

# 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.

The 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. These production facilities are 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 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 specialty, CAL-AL™, comprising calcium metal and particulated calcium granules. 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.), and France (Pechiney Électrométallurgie). With only a few producers, public information about the industry is limited.

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 used to manufacture 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 has 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 2002, 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](http://www.canadianminingjournal.com)>
- *Northern Miner* (daily headlines): <[www.northernminer.com](http://www.northernminer.com)>
- Various on-line encyclopedias
- Any web search engine such as <[www.google.com/advanced\\_search](http://www.google.com/advanced_search)>

- For physical and chemical properties, concentrations in various media, etc.:  
<[www.webelements.com/webelements/elements/text/Ca/key.html](http://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](http://www.amm.com)>
- *Mining Journal*, search (some articles do not require paid subscription to access):  
<[www.mining-journal.com/index1.htm](http://www.mining-journal.com/index1.htm)>
- *Metal Bulletin* (information by paid subscription):  
<[www.metalbulletin.co.uk](http://www.metalbulletin.co.uk)>

*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 October 2002. (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/index\\_e.html](http://www.nrcan.gc.ca/mms/cmy/index_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. Further information is available at 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.

### TARIFFS

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

Sources: *Customs Tariff*, effective January 2002, Canada Customs and Revenue Agency; *Harmonized Tariff Schedule of the United States*, 2002.

**TABLE 1. CANADA, CALCIUM METAL PRODUCTION AND TRADE, 1999-2001**

Item No.	1999		2000		2001 (p)		
	(kg)	(\$000)	(kg)	(\$000)	(kg)	(\$000)	
<b>PRODUCTION</b>	x	x	x	x	x	x	
<b>EXPORTS</b>							
2805.21	Calcium						
	Netherlands	176 664	1 423	79 900	687	85 147	648
	United States	26 641	287	58 695	602	25 505	318
	Brazil	8 160	108	10 599	136	11 152	158
	Chile	1 359	25	3 372	36	6 093	85
	Japan	8 452	140	17 680	306	5 056	78
	Other countries	3 588	38	–	–	24	2
	<b>Total</b>	<b>224 864</b>	<b>2 021</b>	<b>170 246</b>	<b>1 767</b>	<b>133 200</b>	<b>1 289</b>
<b>IMPORTS</b>							
2805.21	Calcium						
	China	714 746	3 656	649 820	3 161	798 387	3 928
	Russia	153 737	804	102 908	499	65 424	330
	France	2 182	33	4 189	62	18 507	265
	Other countries	7 698	79	45 486	342	24 440	88
	<b>Total</b>	<b>878 363</b>	<b>4 572</b>	<b>802 403</b>	<b>4 064</b>	<b>906 758</b>	<b>4 611</b>

Sources: Natural Resources Canada; Statistics Canada.

– Nil; (p) Preliminary; x Confidential.