

Gypsum and Anhydrite

Oliver Vagt

*The author is with the Minerals and Metals Sector, Natural Resources Canada.
Telephone: (613) 992-2667*

GYPSUM

Canadian shipments of crude gypsum were 7 973 923 t valued at \$90.7 million in 1995, compared to 8 587 303 t valued at \$96.6 million in 1994. This decrease of about 7% was mainly a result of weaker demand throughout Canada, lower exports from Nova Scotia to the United States, and the closure of the Westroc Industries Limited mine at Drumbo, Ontario.

The Canadian Industry

Most deposits of gypsum being mined in the Atlantic provinces are characterized by high quality, amenability to inexpensive mining methods, and close access to coastal bulk-shipping facilities. Nova Scotia accounts for more than 75% of Canada's output and nearly all of its exports (Table 1). All of Ontario's production is now used on site since Westroc Industries Limited closed its mine at Drumbo in favour of synthetic gypsum for use in the company's Mississauga wallboard plant. Production from Amaranth, Manitoba, and from Windermere (Elkhorn II deposit) and Canal Flats in British Columbia serve the Prairie region and a portion of the B.C. market not served by imports. Domtar Inc. meets most of the requirements of its wallboard plant in Surrey, British Columbia, with gypsum provided under a long-term contract by a 49% Domtar-owned Mexican affiliate. Canadian operations are mainly subsidiaries of U.S. and U.K. gypsum product manufacturers. In Nova Scotia, National Gypsum (Canada) Ltd. is owned by the National Gypsum Company, and both Fundy Gypsum Company Limited and Little Narrows Gypsum Company Limited are owned by USG Corporation, the leading manufacturer of gypsum products in the United States. Westroc Industries Limited, a subsidiary of BPB Industries Plc. which has worldwide interests and is the largest gypsum products manufacturer in Europe, operates mining and manufacturing facilities across most of Canada. CGC Inc. (formerly Canadian

Gypsum Company), with wallboard operations at Montréal, Quebec, and Hagersville, Ontario, is 75% controlled by USG Corporation.

Westroc Industries Limited completed its plant modifications at Clarkson, Ontario, and began using 100% synthetic gypsum provided under a long-term contract with Ontario Hydro. This contract is for up to 200 000 t/y of desulphogypsum from Ontario Hydro's Lambton facility, the site of the first flue-gas desulphurization (FGD) system at a thermal-electric generating station in Ontario. Westroc continued to operate a wallboard plant in McAdam, New Brunswick, which was purchased in 1994 following receivership of the previous owner, Nova Gypsum Inc. The plant uses natural gypsum purchased from Nova Scotia. In British Columbia, Westroc began a major expansion at its Vancouver plant; raw material will continue to be sourced at the company's mine in Windermere, British Columbia. All gypsum mining and related production plants are listed in Table 2.

Georgia-Pacific Corp. (GPC), of Atlanta, Georgia, signed an agreement in November 1995 to purchase from Domtar Inc., of Montréal, its 4 remaining gypsum mines in Canada and its 18 wallboard plants in Canada and the United States. The purchase price is expected to be about C\$470 million.

Domtar's long-established gypsum mine at Flat Bay, Newfoundland, which ceased production in September 1994, has been acquired by Galen Gypsum Mines Limited of St. Georges, Newfoundland. Major customers for the gypsum are expected to be Atlantic Gypsum Ltd. and North Star Cement Ltd. for wallboard and as a set regulator in cement, respectively. Also, the possibility of developing export markets will be explored. CGC Inc. completed its major project to develop more ore reserves at its mine at Hagersville, Ontario. CGC continued to use synthetic gypsum at its modified Montréal wallboard plant; this material was supplied by Kronos Canada Inc., a manufacturer of titanium dioxide in Varennes, Quebec. In addition, CGC completed its \$11 million facility in Belledune, New Brunswick, to convert synthetic gypsum purchased from the New Brunswick Power Corporation. Similarly, this material will be used at CGC's Montréal wallboard plant, which will join USG's East Chicago, Indiana, and New Orleans plants in making wallboard from 100% synthetic gypsum.

