

Stone

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INTRODUCTION

This report deals mainly with the dimensional stone industry in Canada, comprising operating dimension stone quarries and stone processing facilities. Dimensional stone, or architectural stone, includes many different rock types and refers to any stone that is capable of being quarried in large blocks and being processed into slabs, small blocks, flagstones, etc. The term “granite,” in the commercial sense, is defined as any igneous rock that is suitable for cutting and polishing and includes such rock types as gabbro, gneiss, anorthosite and diabase. Commercial “marble” is a crystalline rock composed primarily of calcite or dolomite that is capable of taking a high polish. Some stone marketed as marble, such as the Adair marble of Ontario, is actually fine-grained sedimentary limestone or dolostone. Other common dimensional stone includes limestone, sandstone and slate. For dimension stone to be accepted by architects for use in building construction projects, it must pass standard ASTM (American Society for Testing and Materials) tests, including specifications for absorption, bulk specific gravity, modulus of rupture, compressive strength, and abrasion resistance. The stone industry determines the value of different stone products based on colour, grain texture, surface finish and durability.

CANADIAN INDUSTRY

Total stone produced in Canada in 2003 (includes dimension stone and crushed stone) was 119.4 Mt valued at \$979.5 million, based on preliminary figures. Table 2 shows stone production broken down by rock type. There has been a decrease in production of 4.3% compared to 2002 final data (Table 3). Crushed stone is used for a variety of construction, chemical, metallurgical and miscellaneous uses. Pulverized stone is used as a mineral filler and for agricultural and environmental applications. The reader

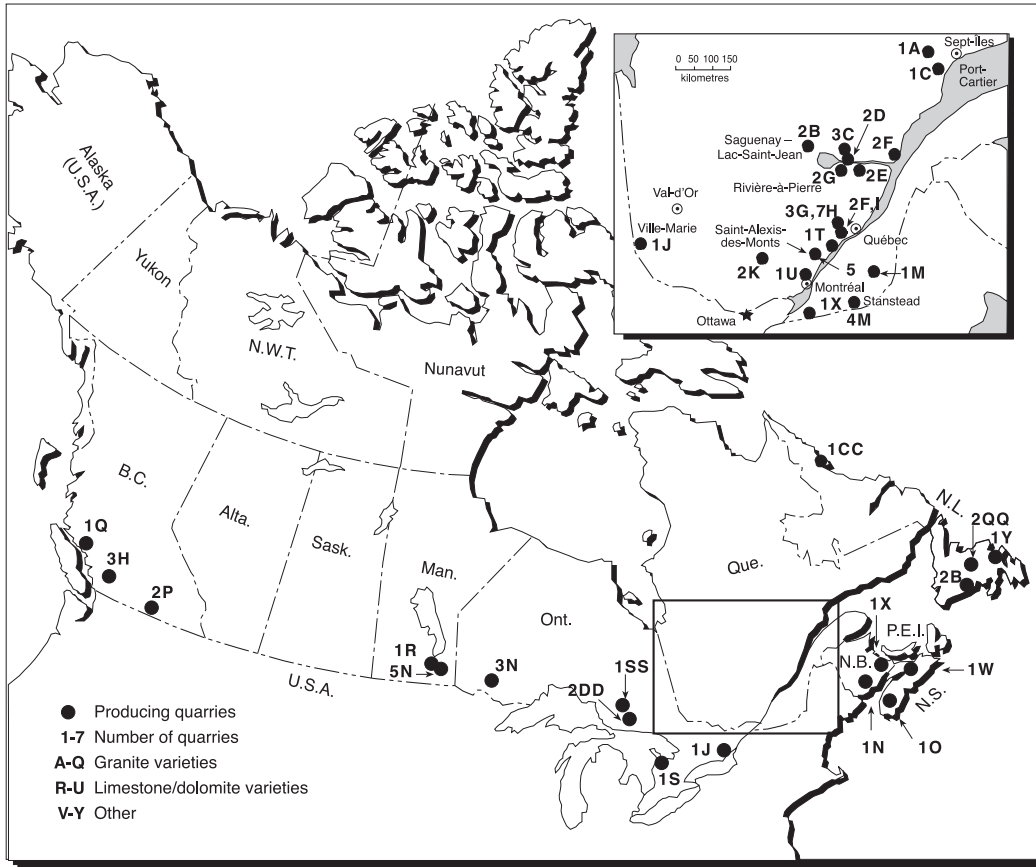
is referred to the chapter entitled “Mineral Aggregates” for more detailed information on crushed stone and sand and gravel, along with information on lightweight aggregates comprising perlite, vermiculite, pumice and expanded clays. Architectural and monumental stone-producing centres are shown in Figure 1. The majority of stone quarries are located in southern Quebec and eastern Ontario, with smaller tonnages being produced in other regions.

In 2002, about 676 000 t of dimensional stone were quarried in Canada. Production can be broken down by stone type as follows: limestone, 308 000 t (45.5%); marble, 42 000 t (6.2%); granite, 244 000 t (36.1%); and sandstone, 82 000 t (12.2%). Production figures for individual stone types are given in Tables 4-8 and include a summary by province or territory and a breakdown by use into dimension stone and crushed stone applications. Table 9 gives a breakdown of rough granite production and trade for the period 1988-2003. Figures 2a and 2b illustrate the trends in crushed and dimension stone production during the period 1992-2003, broken down by stone type. For the two main commercial types of stone produced in Canada, granite and limestone, there has been a general increase in tonnes produced in the last 10 years. Figure 3 illustrates granite production for the period 1992-2002, with a distinct upward trend for rough trimmed product and no growth or a slight decline in monumental and other uses (flagstone, paving blocks). Figure 4 shows limestone production for the same period, illustrating a slight upward trend in production for all types of products. The peak for rough limestone in 1993 is attributed to a temporary increase in production to satisfy demand for construction projects.

The majority of dimension stone produced in Canada is quarried in British Columbia, Ontario and Quebec, each producing granite, limestone and marble. Quarries in Manitoba, Nova Scotia, New Brunswick, and Newfoundland and Labrador produce limestone, granite, sandstone and slate. Most of the dimension stone fabrication facilities in Canada are located in British Columbia, Ontario and Quebec.

A Statistics Canada publication, *Non-Metallic Mineral Mining and Quarrying* (Table 10), provides additional information on shipments of stone by province/territory and type. This publication is available on the Internet at www.statcan.ca/english/freepub/26-226-XIB/free.htm.

