

Mineral Aggregates

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This 1997 review on mineral aggregates has been abbreviated to mainly include tables.

Total Canadian shipments of mineral aggregates (mostly crushed stone, as well as sand and gravel, but excluding limestone used to process cement and lime) amounted to about 286 Mt in 1997. This amount is about 1% higher than in 1996, based on preliminary figures.

Increased demand for aggregates is expected in 1998 based on continued growth in the residential and non-residential construction sectors. Unit values generally continued to increase in pace with the rate of inflation, with selling prices varying considerably depending on proximity to consumers. Additional detailed information relating to all types of stone, including limestone, granite, marble, sandstone and shale, is included in a separate chapter entitled *Stone*. Tariffs for nearly all stone products are free, and are listed in the aforementioned chapter.

The \$6 billion cost-shared program for infrastructure renewal, supported by all three levels of government, has contributed to total construction activity in Canada. Related program expenditures will be discontinued in the 1998/99 fiscal year.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 65. (2) Information in this review was current as of February 1, 1998.

TABLE 1. CANADA, TOTAL PRODUCTION OF STONE, 1995-97

	1995		1996		1997 ^p	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
BY PROVINCE¹						
Newfoundland	1 097	9 812	1 195	12 007	2 370	22 125
Nova Scotia	7 233	39 255	6 260	35 726	5 947	35 508
New Brunswick	3 892	22 153	4 691	23 539	3 843	17 876
Quebec	32 803	197 725	30 583	191 916	28 618	181 965
Ontario	41 683	252 409	39 620	267 710	42 300	288 312
Manitoba	3 551	15 020	3 298	14 422	4 100	17 445
Alberta	466	4 494	549	6 174	572	6 780
British Columbia	7 204	45 942	6 050	39 483	6 273	46 701
Northwest Territories and Yukon	649	4 447	203	1 195	205	947
Total	98 578	591 255	92 449	592 172	94 230	617 660
BY USE²						
Dimensional stone						
Rough	238	26 042	232	28 853	..	..
Monumental and ornamental stone (n.f.)	43	5 147	53	7 111	..	..
Other (flagstone, curbstone, paving blocks, etc.)	40	2 810	39	3 327	..	..
Lining open-hearth furnaces	—	—	—	—	..	..
Chemical and metallurgical						
Cement plants, Canada	14 953	49 880	14 390	44 589	..	..
Cement plants, foreign	1 648	7 386	1 725	7 477	..	..
Flux in iron and steel furnaces	307	2 380	297	2 178	..	..
Flux in nonferrous smelters	181	1 501	164	915	..	..
Glass factories	146	2 860	146	2 700	..	..
Lime plants, Canada	3 473	25 222	4 828	27 045	..	..
Lime plants, foreign	347	2 216	115	700	..	..
Pulp and paper mills	130	1 449	134	1 558	..	..
Sugar refineries	20	284	16	68	..	..
Other chemical uses	1 028	6 318	1 570	9 638	..	..
Pulverized stone						
Whiting	37	2 920	40	2 879	..	..
Asphalt filler	190	630	139	198	..	..
Dusting coal mines	5	291	4	233	..	..
Agricultural purposes and fertilizer plants	1 109	16 272	946	15 545	..	..
Other uses	739	23 362	847	26 949	..	..
Miscellaneous stone						
Manufacture of artificial stone	29	224	465	2 182	..	..
Roofing granules	473	13 616	487	22 609	..	..
Poultry grit	55	1 210	133	1 595	..	..
Stucco dash	18	2 015	19	3 201	..	..
Terrazzo chips	4	404	4	365	..	..
Rock wool	1	25	4	29	..	..
Rubble and riprap	1 259	6 417	1 163	6 057	..	..
Other uses	1 519	9 748	1 416	11 443	..	..
Crushed stone for						
Concrete aggregate	9 345	50 782	9 803	56 521	..	..
Asphalt aggregate	11 589	67 055	10 681	60 754	..	..
Road metal	39 731	196 619	36 480	189 602	..	..
Railroad ballast (includes traprock)	1 478	12 515	1 393	11 090	..	..
Other uses	27 459	130 944	24 675	119 843	..	..
Total	117 595	668 546	112 409	667 254	..	..