Louisiana-Pacific Corporation, a major Oregon-based wood products manufacturer, continued to produce fibre-gypsum board at its relatively new \$65 million fibre-gypsum board plant at Port Hawkesbury, Nova Scotia. Gypsum is purchased locally, perlite is imported, and large quantities of recycled paper are backhauled, mainly from the United States. This project was the first in Atlantic Canada to manufacture a gypsum board product for both regional and export markets.

Several companies now use recycled gypsum wallboard in their production process; Domtar's Surrey, British Columbia, wallboard plant was the first in North America to use large quantities. This was possible through arrangements with a reclaimer, New West Gypsum of Vancouver, British Columbia, which operates a plant with a capacity of about 40 000 t/y. In the case of Domtar, up to one fifth of some plants' raw material needs include recycled material, a combination of about 75% scrap from new construction sites (post-construction material) and 25% waste from wallboard plants. Westroc currently recycles about 20 000 t and 30 000 t of board annually at its Vancouver and Mississauga, Ontario plants, respectively.

World Developments and Trade

Gypsum-related projects are generally limited to industrialized countries because of dependence on the building construction sector. However, world reserves are widespread and are conservatively estimated to be about 2.4 billion t. World production of gypsum in 1995 was an estimated 101.7 Mt, according to the U.S. Bureau of Mines. The United States ranked number one with 17.3 Mt, followed by China (11.0 Mt) and Canada (8.0 Mt). Shipments of wallboard by U.S. producers were about the same as in 1994, based on late 1995 reports.

International trade has become more important in North American markets in recent years as the result of low production costs and competitive shipping rates. In particular, U.S. imports of gypsum from Spain remain relatively high, amounting to several hundred thousand tonnes per year. Relatively low east-to-west backhaul freight rates are the main factors at work. Canada's imports of gypsum from Mexico, as described earlier, as well as those from the United States, are used by both wallboard and cement manufacturers. Imports from Spain, however, are used only by specific cement manufacturers.

Imports of gypsum wallboard from the United States into Canada increased substantially during the period 1986-92. Following a review in 1994 of an earlier ruling on anti-dumping, a bi-national panel concluded that the overall weighted average margin of dumping of approximately 36% would stand. Revenue Canada's enforcement activities are ongoing until 1998.

National Gypsum Company, the second largest producer of gypsum products in the United States, was

acquired by Delcor Inc. under a merger agreement. Delcor is a wholly owned subsidiary of Golden Eagle Industries Inc.

Growth in the demand for gypsum products is expected in the countries of Central and Eastern Europe. Gebr. Knauf, BPB Industries Plc., and Lafarge Coppée Groupe either have established plants or are becoming involved in markets in these countries. Also, the German subsidiary of BPB Industries Plc. expects to complete a new wallboard plant in Berlin in 1996.

Processing and Markets

Gypsum is a hydrous calcium sulphate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) which, when calcined at temperatures ranging from 120° to 205°C, releases three quarters of its chemically combined water. The resulting hemihydrate of calcium sulphate (commonly referred to as plaster of Paris), when mixed with water, can be moulded, shaped or spread and subsequently dried, or set, to form a hard plaster. This is particularly suited to products such as wallboard, lath and tile. Anhydrite, an anhydrous calcium sulphate (CaSO_4), is commonly associated geologically with gypsum but is not a suitable substitute for most uses.

In general, the wallboard industry serves the residential, institutional and commercial building sectors. Housing starts have become a less reliable indicator of the demand for gypsum wallboard because its improved fire-retardant qualities, along with increased renovation activity, have encouraged its broader use. In Canada, expenditures in 1993 on major renovations reached \$18.4 billion, accounting for 24% of total capital expenditures on construction, according to Statistics Canada (catalogue no. 61-223).

The Portland cement industry accounts for about 15% of the gypsum used in North America. Crushed, uncalcined gypsum, acting as a set regulator, in a proportion up to 5% by total weight, is ground with the primary stage clinker to produce the final cement product. Based on this proportion of gypsum, the total amount required by cement producers in Canada is estimated to be about 500 000 t/y.