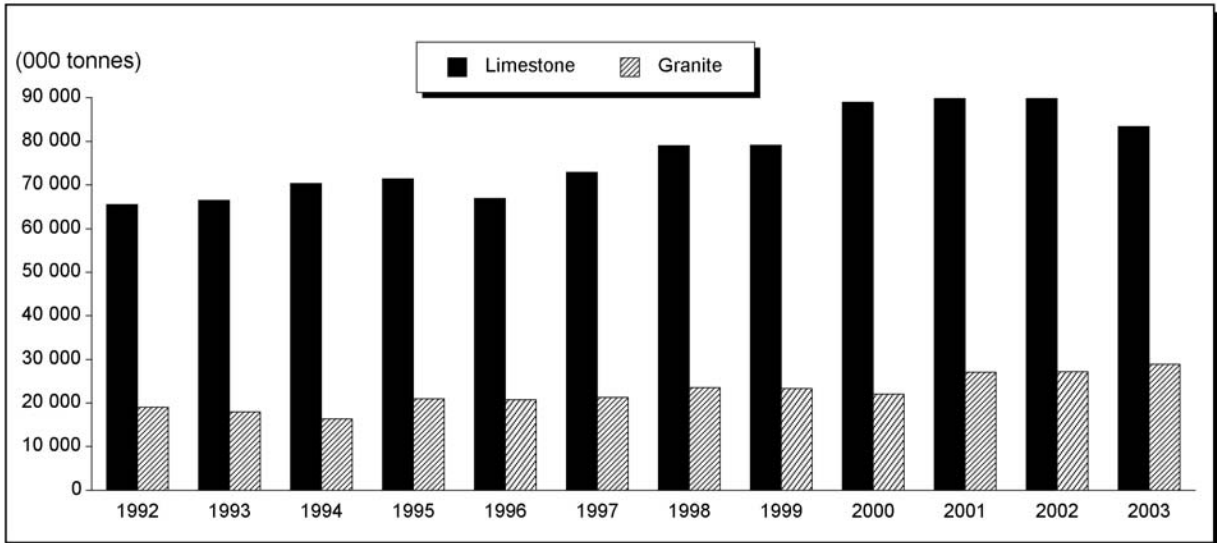
Figure 1
Canada, Architectural and Monumental/Ornamental Stone-Producing Centres,
2003



- | | |
|--------------------------------------------------|----------------------------------------------------------------------|
| A Fine-grained pinkish-grey banded gneiss | Q Medium-grained blue-grey granite |
| B Medium-grained pink granite | QQ Medium-grained gabbro |
| C Coarse-grained black anorthosite | R Light-coloured mottled dolomitic limestone (Tyndall) |
| CC Medium-grained "Reflect blue" anorthosite | S Fine-medium crystalline blue-grey to buff marble/dolostone (Adair) |
| D Medium-grained black gabbroic anorthosite | SS Fine-grained, multicoloured pre-Cambrian marble |
| DD Blue-grey, and black and white anorthosite | T Medium-grained light brownish-grey limestone (Deschambault) |
| E Medium-grained pinkish-grey quartz monzonite | U Medium-grained blue-grey limestone (Chazy) |
| F Fine-grained pink granitic gneiss | V Medium-grained olive sandstone |
| G Coarse-grained green charnockite | W Fine-medium-grained olive-brown and blue-grey sandstone |
| H Coarse-grained pink-grey or brown-grey granite | X Fine-medium-grained white to buff sandstone (Potsdam) |
| I Medium-grained grey dioritic gneiss | Y Very fine-grained varicoloured slate |
| J Medium-grained red granite | |
| K Fine-grained pink aplite | |
| L Coarse-grained brown or red quartz monzonite | |
| M Medium-grained grey granite | |
| N Medium-grained pink, brown or gold granites | |
| O Fine-grained blue-grey granite | |
| P Coarse coral pink granite | |

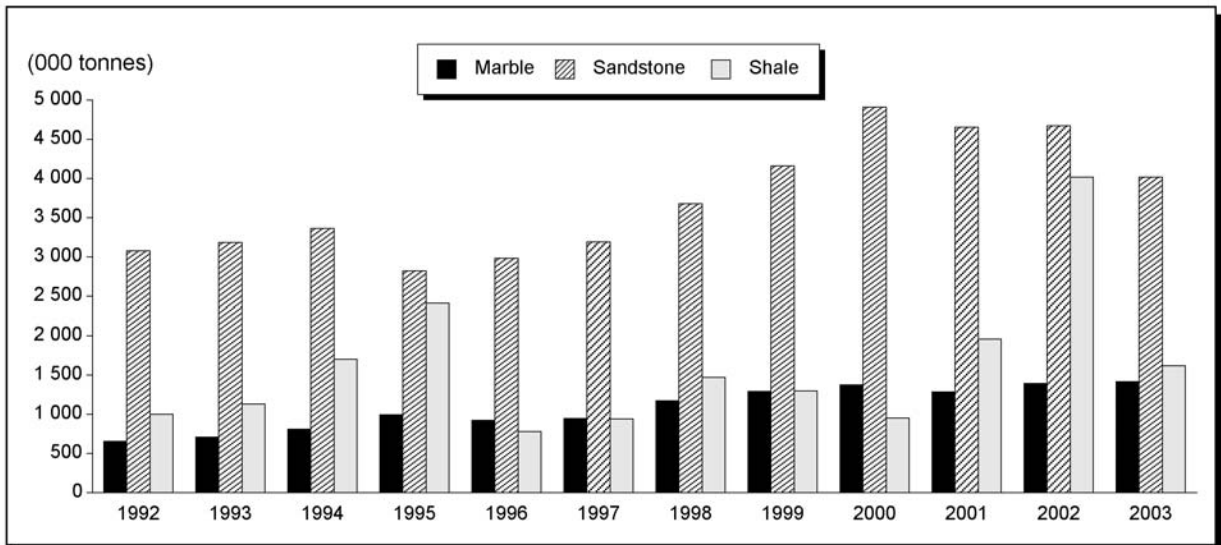
Source: Mainly provincial departments of Mines and Energy.

