Americas</b>	<b>1 053</b>	<b>1 080</b>	<b>1 022</b>	<b>1 030</b>	<b>992</b>
<b>ASIA</b>					
China	660	599	641	955	951
India	36	32	34	44	51
Iran	17	18	17	16	16
Japan	9	5	6	6	6
Kazakhstan	39	43	43	44	44
North Korea	12	9	10	20	20
Thailand	11	–	3	–	–
Turkey	16	18	17	14	12
Other Asia	5	4	1	1	2
<b>Total Asia</b>	<b>805</b>	<b>728</b>	<b>772</b>	<b>1 100</b>	<b>1 102</b>
<b>OCEANIA</b>					
Australia	650	714	658	648	642
<b>Total world</b>	<b>3 046</b>	<b>2 995</b>	<b>2 831</b>	<b>3 097</b>	<b>3 058</b>

Sources: Natural Resources Canada; International Lead and Zinc Study Group.  
– Nil; (p) Preliminary.

**TABLE 6. REFINED LEAD PRODUCTION, BY COUNTRY, 2000-2004**

	2000	2001	2002	2003	2004 (p)
	(000 tonnes)				
<b>EUROPE</b>					
Belgium	119	100	88	65	62
Bulgaria	84	83	66	69	63
Czech Republic	28	30	29	26	25
France	262	230	203	101	104
Germany	387	375	378	357	411
Italy	231	227	196	214	202
Poland	56	66	66	60	62
Russia	32	58	63	66	66
Spain	120	122	116	102	105
Sweden	78	75	65	76	72
United Kingdom	338	382	368	320	243
Other Europe	146	137	128	117	136
<b>Total Europe</b>	<b>1 881</b>	<b>1 893</b>	<b>1 766</b>	<b>1 573</b>	<b>1 551</b>
<b>AFRICA</b>					
Morocco	67	58	72	61	25
South Africa	46	55	61	65	64
Other Africa	12	12	11	12	12
<b>Total Africa</b>	<b>125</b>	<b>125</b>	<b>144</b>	<b>138</b>	<b>101</b>
<b>AMERICAS</b>					
Brazil	50	47	37	35	38
Canada	284	231	252	223	241
Mexico	241	236	234	240	243
Peru	116	118	120	112	120
United States	1 457	1 376	1 364	1 392	1 269
Other Americas	68	79	88	91	98
<b>Total Americas</b>	<b>2 216</b>	<b>2 087</b>	<b>2 095</b>	<b>2 093</b>	<b>2 009</b>
<b>ASIA</b>					
China	1 100	1 195	1 325	1 564	1 812
India	67	63	78	71	51
Japan	312	302	286	295	283
Kazakhstan	208	159	152	141	149
Malaysia	32	38	40	57	54
North Korea	10	7	6	7	9
South Korea	220	211	243	230	233
Taiwan	55	62	55	56	56
Other Asia	159	172	176	203	229
<b>Total Asia</b>	<b>2 163</b>	<b>2 209</b>	<b>2 361</b>	<b>2 624</b>	<b>2 876</b>
<b>OCEANIA</b>					
Australia	259	271	302	307	273
New Zealand	11	9	9	8	8
<b>Total Oceania</b>	<b>270</b>	<b>280</b>	<b>311</b>	<b>315</b>	<b>281</b>
<b>Total world</b>	<b>6 655</b>	<b>6 594</b>	<b>6 678</b>	<b>6 743</b>	<b>6 817</b>

Sources: Natural Resources Canada; International Lead and Zinc Study Group.  
(p) Preliminary.