Sources: Natural Resources Canada; Statistics Canada.

— Nil; .. Not available; n.f. Not finished or dressed; ^p Preliminary.¹ Data exclude stone used in the Canadian cement and lime industries. ² Data include stone used in the Canadian cement and lime industries.

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

TABLE 2. CANADA, PRODUCTION OF SAND AND GRAVEL¹ BY PROVINCE, 1995-97

	1995		1996		1997p	
	(000 t)	(\$000)	(000 t)	(\$000)	(000 t)	(\$000)
Newfoundland	2 181	12 027	2 010	11 269	1 966	10 447
Prince Edward Island	341	1 621	316	1 277	313	1 353
Nova Scotia	3 436	13 511	4 245	16 190	4 229	16 119
New Brunswick	5 374	x	4 288	x	4 063	x
Quebec	29 109	82 736	29 537	81 944	25 293	72 032
Ontario	90 747	322 254	86 571	321 079	88 284	329 283
Manitoba	11 179	x	8 803	x	10 110	x
Saskatchewan	8 313	x	9 279	x	11 125	x
Alberta	31 207	112 767	30 141	118 221	31 698	134 486
British Columbia	39 024	158 192	35 674	149 741	34 847	151 523
Yukon	1 120	3 900	1 309	4 984	866	2 934
Northwest Territories	3 960	16 040	1 657	6 488	1 508	6 244
Total	225 992	793 489	213 831	772 590	214 302	800 531

Source: Natural Resources Canada.

P Preliminary; x Confidential.

¹ Production represents shipments of natural gravel, sand and crushed gravel, and quartz-silica, excluding silica used in Canadian cement plants.

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

TABLE 3. AVAILABLE DATA ON CONSUMPTION OF SAND AND GRAVEL, BY PROVINCE, 1995 AND 1996

		Atlantic	Quebec	Ontario	Western	Canada
		Provinces			Provinces ¹	
		(000 tonnes)				
Road bed, surface	1995	6 232	17 698	48 177	50 438	122 545
	1996	6 078	17 717	45 854	44 368	114 017
Roads, ice control	1995	416	930	3 276	1 272	5 894
	1996	472	988	2 686	1 641	5 786
Concrete aggregate	1995	1 529	2 998	9 696	14 151	28 373
	1996	1 447	3 067	10 349	13 287	28 150
Asphalt aggregate	1995	1 152	3 255	7 275	6 683	18 366
	1996	1 246	3 527	7 022	6 987	18 782
Railroad ballast	1995	9	49	11	939	1 007
	1996	170	30	12	362	574
Mortar sand	1995	51	259	779	249	1 338
	1996	58	233	756	247	1 295
Backfill for mines	1995	...	22	1 014	509	1 545
	1996	...	38	1 483	84	1 606
Fill	1995	1 198	2 318	8 202	7 542	19 260
	1996	836	1 873	7 671	6 137	16 517
Other purposes	1995	777	1 580	12 645	13 575	28 577
	1996	604	2 064	11 183	14 310	28 162
Total	1995	11 364	29 109	91 076	95 356	226 906
	1996	10 911	29 537	87 017	87 423	214 889

Source: Natural Resources Canada.

... Amount too small to be expressed.

¹ The western provinces include the Yukon and Northwest Territories.