Figure 2a
Canadian Production of Limestone and Granite, 1992-2003



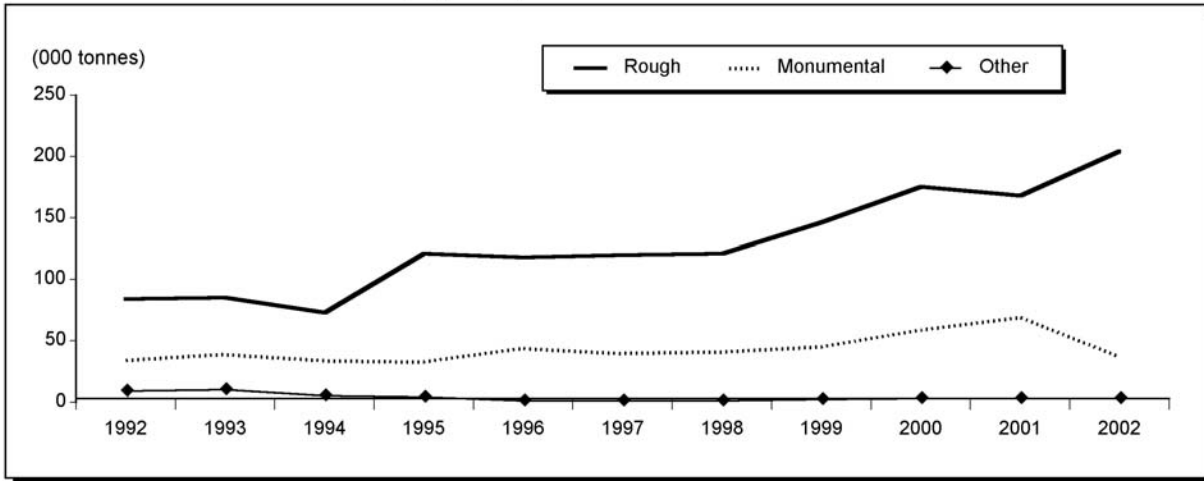
Source: Natural Resources Canada.

Figure 2b
Canadian Production of Marble, Sandstone and Shale, 1992-2003



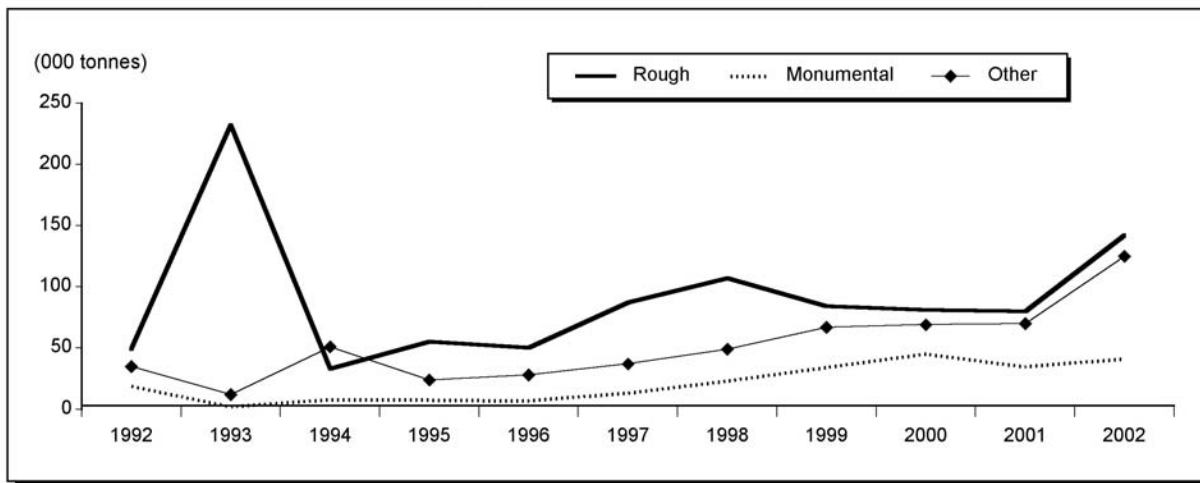
Source: Natural Resources Canada.

Figure 3
Canadian Granite Production, by Use, 1992-2002



Source: Natural Resources Canada.

Figure 4
Canadian Limestone Production, by Use, 1992-2002



Source: Natural Resources Canada.

TRADE

As is the case for other countries, Canada is both an exporter and importer of rough trimmed stone and other stone products (Table 1). In 2003, Canada exported a total of 111 625 m³ of crude or rough trimmed granite, an increase of 170% over exports in 2002. Stone was exported primarily to China (52%) and the United States (45%). Using a specific gravity of 2.7 for granite, total exports were equivalent to 301 387 t. Canada imported 78 149 t of rough granite, mostly from the United States (41%), South Africa (24.5%), Brazil (9.8%) and Norway (6.8%). This figure is down about 2% from 2002 levels. Regarding partially fabricated granite, Canada exported 16 461 t in 2003, compared to 15 164 t in 2002, an increase of 8.5%. Imports of granite slabs increased 21% to 5500 t compared to 2002.

WORLD OVERVIEW

World dimension stone production for 2002, as estimated by the U.S. Geological Survey, was 77 Mt. The top five producing countries, ranked by tonnage, were China, Italy, India, Iran and Spain, accounting for 73% of world production. The United States ranked eleventh in terms of tonnes produced. Turkey and Brazil are also large exporters of marble and granite, respectively. Canada produced a total of 676 000 t of dimension stone in 2002, compared with 1 054 500 t produced by the United States. The following is a comparison of Canadian and U.S. production by dimension stone types for 2002 (in 000 t): limestone (308 vs. 359), granite (244 vs. 431), marble (23 vs. 67), and sandstone (82 vs. 198).

PRICES

Realized prices for dimension stone are quite variable and depend on factors such as colour, texture, finish and consistency. Average prices, in US\$/tonne, as reported by the U.S. Geological Survey for 2002, were \$252 for granite, \$194 for limestone, \$116 for sandstone, \$294 for marble, and \$614 for slate.

OUTLOOK

It is expected that demand for rough dimension stone products will remain firm in 2004 as commercial construction levels in North America maintain moderate growth. Some Canadian stone products will continue to be in demand internationally, especially in the United States.

More detailed information on the Canadian stone industry at the provincial/territorial level can be found at the natural resources ministry web sites for each province or territory (links are provided on the Minerals and Metals Sector site at www.nrcan.gc.ca/mms/lien/ptd_e.htm).

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 June 2004. (3) This and other reviews, including previous editions, are available on the Internet at 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.