**TABLE 7. REFINED LEAD USE, BY COUNTRY, 2000-2004**

	2000	2001	2002	2003	2004 (p)
	(000 tonnes)				
<b>EUROPE</b>					
Austria	60	59	60	54	48
Belgium	57	40	34	37	36
France	268	265	230	220	215
Germany	390	404	385	384	410
Ireland	29	34	42	37	30
Italy	279	284	286	258	273
Netherlands	29	30	29	34	31
Poland	52	59	70	58	69
Russia	83	94	111	112	112
Spain	219	231	238	216	247
United Kingdom	327	318	311	302	295
Other Europe	225	250	245	216	245
Total Europe	2 018	2 068	2 041	1 928	2 011
<b>AFRICA</b>					
Algeria	21	20	21	15	14
Egypt	9	9	9	6	6
South Africa	59	59	71	80	80
Other Africa	41	35	34	31	31
Total Africa	130	123	135	132	131
<b>AMERICAS</b>					
Brazil	114	112	112	112	103
Canada	68	55	58	51	52
Mexico	258	253	270	259	263
United States	1 791	1 695	1 536	1 513	1 494
Other Americas	99	94	100	102	118
Total Americas	2 330	2 209	2 076	2 037	2 030
<b>ASIA</b>					
China	590	700	950	1 183	1 350
India	119	127	130	142	150
Indonesia	66	48	61	71	85
Iran	68	70	68	72	68
Japan	301	284	253	248	216
Malaysia	84	82	86	90	90
South Korea	303	314	343	349	368
Taiwan	170	167	154	137	162
Thailand	96	82	111	131	138
Other Asia	198	191	213	239	242
Total Asia	1 995	2 065	2 369	2 662	2 869
<b>OCEANIA</b>					
Australia	41	41	39	38	39
New Zealand	5	4	3	4	2
Total Oceania	46	45	42	42	40
Total world	6 519	6 510	6 663	6 801	7 081

Sources: Natural Resources Canada; International Lead and Zinc Study Group.  
(p) Preliminary.

**TABLE 8. WESTERN WORLD PRODUCTION OF LEAD FROM RECYCLING, (1) 2000-2004**

	2000	2001	2002	2003	2004 (p)
	(000 tonnes)				
<b>EUROPE</b>					
Austria	23	22	21	18	24
Belgium	107	100	88	65	62
France	137	132	121	94	104
Germany	216	218	237	225	277
Ireland	9	10	7	9	21
Italy	163	169	155	166	162
Netherlands	21	20	18	17	17
Spain	120	122	116	102	105
Sweden	47	44	47	52	45
United Kingdom	182	183	175	158	120
Other Europe	38	37	34	30	32
<b>Total Europe</b>	<b>1 063</b>	<b>1 057</b>	<b>1 019</b>	<b>936</b>	<b>969</b>
<b>AFRICA</b>					
Algeria	6	6	6	6	6
Morocco	4	4	4	3	3
South Africa	46	49	61	65	64
Other Africa	6	5	5	5	6
<b>Total Africa</b>	<b>62</b>	<b>64</b>	<b>76</b>	<b>80</b>	<b>79</b>
<b>AMERICAS</b>					
Brazil	50	47	37	35	38
Canada	125	104	115	105	110
Mexico	79	92	106	110	110
United States	1 115	1 086	1 102	1 147	1 129
Other Americas	60	70	78	79	85
<b>Total Americas</b>	<b>1 429</b>	<b>1 399</b>	<b>1 438</b>	<b>1 476</b>	<b>1 472</b>
<b>ASIA</b>					
India	25	19	35	30	30
Indonesia	18	18	17	18	20
Iran	28	28	30	31	32
Japan	182	175	178	190	189
Malaysia	32	38	40	57	54
South Korea	66	63	64	60	60
Taiwan	55	62	55	56	56
Thailand	24	28	40	46	57
Other Asia	70	76	76	88	99
<b>Total Asia</b>	<b>500</b>	<b>507</b>	<b>535</b>	<b>576</b>	<b>597</b>
<b>OCEANIA</b>					
Australia	34	34	34	38	42
New Zealand	11	9	9	8	8
<b>Total Oceania</b>	<b>45</b>	<b>43</b>	<b>43</b>	<b>46</b>	<b>50</b>
<b>Total Western</b>	<b>3 099</b>	<b>3 071</b>	<b>3 110</b>	<b>3 114</b>	<b>3 166</b>

Sources: Natural Resources Canada; International Lead and Zinc Study Group.

(p) Preliminary.

(1) Refined lead and lead alloys (lead content) produced from scraps, wastes and residues.