For agricultural purposes, specifications mainly relate to the degree of fineness. Gypsum combines with potassium aluminum silicates in the soil resulting in the release of potassium for use as a nutrient. Also, gypsum serves to reduce sub-soil acidity, which is particularly beneficial in aluminum-rich lateritic soils. In addition, it provides a source of calcium and sulphur trioxide and helps break up hard soils, allowing better aeration and water penetration and retention.

For filler uses, gypsum is dried and finely ground to a range of particle sizes for use in joint compounds (mainly with gypsum wallboard), plastics, paint and paper. Relatively pure uncalcined gypsum, depend-

ing on glass batch chemistry, may also substitute for salt cake (sodium sulphate) in glass manufacturing. Special high-purity gypsum may be used in foods and pharmaceutical products.

ORTECH Corporation held its fourth conference on flue-gas derived gypsum, the "Fourth International Conference on FGD and Chemical Gypsum," in Toronto in May 1995. Conference goals were to facilitate communication and the dissemination of new information among power utilities and other synthetic gypsum producers, gypsum consumers, and equipment suppliers.

In the United States an estimated 700 000 t/y of FGD gypsum is consumed as a complete or partial substitute for natural gypsum in the manufacture of wallboard. The United States Gypsum Company, a subsidiary of USG Corporation which operates 22 gypsum board plants and 11 mines and quarries, is the largest consumer. (At present, this estimated consumption accounts for less than 5% of total U.S. consumption of gypsum for all uses.)

Increased interest in flue gas desulphurization (the most widely used sulphur dioxide control technology) and the related role of industrial minerals prompted a cooperative effort by Natural Resources Canada (NRCan) and the U.S. Bureau of Mines (USBM) to produce a bibliography on the subject. A free copy of *Flue Gas Desulfurization and Industrial Minerals: A Bibliography*, which has more than 4000 references covering the period 1982 through June 1993, may be obtained from NRCan or the USBM.

Gypsum and Anhydrite is one of a series of 19 reports published by the Canada Centre for Mineral and Energy Technology (CANMET Summary Report No. 7). Each of these industrial mineral reports summarizes information on mineral occurrences, deposits of specific interest, product uses and specifications, and process technology.

Prices

Prices for gypsum in non-captive markets are negotiated, the only published figure being an approximate minimum price for crude material, ex-mine or c.i.f. United Kingdom, published in *Industrial Minerals*. In the United States, average prices for crude material, f.o.b. mine, were about US\$6.75/t during the five-year period from 1990 to 1995, according to preliminary information from the USBM.

Outlook

Canadian shipments of gypsum in 1996 are expected to be more than 8 Mt. Housing starts in Canada were 155 400 in 1993, 155 000 in 1994, and about 112 000 in 1995. According to the Canada Mortgage and Housing Corporation, about 120 000 housing starts are forecast in 1996. The outlook in the office and industrial building sectors is expected to continue to improve.

Housing starts in the United States are expected to increase about 3% in 1996 compared to 1995. Similarly, total construction activity is expected to remain firm, assuming that real economic growth continues as forecast.

Although new construction materials are being introduced, demand for gypsum wallboard is expected to remain popular because of its low price, ease of installation, and well-recognized fire-retarding properties. The present structure of the industry in Canada is not expected to change greatly, although the future availability of synthetic gypsum resulting from more strenuous emission controls will likely influence developments in some areas. The recycling of scrap and waste gypsum from construction sites and wallboard manufacturing lines will continue to become more important in both Canada and the United States.

ANHYDRITE

Production and trade statistics for anhydrite are included with gypsum. Anhydrite, the anhydrous form of gypsum (about twice as hard and also heavier than gypsum), is produced by Fundy Gypsum Company Limited at Wentworth, Nova Scotia, and by Little Narrows Gypsum Company Limited at Little Narrows, Nova Scotia.