TARIFFS

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
2514.00	Slate, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape				
2514.00.10	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	3.5%	Free	Free	Free
2514.00.90	Other	Free	Free	Free	Free
25.15	Marble, travertine, ecaussine and other calcareous monumental or building stone of an apparent specific gravity of 2.5 or more, and alabaster, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape				
	Marble and travertine:				
2515.11.00	Crude or roughly trimmed	Free	Free	Free	Free
2515.12.00	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	Free	Free	Free	Free
2515.20	Ecaussine and other calcareous monumental or building stone; alabaster				
2515.20.10	Crude or roughly trimmed	Free	Free	Free	Free
2515.20.20	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	3.5%	Free	Free	Free
25.16	Granite, porphyry, basalt, sandstone and other monumental or building stone, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape				
	Granite:				
2516.11.00	Crude or roughly trimmed	Free	Free	Free	Free
2516.12	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	Free-3.5%	Free	Free	Free
	Sandstone:				
2516.21.00	Crude or roughly trimmed	Free	Free	Free	Free
2516.22.00	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	3.5%	Free	Free	Free
2516.90	Other monumental or building stone				
2516.90.10	Crude or roughly trimmed	Free	Free	Free	Free
2516.90.20	Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	3.5%	Free	Free	Free
25.17	Pebbles, gravel, broken or crushed stone, of a kind commonly used for concrete aggregates, for road metalling or for railway or other ballast, shingle and flint, whether or not heat-treated; macadam of slag, dross or similar industrial waste, whether or not incorporating the materials cited in the first part of the heading; tarred macadam, granules, chippings and powder, of stones of heading nos. 25.15 or 25.16, whether or not heat-treated				
2517.10.00	Pebbles, gravel, broken or crushed stone, of a kind commonly used for concrete aggregates for road metalling or for railway or other ballast, shingle and flint, whether or not heat-treated	Free	Free	Free	Free

TARIFFS (cont'd)

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
2517.20.00	Macadam of slag, dross or similar industrial waste, whether or not incorporating the materials cited in subheading no. 2517.10	Free	Free	Free	Free
2517.30.00	Tarred macadam Granules, chippings and powder, of stones of heading nos. 25.15 or 25.16, whether or not heat-treated:	6.5%	Free	Free	Free
2517.41.00	Of marble	Free	Free	Free	Free
2517.49	Other				
2517.49.10	Limestone, roofing granules	Free	Free	Free	Free
2517.49.90	Other	Free	Free	Free	Free
6801.00	Setts, curbstones and flagstones of natural stone (except slate)	3.5%	Free	Free	Free
68.02	Worked monumental or building stone (except slate) and articles thereof, other than goods of heading no. 68.01; mosaic cubes and the like, of natural stone (including slate), whether or not on a backing; artificially coloured granules, chippings and powder, of natural stone (including slate)				
6802.10	Tiles, cubes and similar articles, whether or not rectangular (including square), the largest surface area of which is capable of being enclosed in a square the side of which is less than 7 cm; artificially coloured granules, chippings and powder				
6802.10.10	Artificially coloured roofing granules	Free	Free	Free	Free
6802.10.90	Other Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface:	8%	5%	Free	Free
6802.21.00	Marble, travertine and alabaster	3.5%	Free	Free	Free
6802.22.00	Other calcareous stone	5%	Free	Free	Free
6802.23.00	Granite	3.5%	Free	Free	Free
6802.29.00	Other stone Other:	5%	Free	Free	Free
6802.91.00	Marble, travertine and alabaster	6%	Free	Free	Free
6802.92.00	Other calcareous stone	6.5%	3%	Free	Free
6802.93.00	Granite	6.5%	6.5%	Free	Free
6802.99.00	Other stone	6.5%	6.5%	Free	Free
6803.00	Worked slate and articles of slate or of agglomerated slate				
6803.00.10	Roofing slate; slate for use in the manufacture of billiard tables	Free	Free	Free	Free
6803.00.90	Other	6.5%	6.5%	Free	Free
68.04	Millstones, grindstones, grinding wheels and the like, without frameworks, for grinding, sharpening, polishing, trueing or cutting, hand sharpening or polishing stones, and parts thereof, of natural stone, of agglomerated natural or artificial abrasives, or of ceramics, with or without parts of other materials				
6804.10.00	Millstones and grindstones for milling, grinding or pulping	6.5%	Free	Free	Free
6804.23.00	Of natural stone	6.5%	Free	Free	Free

Sources: Canadian *Customs Tariff*, effective January 2004, Canada Border Services Agency; *Harmonized Tariff Schedule of the United States*, 2004.

TABLE 1. CANADA, STONE EXPORTS AND IMPORTS, 2001-03

Item No.		2001		2002		2003	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS							
2514.00	Slate: Whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	357	252	399	138	347	232
2515.11	Marble and travertine: Crude or roughly trimmed; other calcareous stone	5	14	30	60	76	41
2515.12	Marble and travertine: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape; other calcareous stone	604	358	191	142	86	29
		(cubic metres)		(cubic metres)		(cubic metres)	
2516.11	Granite: Crude or roughly trimmed	31 569	13 195	41 229	11 168	111 625	8 018
		(tonnes)		(tonnes)		(tonnes)	
2516.12	Granite: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	25 592	6 832	15 164	5 414	16 461	3 696
		(cubic metres)		(cubic metres)		(cubic metres)	
2516.21	Sandstone: Crude or roughly trimmed	45	91	47	80	42	52
		(tonnes)		(tonnes)		(tonnes)	
2516.22	Sandstone: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	338	194	36	70	39	32
2516.90	Other monumental or building stone	3 176	1 067	7 258	2 993	5 045	1 622
2517.10	Pebbles and gravel of a kind commonly used for concrete aggregates, for road metalling or for railway or other ballast, shingle and flint, whether or not heat-treated	4 911 787	49 130	5 099 794	62 766	5 899 476	62 098
2517.41	Granules, chippings and powder, of stones of heading no. 25.15 or 25.16, whether or not heat-treated: Of marble	49 078	8 983	32 365	6 864	45 972	7 196
2517.49	Granules, chippings and powder, of stones of heading no. 25.15 or 25.16, whether or not heat-treated: Other	35 520	1 269	4 722	446	23 069	331
6801.00	Setts, curbstones and flagstones, of natural stone (except slate)	..	2 496	..	3 543	..	3 450
6802.10	Tiles, cubes and similar articles, whether or not rectangular	..	41 932	..	19 930	..	8 211
6802.21	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Marble, travertine and alabaster	..	687	..	636	..	96
6802.22	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Other calcareous stone	..	647	..	3 310	..	294
6802.23	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Granite	..	4 145	..	2 145	..	1 628
6802.29	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Other stone	..	1 169	..	958	..	937
6802.91	Other: Marble, travertine and alabaster	..	2 051	..	3 137	..	1 183
6802.92	Other: Other calcareous stone	..	8 948	..	7 735	..	6 349
6802.93.10	Other: Granite. Monuments, bases and markers, finished	10 303	20 573	12 938	21 800	10 103	17 633
6802.93.90	Other: Granite. Other	44 950	43 650	28 590	49 048	36 473	48 886
6802.99	Other: Other stone	..	40 087	..	40 887	..	36 708
6803.00	Worked slate and articles of slate or of agglomerated slate	..	6 371	..	15 808	..	19 804