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

TABLE 4. CANADA, EXPORTS AND IMPORTS OF SAND AND GRAVEL AND CRUSHED STONE, 1995-97

Item No.	1995		1996		1997p		
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)	
EXPORTS							
2505.90	Natural sands n.e.s., excluding metal-bearing sands						
	United States	61 863	662	123 235	1 771	298 640	2 856
	Jamaica	—	—	—	—	101 178	2 033
	Bahamas	—	—	51 407	1 271	15 974	257
	Bermuda	25 129	214	18 748	201	13 352	241
	Other countries	12 927	119	2 682	221	—	—
	Total	99 919	995	196 072	3 464	429 144	5 387
2517.10	Pebbles, gravel, broken or crushed stone used for aggregates, etc.						
	United States	2 476 998	19 425	2 625 312	19 227	3 102 466	24 144
	Estonia	—	—	—	—	501	220
	Turkey	—	—	9 245	66	2 341	188
	Bahamas	—	—	—	—	8 024	183
	Guyana	—	—	—	—	16 832	173
	Bermuda	28 262	242	17 912	298	13 155	129
	Other countries	110 464	1 513	93 154	488	75 436	447
	Total	2 615 724	21 180	2 745 623	20 079	3 218 755	25 484
2517.41	Marble granules, chippings and powder of 25.14 or 25.16, heat-treated or not						
	United States	80 258	8 806	31 778	3 556	130 471	18 301
	Norway	—	—	—	—	5 587	582
	France	—	—	—	—	1 170	118
	Other countries	148	18	—	—	—	—
	Total	80 406	8 824	31 778	3 556	137 228	19 001
2517.49	Granules, chippings and powder, n.e.s., of 25.15 or 25.16, heat-treated or not						
	United States	180 336	622	113 179	697	1 311	118
	Other countries	61	33	—	—	154	20
	Total	180 397	655	113 179	697	1 465	138
2518.10	Dolomite, not calcined						
	United States	310 873	1 857	592 098	3 956	707 573	4 489
	Trinidad and Tobago	24 252	280	25 292	292	—	—
	Other countries	8 635	128	2	12	228	59
	Total	343 760	2 265	617 392	4 260	707 801	4 548
2518.20	Calcined dolomite						
	United States	62 132	9 201	33 827	6 346	33 620	6 390
	Trinidad and Tobago	49 544	588	—	—	50 559	670
	Venezuela	—	—	26 422	887	26 602	355
	Other countries	34 513	473	562	135	—	—
	Total	146 189	10 262	60 811	7 368	110 781	7 415
2518.30	Agglomerated dolomite (including tarred dolomite)						
	Trinidad and Tobago	26 041	301	—	—	—	—
	Other countries	334	49	—	—	—	—
	Total	26 375	350	—	—	—	—
2521.00	Limestone flux; limestone and other calcareous stone used for lime or cement						
	United States	2 286 651	15 631	2 408 555	14 577	2 523 677	14 552
	Other countries	18 282	10	810	4	—	—
	Total	2 304 933	15 641	2 409 365	14 581	2 523 677	14 552
IMPORTS							
2505.90	Natural sands n.e.s., excluding metal-bearing sands						
	United States	286 623	4 749	227 944	4 734	287 827	6 534
	Australia	—	—	186	53	286	66
	United Kingdom	1 949	63	1 628	46	1 239	42
	Philippines	20	5	193	6	55	26
	Other countries	3 512	159	628	101	6 089	64
	Total	292 104	4 976	230 579	4 940	295 496	6 732

TABLE 4 (cont'd)