Shipments of anhydrite in 1994 were 175 000 t for all uses, based on final figures; similarly, shipments in 1995 were an estimated 187 000 t, according to the Nova Scotia Department of Natural Resources. Shipments were mainly to the United States for use as a peanut crop fertilizer and for manufacturing Portland cement. Lesser quantities were shipped to Quebec and Ontario for the manufacture of cement.

Test work has been conducted in Nova Scotia on the utilization of anhydrite in floor screed and suspended floor systems. This was undertaken as part of the Canada-Nova Scotia Mineral Development Agreement (MDA-II, 1990-93). The project, involving the private sector and, in part, NRCan's Canada Centre for Mineral and Energy Technology (CANMET), is related to optimizing compressive strength and dry shrinkage using suitable plasticizers. Product demonstrations continued in 1995.

Additional on-site testing continued for using anhydrite (in combination with water and special chemicals) as a mine "pack" construction material to improve underground support in coal mines. This work was based on an earlier cooperative program (MDA-I) involving CANMET and the Technical University of Nova Scotia.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 70. (2) Information in this review was current as of February 1, 1996.

TABLE 1. CANADA, GYPSUM PRODUCTION AND TRADE, 1993-95

Item No.	1993		1994		1995p	
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)
PRODUCTION (shipments)						
Crude gypsum						
Nova Scotia	5 835 915	56 295	6 815 077	67 603	6 565 013	66 586
Ontario	826 166	14 533	1 071 267	18 831	897 354	16 074
British Columbia	456 846	x	511 981	x	x	x
Manitoba	x	x	x	x	x	x
Newfoundland	x	x	x	x	-	-
Total ¹	7 563 369	82 973	8 587 303	96 641	7 973 923	90 725
IMPORTS						
2520.10	Gypsum, anhydrite					
	United States					
	31 945	1 334	36 429	1 716	65 589	1 931
	Mexico					
	248 386	4 963	255 351	2 480	111 512	1 491
	People's Republic of China					
	70	5	24	2	85	6
	Hong Kong					
	82	6	352	25	72	5
	Canada					
	-	-	-	-	65	5
	Other countries					
	98	7	-	-	4	...
Total	280 581	6 315	292 156	4 223	177 327	3 438
2520.20	Gypsum; anhydrite; plasters					
	United States					
	34 717	7 691	36 915	8 655	34 897	8 854
	Germany					
	39	41	23	25	336	114
	Japan					
	48	51	19	20	46	47
	Italy					
	10	9	13	11	41	22
	Australia					
	-	-	195	15	21	10
	Other countries					
	151	182	20	18	34	9
Total	34 965	7 974	37 185	8 744	35 375	9 056
	(square metres)		(square metres)		(square metres)	
6809.11	Plasterboards, etc., not ornamental; faced or reinforced with paper or paperboard					
	United States					
	2 097 829	2 646	1 096 255	1 478	57 597	136
	United Kingdom					
	..	127	5 225	203	1 607	75
	Netherlands					
	-	-	-	-	..	5
	Italy					
	-	-	-	-	..	3
	Other countries					
	-	-	..	9	..	5
Total	..	2 773	..	1 690	..	224
6809.19	Plasterboards, etc., not ornamental; faced or reinforced, n.e.s.					
	United States					
	..	2 353	..	2 371	..	2 238
	Taiwan					
	-	-	..	21	..	17
	United Kingdom					
	..	3	-	-	..	2
Total	..	2 356	..	2 392	..	2 257
6809.90	Articles of plaster or compositions based on plaster, n.e.s.					
	United States					
	..	2 383	..	4 956	..	3 845
	United Kingdom					
	..	1 131	..	1 255	..	1 274
	People's Republic of China					
	..	166	..	326	..	411
	Mexico					
	..	72	..	313	..	269
	Philippines					
	..	6	..	50	..	85
	Thailand					
	..	60	..	46	..	75
	Other countries					
	..	153	..	108	..	149
Total	..	3 971	..	7 054	..	6 108
Total imports of gypsum and gypsum products						
	..	25 389	..	24 103	..	21 083