TABLE 1 (cont'd)

Item No.		2001		2002		2003	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS (cont'd)							
6804.10	Millstones and grindstones for milling, grinding or pulping	..	5 233	..	5 154	..	4 834
6804.23	Other millstones, grindstones, grinding wheels and the like: Of natural stone	..	438	..	140	..	40
	Total exports	..	259 812	..	264 372	..	233 400
IMPORTS							
2514.00	Slate: Whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	6 382	3 408	8 626	4 517	11 548	5 089
2515.11	Marble and travertine: Crude or roughly trimmed; other calcareous stone	2 157	927	2 585	1 494	6 390	3 976
2515.12	Marble and travertine: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	1 278	1 060	2 643	2 843	1 827	1 784
2516.11	Granite: Crude or roughly trimmed	81 433	24 144	79 742	25 260	78 149	22 210
2516.12	Granite: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	4 034	3 719	4 530	3 735	5 500	4 983
2516.21	Sandstone: Crude or roughly trimmed	11 847	1 573	13 263	1 604	8 871	1 055
2516.22	Sandstone: Merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape	5 010	1 758	4 998	1 743	5 882	2 041
2516.90	Other monumental or building stone	8 539	3 520	9 365	3 775	8 756	3 227
2517.10	Pebbles and gravel of a kind commonly used for concrete aggregates, for road metalling or for railway or other ballast, shingle and flint, whether or not heat-treated	3 219 677	17 304	3 373 624	19 916	2 614 148	16 109
2517.41	Granules, chippings and powder, of stones of heading no. 25.15 or 25.16, whether or not heat-treated: Of marble	73 417	15 562	82 881	16 964	81 353	15 326
2517.49	Granules, chippings and powder, of stones of heading no. 25.15 or 25.16, whether or not heat-treated: Other	27 859	1 691	27 357	2 342	21 790	1 868
6801.00	Setts, curbstones and flagstones, of natural stone (except slate)	..	713	..	903	..	1 063
6802.10	Tiles, cubes and similar articles, whether or not rectangular	..	554	..	772	..	861
6802.21	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Marble, travertine and alabaster	..	11 869	..	12 636	..	16 099
6802.22	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Other calcareous stone	..	637	..	413	..	1 560
6802.23.00.10	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Granite. Building stone	5 793	7 272	5 900	7 922	6 671	8 586
6802.23.00.20	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Granite. Monumental stone	695	759	1 470	1 525	2 121	2 067
6802.23.00.90	Other monumental or building stone and articles thereof, simply cut or sawn, with a flat or even surface: Granite. Monumental stone	11 123	16 642	15 758	22 478	22 911	29 443
6802.29	Other stone	..	2 629	..	2 400	..	2 102
6802.91	Other: Marble, travertine and alabaster	..	25 897	..	29 837	..	31 021
6802.92	Other: Other calcareous stone	..	5 378	..	2 282	..	2 921
6802.93.00.10	Other: Granite. Monumental or building stone	1 388	2 409	1 746	3 045	2 398	3 975
6802.93.00.20	Other: Granite. Monuments, bases and markers, finished	3 606	5 509	3 562	4 684	3 933	4 916
6802.93.00.90	Other: Granite. Other	6 097	9 320	7 137	9 678	9 033	12 024
6802.99	Other: Other stone	..	3 126	..	3 260	..	2 446

TABLE 1 (cont'd)

Item No.		2001		2002		2003	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
IMPORTS (cont'd)							
6803.00	Worked slate and articles of slate or of agglomerated slate	..	8 156	..	8 003	..	7 907
6804.10	Millstones and grindstones for milling, grinding or pulping	..	2 605	..	2 967	..	2 624
6804.23	Other millstones, grindstones, grinding wheels and the like: Of natural stone	..	1 093	..	1 127	..	868
	Total imports	..	179 234	..	198 125	..	208 151

Source: Statistics Canada.

.. Not available or not applicable.

TABLE 2. CANADA, STONE PRODUCTION BY TYPE, (1) 1985, 1990 AND 2000-2003

	1985		1990		2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
Granite	17 219	95 424	19 524	147 048	22 054	204 833	27 005	233 463	27 127	238 116	28 919	248 776
Limestone	77 874	317 862	86 519	470 649	89 075	535 831	89 845	578 246	89 808	606 758	83 366	579 555
Marble	571	13 966	771	19 555	1 370	93 026	1 284	93 764	1 390	102 268	1 416	103 058
Sandstone	3 011	15 310	2 975	20 534	4 910	34 150	4 649	33 984	4 672	38 409	4 017	32 011
Shale (2)	1 561	3 059	1 566	5 169	948	14 504	1 976	17 590	1 749	18 235	1 637	16 148
Total	100 236	445 622	111 355	663 354	118 222	881 260	124 758	957 048	124 746	1 003 786	119 355	979 549

Source: Natural Resources Canada.

(1) Data exclude stone used in the Canadian cement, lime and clay industries. (2) May include slate.