Item No.	1995		1996		1997P		
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)	
IMPORTS (cont'd)							
2517.10	Pebbles, gravel, broken or crushed stone used for aggregates, etc.						
	United States	1 214 812	10 941	3 321 385	16 544	3 264 608	17 150
	China	11	1	—	—	6 207	54
	United Kingdom	121	4	1 538	23	1 880	26
	Papua New Guinea	—	—	—	—	3 196	12
	Indonesia	108	13	—	—	247	12
	Philippines	26	3	—	—	1 072	11
	France	1 175	19	1 623	8	328	4
	Other countries	1 015	13	1 316	40	1 695	27
	Total	1 217 268	10 994	3 325 862	16 615	3 279 233	17 296
2517.20	Macadam of slag, dross or similar industrial waste, etc.						
	United States	339	5	—	—	907	3
	Other countries	—	—	—	—	162	1
	Total	339	5	—	—	1 069	4
2517.30	Tarred macadam						
	United States	552	31	7	1	550	26
	Total	552	31	7	1	550	26
2517.41	Marble granules, chippings and powder of 25.15 or 25.16, heat-treated or not						
	United States	77 592	10 467	68 167	9 674	77 917	12 542
	France	150	30	174	34	373	44
	Other countries	105	16	129	21	163	25
	Total	77 847	10 513	68 470	9 729	78 453	12 611
2517.49	Granules, chippings and powder, n.e.s., of 25.15 or 25.16, heat-treated or not						
	United States	264 552	3 366	146 632	1 707	77 159	1 901
	France	742	92	4 025	233	527	60
	Mexico	139	17	64 555	1 001	9	1
	Other countries	631	58	92	11	72	6
	Total	266 064	3 533	215 304	2 952	77 767	1 968
2518.10	Dolomite, not calcined						
	United States	2 141	377	3 150	459	2 699	501
	Other countries	92	30	—	—	8	2
	Total	2 233	407	3 150	459	2 707	503
2518.20	Calcined dolomite						
	United States	7 242	749	4 113	866	6 459	952
	Total	7 242	749	4 113	866	6 459	952
2518.30	Agglomerated dolomite (including tarred dolomite)						
	United States	47	25	22	12	10	4
	United Kingdom	1	...	—	—	—	—
	Total	48	25	22	12	10	4
2521.00	Limestone flux; limestone and other calcareous stone used for lime or cement						
	United States	4 499 620	20 917	2 523 290	13 334	3 206 775	15 143
	Other countries	14 183	87	38 597	127	7 467	36
	Total	4 514 803	21 004	2 561 887	13 461	3 214 242	15 179

Source: Statistics Canada.

— Nil; ... Amount too small to be expressed; n.e.s. Not elsewhere specified; P Preliminary.

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

TABLE 5. LIGHTWEIGHT AGGREGATE PRODUCERS IN CANADA, 1996

Company	Location	Commodity	Remarks
ATLANTIC PROVINCES			
Fafard Peat Moss Company Ltd.	Shippagan, N.B.	Perlite, vermiculite	Processed for use in horticulture.
Sun Gro Horticulture Canada Ltd.	Maisonnette, N.B.	Perlite	Processed for use in horticulture.
QUEBEC			
Premier Peat Moss Ltd.	Rivière du Loup	Perlite, vermiculite	Processed for use in horticulture.
Vermi-lite Inc.	Baie-du-Febvre	Perlite, vermiculite	Processed for use in horticulture.
ONTARIO			
National Slag Limited	Hamilton	Slag	Used in concrete products industry and as slag cement.
V.I.L. Vermiculite Inc.	Woodbridge	Vermiculite, perlite	Vermiculite processed for use in loose insulation, horticulture and concrete products. Perlite processed for use in horticulture.
W.R. Grace & Co. of Canada Ltd.	Ajax	Vermiculite, perlite	Vermiculite processed for use in horticulture, as loose insulation, in refractories, and in friction materials. Perlite processed for use in gypsum plaster, horticulture, refractories and as loose insulation.
PRAIRIE PROVINCES			
Cindercrete Products Limited	Saskatoon, Sask.	Expanded clay	Processed for concrete products industry.
Inland Cement Limited	Calgary, Alta.	Expanded shale	Processed for concrete products industry and for loose insulation.
	Edmonton, Alta.	Expanded clay	Processed for concrete products industry, loose insulation, and horticulture.
Sun Gro Horticulture Canada Ltd.	Elma, Man.	Perlite	Processed for use in horticulture.
Sun Gro Horticulture Canada Ltd.	Seba Beach, Alta.	Perlite, pumice	Processed for use in horticulture.
W.R. Grace & Co. of Canada Ltd.	Winnipeg, Man.	Vermiculite, perlite	Perlite processed for use in gypsum plaster and in horticulture.
	Edmonton, Alta.	Vermiculite, perlite	Vermiculite processed for use in horticulture and as loose insulation.
BRITISH COLUMBIA			
Great Pacific Pumice Inc.	Vancouver	Pumice	Used in horticulture and concrete products industry.
Ocean Construction Supplies Limited	Vancouver	Pumice	Purchased for concrete products industry.

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada."