TABLE 1 (cont'd)

Item No.	1993		1994		1995p		
	(tonnes)	(\$000)	(tonnes)	(\$000)	(tonnes)	(\$000)	
EXPORTS							
2520.10	Gypsum, anhydrite						
	United States	5 276 649	57 635	5 902 549	62 419	5 523 426	59 663
	Denmark	38 846	392	39 861	396	41 398	418
	United Arab Emirates	—	—	61	22	135	57
	Taiwan	—	—	—	—	431	48
	Republic of Korea	—	—	—	—	17	26
	Greece	—	—	—	—	20	6
	Other countries	123	65	101	41	—	—
	Total	5 315 618	58 092	5 942 572	62 878	5 565 427	60 218
2520.20	Gypsum; anhydrite; plasters						
	United States	22 089	1 923	1 165	700	2 325	965
	Thailand	574	355	222	221	100	85
	Japan	71	64	19	12	34	50
	Bermuda	21	5	136	50	105	42
	Israel	50	50	17	20	29	41
	Other countries	191	143	481	260	277	242
	Total	22 996	2 540	2 040	1 263	2 870	1 425
		(square metres)		(square metres)		(square metres)	
6809.11	Plasterboards, etc., not ornamental; faced or reinforced with paper or paperboard						
	United States	20 818 143	23 479	59 495 785	61 101	65 694 439	103 729
	Argentina	—	—	—	—	152 295	130
	Kuwait	—	—	—	—	10 000	74
	Czech Republic	—	—	60 494	22	98 196	58
	Russia	126	1	—	—	10 500	38
	Cyprus	—	—	—	—	35 313	35
	Portugal	8 662	59	26 308	52	10 060	30
	Other countries	316 427	308	755 579	618	303 746	142
	Total	21 143 358	23 847	60 338 166	61 793	66 314 549	104 236
6809.19	Plasterboards, etc., not ornamental; faced or reinforced, n.e.s.						
	United States	..	9 230	..	14 287	..	14 034
	Japan	..	237	..	271	..	1 109
	Kuwait	—	—	—	—	..	131
	Hong Kong	—	—	—	—	..	52
	Australia	—	14	—	—	..	30
	Other countries	..	182	..	114	—	82
	Total	..	9 663	..	14 672	..	15 438
6809.90	Articles of plaster or compositions based on plaster						
	United States	..	2 126	..	4 716	..	5 087
	Australia	..	4	—	—	..	227
	Japan	..	103	..	59	..	127
	Germany	..	22	..	25	..	47
	Romania	—	—	—	—	..	30
	Other countries	..	43	..	60	..	58
	Total	..	2 298	..	4 860	..	5 576
	Total exports of gypsum and gypsum products	..	96 440	..	145 466	..	186 893

Sources: Natural Resources Canada; Statistics Canada.

— Nil; .. Not available; . . . Amount too small to be expressed; n.e.s. Not elsewhere specified; P Preliminary; r Revised; x Confidential.