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

TABLE 3. CANADA, STONE PRODUCTION, 2000-2003

Item No.	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE/TERRITORY (1)								
Newfoundland and Labrador	4 505	27 859	4 390	31 522	4 936	34 585	4 983	31 254
Nova Scotia	8 379	51 246	8 749	59 028	8 407	56 740	9 316	65 820
New Brunswick	3 294	19 429	4 204	20 073	4 824	28 147	5 148	30 007
Quebec	31 662	231 067	36 436	266 536	38 122	292 743	33 531	256 445
Ontario	58 704	474 155	57 969	501 956	55 945	504 246	53 944	506 085
Manitoba	4 007	19 688	3 744	17 837	3 931	18 611	4 166	20 783
Saskatchewan	x	x	x	x	x	x	x	x
Alberta	x	x	478	5 599	435	5 542	487	6 405
British Columbia	6 636	49 172	7 212	51 412	7 324	56 585	7 520	60 693
Northwest Territories	186	2 952	1 577	3 085	823	6 588	262	2 057
Total	118 335	882 342	124 758	957 048	124 746	1 003 786	119 356	979 549
BY USE (2)								
Stone (Dimension)								
Dimension stone								
Rough	360	50 388	363	53 760	453	52 265	..	..
Monumental and ornamental stone (n.f.)	111	10 598	106	9 323	78	6 844	..	..
Other (flagstone, curbstone, paving blocks, etc.)	105	16 311	110	16 136	169	21 294	..	..
Total dimension stone	576	77 297	579	79 219	700	80 403	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	21 830	131 073	21 502	148 723	20 519	138 836	..	..
Asphalt aggregate	11 509	72 753	12 152	79 648	12 051	77 728	..	..
Road metal	36 478	192 907	37 792	203 984	43 545	263 761	..	..
Railroad ballast (includes traprock)	1 681	14 375	1 475	12 824	1 605	13 458	..	..
Other uses	36 061	201 603	41 693	236 138	37 243	228 336	..	..
Chemical and metallurgical								
Cement plants, Canada	14 776	44 570	15 548	50 300	16 104	50 095	..	..
Cement plants, foreign	539	2 273	454	2 051	459	2 015	..	..
Flux in iron and steel furnaces	680	6 279	477	3 275	258	2 485	..	..
Flux in nonferrous smelters	100	1 519	145	1 969	55	869	..	..
Glass factories	51	738	44	591	46	836	..	..
Lime plants, Canada	3 184	19 513	2 970	17 279	2 742	17 147	..	..
Lime plants, foreign	1 437	8 586	1 825	13 328	2 024	15 037	..	..
Pulp and paper mills	118	1 271	69	642	57	574	..	..
Sugar refineries	-	-	-	-	-	-	..	..
Other chemical uses	1 763	12 777	1 767	10 657	2 207	11 853	..	..
Miscellaneous stone								
Manufacture of artificial stone	2	68	2	60	42	194	..	..
Roofing granules	873	37 348	854	40 426	807	36 214	..	..
Poultry grit	173	1 427	232	2 520	199	2 316	..	..
Stucco dash	23	3 985	20	4 452	17	3 799	..	..
Terrazzo chips	9	666	6	586	7	714	..	..
Rock wool	25	431	30	430	34	435	..	..
Rubble and riprap	1 257	4 476	867	3 650	873	4 799	..	..
Other uses	1 562	8 245	1 591	10 313	895	7 268	..	..
Pulverized stone								
Whiting	44	3 971	37	3 258	46	3 963	..	..
Asphalt filler	200	363	126	125	144	257	..	..
Dusting coal mines	1	51	1	89	..	..	..	..
Agricultural purposes and fertilizer plants	1 113	18 500	847	13 170	807	13 719	..	..
Other uses	1 064	82 428	1 259	88 782	1 387	98 137	..	..
Total crushed stone	136 554	872 196	143 783	949 271	144 173	994 845	..	..
Total all stone	137 130	949 493	144 362	1 028 490	144 873	1 075 248	..	..

Source: Natural Resources Canada.

- Nil; .. Not available; n.f. Not finished or dressed; x Confidential.

(1) Data exclude stone used in the Canadian cement, lime and clay industries. (2) Data include stone used in the Canadian cement, lime and clay industries.

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

TABLE 4. CANADA, LIMESTONE PRODUCTION, 2000-2003

	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE/TERRITORY (1)								
Newfoundland and Labrador	2 259	14 580	1 726	12 880	2 388	18 184	2 337	15 991
Nova Scotia	200	x	236	x	201	x	208	x
New Brunswick	652	x	619	x	683	x	504	x
Quebec	23 020	132 602	26 541	161 053	26 857	170 006	23 160	148 789
Ontario	55 355	333 780	53 834	352 504	51 935	358 542	49 776	357 069
Manitoba	3 548	15 136	3 196	14 477	3 468	15 380	3 274	15 544
Saskatchewan	x	x	-	-	-	-	-	-
Alberta	x	x	463	3 395	418	3 034	462	3 272
British Columbia	3 025	25 212	3 179	24 633	3 661	29 524	3 582	31 755
Northwest Territories	69	x	50	x	198	x	64	x
Total	89 074	535 831	89 845	578 246	89 808	606 758	83 367	579 555
BY USE (2)								
Stone (Dimension)								
Dimension stone								
Rough	81	7 214	80	6 904	142	6 357	..	..
Monumental and ornamental stone (n.f.)	45	811	35	680	41	746	..	..
Other (flagstone, curbstome, paving blocks, etc.)	69	6 679	70	6 343	125	10 443	..	..
Total dimension stone	195	14 704	186	13 928	307	17 546	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	18 569	109 303	18 162	125 135	15 870	106 094	..	..
Asphalt aggregate	6 761	39 980	6 873	42 730	6 168	37 482	..	..
Road metal	29 433	157 038	28 029	155 602	34 324	215 212	..	..
Railroad ballast (includes traprock)	86	475	79	457	58	406	..	..
Other uses	27 281	148 938	30 455	172 514	26 880	163 042	..	..
Chemical and metallurgical								
Cement plants, Canada	13 943	41 244	14 827	47 457	15 519	47 751	..	..
Cement plants, foreign	482	2 014	418	1 893	431	1 896	..	..
Flux in iron and steel furnaces	680	6 279	477	3 275	258	2 485	..	..
Flux in nonferrous smelters	39	684	94	1 642	55	869	..	..
Glass factories	51	738	44	591	45	808	..	..
Lime plants, Canada	3 184	19 513	2 970	17 279	2 742	17 147	..	..
Lime plants, foreign	1 437	8 586	1 825	13 328	2 024	15 037	..	..
Pulp and paper mills	118	1 271	69	642	57	574	..	..
Sugar refineries	-	-	-	-	-	-	..	..
Other chemical uses	928	9 710	680	6 794	927	7 634	..	..
Miscellaneous stone								
Manufacture of artificial stone	-	-	-	-	-	-	..	..
Roofing granules	103	623	126	982	105	862	..	..
Poultry grit	172	1 351	230	2 399	198	2 213	..	..
Stucco dash	22	3 822	19	4 269	16	3 700	..	..
Rock wool	2	11	3	17	2	17	..	..
Rubble and riprap	725	2 341	326	1 796	466	2 577	..	..
Other uses	752	6 013	665	8 946	500	4 842	..	..
Pulverized stone								
Whiting	44	3 971	37	3 258	46	3 963	..	..
Asphalt filler	68	299	11	61	21	189	..	..
Dusting, coal mines	1	51	1	89	-	-	..	..
Agricultural purposes and fertilizer plants	1 046	16 152	763	10 188	736	10 654	..	..
Other uses	78	1 477	272	7 711	315	8 658	..	..
Total crushed stone	106 007	581 883	107 456	629 055	107 763	654 112	..	..
Total all stone	106 202	596 587	107 642	642 982	108 070	671 658	..	..