TABLE 6. CANADA, IMPORTS AND EXPORTS OF VERMICULITE, PERLITE AND PUMICE, 1995-97

Item No.		1995		1996		1997P	
		(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
EXPORTS							
2513.11	Pumice stone, crude or in irregular pieces, including crushed pumice						
	United States	–	–	84	18	170	31
	Sweden	15	11	–	–	–	–
	Total	15	11	84	18	170	31
2513.19	Pumice stone, other						
	United States	3	5	–	–	21	4
	Total	3	5	–	–	21	4
IMPORTS							
2513.11	Pumice stone, crude or in irregular pieces, including crushed pumice						
	Turkey	3 980	605	4 345	646	5 076	700
	United States	5 066	625	3 338	599	4 176	643
	Other countries	352	69	320	59	84	16
	Total	9 398	1 299	8 003	1 304	9 336	1 359
2513.19	Pumice stone, other						
	United States	2 699	579	2 981	872	2 364	481
	Turkey	815	171	764	108	72	11
	Other countries	261	83	339	118	386	88
	Total	3 775	833	4 084	1 098	2 822	580
2530.10.10.10	Vermiculite, unexpanded						
	South Africa	11 446	2 482	12 407	2 806	13 115	3 029
	United States	7 067	1 254	8 010	1 391	8 924	1 458
	Greece	1 257	120	3 327	292	3 246	312
	Other countries	102	13	1 400	228	–	–
	Total	19 872	3 869	25 144	4 717	25 285	4 799
2530.10.10.20	Perlite, unexpanded						
	United States	29 714	4 477	32 506	4 670	30 320	4 761
	Greece	7 855	768	5 993	548	12 328	1 252
	Other countries	–	–	600	40	28	3
	Total	37 569	5 245	39 099	5 258	42 676	6 016
3802.90.20	Activated perlite, excluding expanded perlite ground to be employed in filtering						
	United States	197	182	115	83	345	230
	Other countries	–	–	–	–	38	42
	Total	197	182	115	83	383	272
6806.20.00.10	Exfoliated (expanded) vermiculite						
	United States	319	664	201	430	225	661
	South Africa	2	4	5	10	1	2
	Total	321	668	206	440	226	663
6806.20.00.20	Expanded perlite						
	United States	6 140	4 360	5 872	4 001	6 685	4 261
	Other countries	19	15	–	–	4	3
	Total	6 159	4 375	5 872	4 001	6 689	4 264

Source: Statistics Canada.

– Nil; P Preliminary.

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

TABLE 7. CANADA, LIGHTWEIGHT AGGREGATES PRODUCED, SOLD AND USED, 1995 AND 1996

	1995				1996			
	Produced		Sold and Used		Produced		Sold and Used	
	(m ³)	(\$)	(m ³)	(\$)	(m ³)	(\$)	(m ³)	(\$)
From domestic and/or imported raw materials								
Expanded clay, shale and slag ¹	202 809	6 602 065	173 146	5 561 853	177 348	5 390 690	150 390	4 980 329
From imported crude materials								
Expanded perlite and exfoliated vermiculite ¹	437 362	21 920 686	449 274	22 582 000	500 357	24 752 580	524 611	25 999 342
Total	640 171	28 522 751	622 420	28 143 853	677 705	30 143 270	675 001	30 979 671

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada" (see Table 5 for list of establishments surveyed).

¹ Combined to avoid disclosing confidential company data.

TABLE 8. CANADA, SALES OF EXPANDED SLAG, PERCENTAGE BY END USE, 1994-96

Use	1994	1995	1996
	(%)		
Concrete block manufacture	75.0	85.0	96.0
Ready-mix concrete	5.0	4.0	4.0
Miscellaneous uses	20.0	11.0	—

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada."

— Nil.

Notes: See Table 5 for list of establishments surveyed. Sales also imply quantities consumed for own use.

