

# Calcium Metal

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*(Note: This is a brief review of calcium metal in Canada with general information and not a comprehensive review.)*

**T**he chemical symbol for calcium is Ca.

Timminco Limited ([www.timminco.com](http://www.timminco.com)) has the sole production facility for calcium metal in Canada located in Timminco's plant at Haley Station, Ontario, where the company produces very high-purity magnesium. The installed capacity of the calcium metal production facilities in 1995 was about 900 t/y. The calcium metal production line has been idle for a number of years due to low prices for the metal that have resulted from increasing exports from China. Timminco estimated that the Western World use of calcium metal in 2002 amounted to about 5000 t.

Timminco also operates a metal reduction and casting plant in Westmeath, Ontario, located approximately 50 km west of the Haley facility near the town of Renfrew, Ontario. At the Westmeath plant, Timminco produces its proprietary specialties, CAL-AL™, MAG-CAL™ and particulated calcium metal. These products command a premium over the price of commodity-grade calcium metal. The plant is currently operated using imported calcium metal. In addition, the Westmeath plant produces other specialty materials such as strontium-aluminum alloys and aluminum granules. Other calcium metal producers are located in Russia, the United States (Materials Technologies Inc.), France (Pechiney Électrométallurgie) and China. The calcium-related operations of Pechiney Électrométallurgie, including the metal plant at La Roche de Rame, plus the calcium-related operations of SKW Metallurgie, of Germany, were combined into a new subsidiary called SKW Stahl Holding. The new company, owned 75% by SWK Metallurgy and 25% by Pechiney Électrométallurgie, markets various products, including calcium alloys for use in metallurgical applications.

With only a few producers, public information about the industry is limited and prices have not been quoted since 2001.

Calcium metal is a powerful reduction agent that is used to deoxidize, desulphurize and degas steels and cast irons. In addition, calcium metal is used to reduce oxides of chromium, niobium, samarium, thorium, titanium, uranium and vanadium. Because the metal is so reactive, alloys are often preferred to the pure metal.

Calcium is also used as an alloying element in lead for the manufacture of maintenance-free automotive batteries. Calcium metal, when alloyed with the lead, increases the alloy's strength, corrosion resistance, and creep resistance.

Additional information about calcium compounds is available at Timminco's web site.

## **PRICES**

The list price in the *American Metal Market* for 4.5 t (10 000 lb) of full calcium crowns was US\$3.85/lb in January 2001, a value that remained unchanged since the start of 1987. The list price for 4.5 t (10 000 lb) of cut crowns was higher at US\$4.02/lb, unchanged since mid-1990. The actual transaction prices paid were likely dependent upon contract details such as quantity, frequency of delivery, impurities, etc. The *American Metal Market* discontinued listing prices of commercial-grade calcium metal in late 2001.

## **INTERNET INFORMATION SOURCES**

Additional sources of information available on the Internet, current to October 2003, include the following:

- United States Environmental Protection Agency: [www.epa.gov/epaoswer/other/mining/minedock/id/id4-cal.pdf](http://www.epa.gov/epaoswer/other/mining/minedock/id/id4-cal.pdf)
- Search by company name in the SEDAR data base for companies publicly traded in Canada: [www.sedar.com/search/search\\_form\\_pc\\_en.htm](http://www.sedar.com/search/search_form_pc_en.htm)

- *Canadian Mining Journal*:  
www.canadianminingjournal.com
- *The Northern Miner* (daily headlines):  
www.northernminer.com
- Various on-line encyclopedias
- Any web search engine such as  
www.google.com/advanced\_search
- For physical and chemical properties, concentrations in various media, etc.:  
www.webelements.com/webelements/elements/text/Ca/key.html
- *American Metal Market*, search (some articles do not require paid subscription to access):  
www.amm.com
- *Mining Journal*, search (some articles do not require paid subscription to access):  
www.mining-journal.com/index1.htm
- *Metal Bulletin* (information by paid subscription):  
www.metalbulletin.co.uk

Further information is available on the company's web site at [www.roskill.co.uk/calcium.html](http://www.roskill.co.uk/calcium.html).

Studies from other sources may be available.

*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 November 2003. (3) This article is not intended to be a comprehensive overview of the industry but, rather, is a brief report to provide information about calcium in Canada. (4) The web sites listed here are exterior to Natural Resources Canada and may not be available in both English and French. The content of these sites is entirely determined by their owners. (5) 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

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## COMMERCIALLY AVAILABLE INFORMATION

More detailed information is available for purchase from Roskill Information Services Ltd. in the United Kingdom.

### TARIFFS

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
2805.12	Calcium metal	3%	Free	Free	Free

Sources: Canadian *Customs Tariff*, effective January 2003, Canada Customs and Revenue Agency; *Harmonized Tariff Schedule of the United States*, 2003.

TABLE 1. CANADA, CALCIUM METAL PRODUCTION AND TRADE, 2000-2002

Item No.	2000		2001		2002 (p)	
	(kg)	(\$000)	(kg)	(\$000)	(kg)	(\$000)
<b>PRODUCTION</b>	x	x	x	x	x	x
<b>IMPORTS</b>						
2805.12						
Calcium						
China	649 820	3 161	798 387	3 928	784 000	3 736
France	4 189	62	18 507	265	59 368	786
Germany	1	...	8	...	-	-
Japan	12	...	-	-	23	...
Kazakhstan	19 732	92	-	-	-	-
Russia	102 908	499	65 424	330	144 743	650
Taiwan	-	-	-	-	2 402	28
United Kingdom	-	-	-	-	12	...
United States	25 740	250	4 020	29	17 374	93
Mexico	-	-	20 412	59	-	-
Total	802 403	4 064	906 758	4 611	1 007 922	5 293
7202.99.00.92						
Ferro-silico-calcium						
France	1 902 906	4 959	1 384 843	3 440	1 891 653	5 103
United States	185 865	563	210 405	624	133 352	318
Argentina	51 319	104	88 863	168	40 876	77
Brazil	195 445	367	63 000	110	-	-
Germany	100	-	-	-	-	-
United Kingdom	22 680	97	-	-	-	-
Italy	-	-	443	2	-	-
South Korea	-	-	5 143	13	-	-
Total	2 358 315	6 090	1 752 697	4 357	2 065 881	5 498
<b>EXPORTS</b>						
2805.12						
Calcium						
Netherlands	79 900	687	85 147	648	96 599	611
Japan	17 680	306	12 128	199	14 492	250
United States	58 695	602	25 505	318	14 013	191
Brazil	10 599	136	11 152	158	10 812	136
Chile	3 372	36	6 093	85	2 726	53
Australia	-	-	-	-	824	11
Thailand	-	-	247	2	-	-
Total	170 246	1 767	140 272	1 410	139 466	1 252

Sources: Natural Resources Canada; Statistics Canada.

- Nil; ... Amount too small to be expressed; (p) Preliminary; x Confidential.

Note: Numbers may not add to totals due to rounding.