Source: Natural Resources Canada.

- Nil; .. Not available; n.f. Not finished or dressed; x Confidential.

(1) Data exclude stone used in the Canadian cement and lime industries. (2) Data include stone used in the Canadian cement and lime industries.

Notes: Includes dolomite/dolostone. Numbers may not add to totals due to rounding.

TABLE 5. CANADA, MARBLE PRODUCTION, (1) 2000-2003

	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE								
Nova Scotia	-	-	-	-	-	-	...	160
Quebec	591	x	549	x	581	x	651	x
Ontario	757	x	734	x	744	x	164	x
British Columbia	1	x	-	-	-	-	...	x
Total	1 348	93 026	1 284	93 764	1 390	102 267	1 416	103 058
BY USE								
Stone (Dimension)								
Dimension stone								
Rough	19	1 071	22	1 107	12	612	..	..
Monumental and ornamental stone (n.f.)	1	104	-	-	-	-	..	..
Other (flagstone, curbstone, paving, blocks, etc.)	11	1 738	11	2 119	11	2 307	..	..
Total dimension stone	31	2 913	33	3 226	23	2 919	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	202	2 134	167	1 851	139	1 744	..	..
Asphalt aggregate	3	18	8	46	18	138	..	..
Road metal	62	295	18	84	40	195	..	..
Other uses	124	3 112	125	3 154	126	2 977	..	..
Chemical process stone								
Flux in nonferrous smelters	4	131	...	10	-	-	..	..
Glass factories	-	-	-	-	1	27	..	..
Miscellaneous stone								
Manufacture of artificial stone	2	68	2	60	2	96	..	..
Roofing granules	30	804	46	1 527	66	1 772	..	..
Poultry grit	...	...	...	22	...	7	..	..
Stucco dash	1	100	1	150	...	80	..	..
Terrazzo chips	9	666	6	586	7	714	..	..
Rock wool	-	-	-	-	-	-	..	..
Rubble and riprap	-	-	-	-	-	-	..	..
Other uses	11	694	4	323	6	337	..	..
Pulverized stone								
Agricultural purposes and fertilizer plants	67	2 349	84	2 982	71	3 064	..	..
Other uses	802	79 742	791	79 744	889	88 199	..	..
Total crushed stone	1 317	90 113	1 251	90 538	1 366	99 349	..	..
Total all stone	1 348	93 026	1 284	93 764	1 389	102 268	..	..

Source: Natural Resources Canada.

- Nil; .. Not available; ... Amount too small to be expressed; n.f. Not finished or dressed; x Confidential.

(1) Marble refers to a commercial definition that may also include limestone, travertine and greenstone (serpentine or amphibole).

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

TABLE 6. CANADA, GRANITE PRODUCTION, 2000-2003

	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE/TERRITORY								
Newfoundland and Labrador	1 053	8 753	1 431	12 301	1 521	9 274	2 010	12 513
Nova Scotia	6 736	40 356	7 040	46 803	6 760	44 909	7 406	52 355
New Brunswick	2 279	9 967	3 404	13 602	3 794	20 015	4 303	24 635
Quebec	5 486	(r) 57 443	6 030	61 641	7 295	72 310	6 999	64 126
Ontario	2 546	x	3 304	x	3 224	x	3 382	x
Manitoba	326	x	308	x	305	x	729	x
British Columbia	3 544	x	3 984	x	3 617	x	3 904	x
Northwest Territories	84	x	1 504	x	612	x	185	x
Total	22 054	204 833	27 005	233 463	27 128	238 116	28 918	248 776
BY USE								
Stone (Dimension)								
Dimension stone								
Rough	174	30 252	168	32 378	204	30 632	..	..
Monumental and ornamental stone (n.f.)	61	9 873	69	8 543	37	6 019	..	..
Other (flagstone, curbstone, paving blocks, etc.)	3	696	3	665	3	788	..	..
Total dimension stone	238	40 481	240	41 585	244	37 440	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	2 818	18 245	2 950	20 434	4 247	29 357	..	..
Asphalt aggregate	4 310	29 692	4 681	33 053	5 211	35 146	..	..
Road metal	5 190	28 091	6 913	37 458	6 883	37 440	..	..
Railroad ballast (includes traprock)	1 510	13 582	1 354	12 090	1 426	12 412	..	..
Other uses	6 093	35 456	8 933	48 507	7 781	48 742	..	..
Chemical process stone								
Cement plants, Canada	30	210	31	217	27	189	..	..
Miscellaneous stone								
Manufacture of artificial stone	—	—	—	—	—	—	..	..
Roofing granules	730	35 803	671	37 798	626	33 456	..	..
Poultry grit	1	75	1	100	...	97	..	..
Stucco dash	...	63	...	33	...	19	..	..
Rock wool	23	421	27	413	32	418	..	..
Rubble and riprap	288	1 533	304	1 200	295	1 914	..	..
Other uses	703	1 236	794	609	240	1 505	..	..
Pulverized stone								
Asphalt filler	132	64	115	64	123	68	..	..
Other uses	18	90	22	119	19	103	..	..
Total crushed stone	21 846	164 562	26 796	192 095	26 910	200 866	..	..
Total all stone	22 084	205 043	27 036	233 680	27 154	238 306	..	..

Source: Natural Resources Canada.

— Nil; .. Not available; ... Amount too small to be expressed; n.f. Not finished or dressed; x Confidential.

Notes: Numbers may not add to totals due to rounding. Data include shipments by producers regardless of industrial classification. Granite may include other igneous rocks (e.g., basaltic roofing granules).