TABLE 9. CANADA, SALES OF EXPANDED CLAY AND SHALE, PERCENTAGE BY END USE, 1994-96

Use	1994	1995	1996
	(%)		
Loose insulation	54.3	47.1	51.6
Concrete block manufacture	28.0	49.8	43.7
Ready-mix concrete	1.5	2.0	2.0
Precast concrete manufacture	11.0	0.6	1.8
Horticulture and miscellaneous uses	5.2	0.5	0.9

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada."

Notes: See Table 5 for list of establishments surveyed. Sales also imply quantities consumed for own use.

TABLE 10. CANADA, SALES OF EXPANDED PERLITE, PERCENTAGE BY END USE, 1994-96

Use	1994	1995	1996
	(%)		
Horticulture and agriculture	92.4	92.2	94.2
Insulation in gypsum products	0.4	0.5	2.8
Loose insulation and miscellaneous uses	7.2	7.3	3.1

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada."
Notes: See Table 5 for list of establishments surveyed. Sales also imply quantities consumed for own use.

TABLE 11. CANADA, SALES OF EXPANDED VERMICULITE, PERCENTAGE BY END USE, 1994-96

Use	1994	1995	1996
	(%)		
Horticulture	81.4	83.6	86.1
Loose insulation	8.0	8.2	2.4
Miscellaneous uses	10.6	8.2	11.5

Source: Natural Resources Canada, reported from NRCan survey questionnaire "Production of Lightweight Aggregates in Canada."
Notes: See Table 5 for list of establishments surveyed. Sales also imply quantities consumed for own use.

TABLE 12. CANADA, VALUE OF CONSTRUCTION BY TYPE, 1993-95

	1993	1994	1995
	(\$ millions)		
BUILDING CONSTRUCTION			
Residential	32 577	34 922	29 186
Industrial	2 219	3 006	3 243
Commercial	8 479	6 251	6 265
Institutional	4 123	4 931	4 982
Other building	1 840	1 948	2 095
Total building	49 238	51 058	45 770
ENGINEERING CONSTRUCTION			
Marine	243	492	445
Transportation	5 340	6 032	6 436
Waterworks	793	904	1 140
Sewage, dams, sanitary systems	1 303	1 501	1 585
Electric power	5 347	3 965	3 441
Railway, telephones	1 587	1 446	1 298
Gas and oil facilities	9 503	13 721	13 474
Other engineering	2 188	2 325	2 803
Total engineering	26 304	30 386	30 621
Total construction	75 542	81 444	76 391

Sources: Natural Resources Canada; Statistics Canada, catalogue no. 61-223.
Notes: Numbers may not add to totals due to rounding. Expenditures include value of new construction as well as major renovation work purchased.

TABLE 13. CANADA, VALUE OF CONSTRUCTION BY PROVINCE, 1993-95

	1993			1994			1995		
	Building Construction	Engineering Construction	Total	Building Construction	Engineering Construction	Total	Building Construction	Engineering Construction	Total
	(\$ millions)								
Newfoundland	696	1 308	2 004	742	1 728	2 470	567	1 704	2 261
Nova Scotia	1 255	647	1 902	1 330	451	1 781	1 300	514	1 813
New Brunswick	939	664	1 603	980	528	1 508	837	743	1 580
Prince Edward Island	211	65	276	174	155	329	175	189	364
Quebec	10 796	5 117	15 913	11 366	4 916	16 282	9 643	4 636	14 278
Ontario	17 634	5 953	23 587	18 541	6 027	24 568	16 814	6 135	22 949
Manitoba	1 174	735	1 909	1 417	669	2 086	1 292	870	2 161
Saskatchewan	961	1 481	2 442	1 125	1 866	2 991	1 170	1 674	2 844
Alberta	5 478	7 072	12 550	4 696	9 853	14 549	4 402	9 847	14 250
British Columbia, Yukon and Northwest Territories	10 094	3 262	13 356	10 687	4 193	14 880	9 573	4 309	13 881
Total Canada	49 238	26 304	75 542	51 058	30 386	81 444	45 770	30 621	76 391

Sources: Natural Resources Canada; Statistics Canada, catalogue no. 61-223.

Notes: Numbers may not add to totals due to rounding. Expenditures include value of new construction as well as major renovation work purchased.