TABLE 7. CANADA, SANDSTONE PRODUCTION, 2000-2003

	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE (1)								
Newfoundland and Labrador	1 035	4 036	992	3 344	955	4 297	540	2 485
Nova Scotia	1 418	7 732	1 448	8 446	1 326	8 083	1 588	9 024
New Brunswick	68	x	64	x	61	x	61	x
Quebec	2 351	18 860	2 052	19 417	2 311	23 466	1 812	17 397
Ontario	18	2 451	87	2 575	17	2 251	14	2 773
Manitoba	1	x	—	—	—	—	—	—
Alberta	—	—	1	x	1	x	1	x
British Columbia	18	x	4	x	...	x	1	x
Total	4 910	34 150	4 649	33 984	4 672	38 409	4 017	32 011
BY USE (2)								
Stone (Dimension)								
Dimension stone								
Rough	58	8 535	69	9 968	71	10 846	..	..
Monumental and ornamental stone (n.f.)	6	174	1	86	...	78	..	..
Other (flagstone, curbstone, paving blocks, etc.)	7	532	8	614	10	685	..	..
Total dimension stone	72	9 241	77	10 667	81	11 609	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	241	1 391	224	1 302	263	1 642	..	..
Asphalt aggregate	425	3 043	585	3 798	653	4 962	..	..
Road metal	1 486	6 647	1 329	5 208	1 238	6 401	..	..
Railroad ballast (includes traprock)	85	318	30	213	57	343	..	..
Other uses	2 073	10 717	1 891	10 276	1 984	11 356	..	..
Chemical process stone								
Cement plants, Canada	141	816	177	892	109	559	..	..
Cement plants, foreign	18	98	4	23	—	—	..	..
Flux in nonferrous smelters	56	704	50	317	—	—	..	..
Other chemical uses	—	—	—	—	—	—	..	..
Miscellaneous stone								
Manufacture of artificial stone	—	—	—	—	39	98	..	..
Roofing granules	10	118	10	119	10	124	..	..
Rubble and riprap	242	600	235	649	106	299	..	..
Other uses	36	154	37	203	77	397	..	..
Pulverized stone								
Whiting	—	—	—	—	—	—	..	..
Other uses	165	1 119	174	1 209	164	1 178	..	..
Total crushed stone	4 979	25 725	4 749	24 209	4 700	27 359	..	..
Total all stone	5 051	34 965	4 826	34 876	4 781	38 968	..	..

Source: Natural Resources Canada.

— Nil; .. Not available; ... Amount too small to be expressed; n.f. Not finished or dressed; x Confidential.

(1) Data exclude stone used in the Canadian cement industry. (2) Data include stone used in the Canadian cement industry.

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

TABLE 8. CANADA, SHALE PRODUCTION, (1) 2000-2003

	2000		2001		2002		2003	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE/TERRITORY (2)								
Newfoundland and Labrador	158	490	x	x	x	x	97	264
Nova Scotia	x	x	x	x	x	x	x	x
New Brunswick	295	x	116	x	286	x	280	x
Quebec	x	x	x	x	x	x	x	x
Ontario	28	1 279	10	1 244	8	1 434	x	x
Manitoba	132	79	240	x	158	x	163	x
Alberta	15	x	14	x	16	x	23	x
British Columbia	x	x	x	x	x	x	x	x
Northwest Territories	33	x	23	x	13	x	13	x
Total	948	14 504	1 976	17 590	1 748	18 235	1 637	16 148
BY USE (3)								
Stone (Dimension)								
Dimension stone								
Rough	26	3 317	24	3 403	25	3 818	..	..
Monumental and ornamental stone (n.f.)	-	-	1	14	-	-	..	..
Other (flagstone, curbstone, paving blocks, etc.)	15	6 641	17	6 396	21	7 071	..	..
Total dimension stone	41	9 958	43	9 812	46	10 889	..	..
Stone (Crushed)								
Crushed stone for								
Concrete aggregate	-	-	-	-	-	-	..	..
Asphalt aggregate	10	20	4	21	-	-	..	..
Road metal	308	836	1 503	5 633	1 061	4 514	..	..
Railroad ballast (includes traprock)	-	-	12	65	65	297	..	..
Other uses	490	3 381	289	1 687	472	2 219	..	..
Chemical process stone								
Cement plants, Canada	662	2 301	513	1 734	449	1 596	..	..
Cement plants, foreign	38	160	32	135	28	119	..	..
Other chemical uses	835	3 067	1 086	3 863	1 280	4 219	..	..
Miscellaneous stone								
Rubble and riprap	1	1	2	5	6	10	..	..
Other uses	60	148	90	233	72	188	..	..
Total crushed stone	2 404	9 914	3 532	13 375	3 433	13 162	..	..
Total all stone	2 445	19 872	3 575	23 188	3 478	24 051	..	..

Source: Natural Resources Canada.

- Nil; .. Not available; x Confidential.

(1) May include slate. (2) Data exclude stone used in the Canadian cement and clay industries. (3) Data include stone used in the Canadian cement and clay industries.

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

TABLE 9. CANADA, ROUGH GRANITE, SUMMARY OF PRODUCTION AND TRADE, 1988-2003

	Quantity	Production (1)	Imports (2)	Exports (2, 3)
	Value			
1988	t	153 000	46 282	(r) 234 738
	\$ millions	24.4	11.2	16.2
1989	t	162 000	52 337	(r) 289 184
	\$ millions	24.8	11.7	17.3
1990	t	166 000	46 149	(r) 363 258
	\$ millions	33.6	11.2	19.8
1991	t	122 000	35 038	(r) 99 622
	\$ millions	24.0	8.5	22.6
1992	t	127 000	44 951	(r) 95 909
	\$ millions	20.3	10.5	21.4
1993	t	134 000	41 484	(r) 136 841
	\$ millions	18.1	10.8	20.3
1994	t	112 000	35 619	(r) 116 164
	\$ millions	16.9	10.1	20.0
1995	t	158 000	41 099	(r) 94 200
	\$ millions	19.6	11.4	17.9
1996	t	163 000	53 543	(r) 102 037
	\$ millions	24.6	15.4	20.9
1997	t	161 000	54 639	(r) 116 142
	\$ millions	24.5	16.0	16.4
1998	t	163 000	75 186	69 937
	\$ millions	27.3	23.0	15.1
1999	t	193 000	68 770	73 687
	\$ millions	32.8	23.2	16.5
2000	t	238 000	(r) 66 041	95 680
	\$ millions	40.5	(r) 21.9	19.4
2001	t	240 000	85 467	110 828
	\$ millions	41.6	27.9	20.0
2002	t	(r) 244 000	84 872	126 482
	\$ millions	37.4	29.0	16.6
2003	t	..	83 649	317 848
	\$ millions	..	27.2	11.7

Sources: Natural Resources Canada; Statistics Canada.

.. Not available; (r) Revised.

(1) Includes rough granite for construction, monumental/ornamental and other uses, as per Table 6. (2) Includes codes 2516.11 (roughly trimmed block) and 2516.12 (cut block by sawing or otherwise). Some re-exports to the United States may also be involved. (3) All export numbers were revised to reflect the conversion from cubic metres to tonnes. Earlier editions of the *Canadian Minerals Yearbook* did not reflect that conversion.

Note: A factor of 2.7 was used for converting cubic metres to tonnes.