1 Totals do not include gypsum produced or shipped for use by Canadian Portland cement producers.

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

TABLE 2. CANADA, GYPSUM MINING AND GYPSUM PRODUCTS MANUFACTURING OPERATIONS, 1995

Company	Location	Operation
NEWFOUNDLAND		
Galen Gypsum Mines Limited	Flat Bay	Formerly owned by Domtar Inc.
Atlantic Gypsum, a division of Atlantic Group Limited	Corner Brook	Wallboard manufacture
NOVA SCOTIA		
Domtar Inc.	McKay Settlement	Open-pit mining
	Windsor	Plaster and "Gypcrete" manufacture
Fundy Gypsum Company Limited	Wentworth and Miller Creek	Open-pit mining of gypsum and anhydrite
Georgia-Pacific Corporation	Sugar Camp	Open-pit mining of gypsum
Little Narrows Gypsum Company Limited	Little Narrows	Open pit mining of gypsum and anhydrite
National Gypsum (Canada) Ltd.	Milford	Open-pit mining of gypsum
Louisiana-Pacific Corporation	Port Hawkesbury	Fibre-gypsum board manufacture
NEW BRUNSWICK		
Westroc Industries Limited	McAdam	Wallboard manufacture
QUEBEC		
CGC Inc.	Montréal	Wallboard manufacture
	St-Jerome	Wallboard plant mothballed
Domtar Inc.	Montréal	Distribution terminal only
Westroc Industries Limited	Montréal	Wallboard manufacture
ONTARIO		
CGC Inc.	Hagersville	Underground mining and wallboard manufacture
Domtar Inc.	Caledonia	Underground mining and wallboard manufacture
Westroc Industries Limited	Drumbo Clarkson	Underground mine, closed in 1995 Wallboard manufacture
MANITOBA		
Domtar Inc.	Amaranth	Open-pit mining
	Winnipeg	Wallboard manufacture
Westroc Industries Limited	Amaranth	Open-pit mining
	Winnipeg	Wallboard manufacture
ALBERTA		
Domtar Inc.	Edmonton	Wallboard manufacture
Westroc Industries Limited	Calgary	Wallboard manufacture
BRITISH COLUMBIA		
Domtar Inc.	Canal Flats	Open-pit mining
	Vancouver	Gypsum products manufacture
Westroc Industries Limited	Vancouver	Gypsum products manufacture
	Windermere	Open-pit mining

Source: Natural Resources Canada.

TABLE 3. CANADA, GYPSUM PRODUCTION, TRADE AND CONSUMPTION, 1975 AND 1980-95

	Production ¹	Imports ²	Exports	Apparent Consumption ³
	(tonnes)			
1975	5 719 451	553 338	3 691 676	2 581 113
1980	7 336 000	154 717	4 960 240	2 530 477
1981	7 025 000	143 500	5 094 873	2 073 627
1982	5 987 000	93 843	4 775 755	1 305 088
1983	7 507 000	100 939	5 187 032	2 420 907
1984	7 775 082	131 809	6 224 574	1 682 317
1985	7 760 783	121 802	5 879 664	2 002 921
1986	8 802 805	221 644	5 921 982	3 102 467
1987	9 093 926	217 625	5 704 853	3 606 698
1988 ^a	8 813 760	274 917	5 651 286	3 437 391
1989	8 179 588	291 373	5 357 055	3 113 906
1990	7 977 685	318 114	5 757 327	2 538 472
1991	6 727 221	259 863	4 940 193	2 046 891
1992	7 294 700	260 505	5 010 649	2 544 556
1993	7 563 369	280 581	5 315 618	2 528 332
1994	8 587 303	292 156	5 942 572	2 936 887
1995 ^p	7 973 923	177 327	5 565 427	2 585 823

Sources: Natural Resources Canada; Statistics Canada.

^p Preliminary; ^r Revised.

^a Beginning in 1988, imports and exports are based on the new Harmonized System and may not be in complete accordance with previous method of reporting. Imports and exports include HS class 2520.10.00 (gypsum, anhydrite).

¹ Producers' shipments, crude gypsum. ² Includes crude and ground, but not calcined. ³ Production plus imports minus exports.

TABLE 4. CANADA, HOUSE CONSTRUCTION, BY PROVINCE, 1994 AND 1995

	Starts			Completions			Under Construction		
	1994	1995	% Diff.	1994	1995	% Diff.	1994	1995	% Diff.
Newfoundland	2 243	1 712		2 590	1 749		1 991	1 928	
Prince Edward Island	669	422		742	467		207	163	
Nova Scotia	4 748	4 168		4 920	4 170		2 038	1 980	
New Brunswick	3 203	2 300		3 696	2 465		1 202	1 003	
Subtotal, Atlantic provinces	10 863	8 602	-21	11 948	8 851	-26	5 438	5 074	-7
Quebec	34 154	21 885	-36	36 345	23 363	-36	7 730	5 986	-23
Ontario	46 645	35 818	-23	49 106	36 278	-26	22 444	21 947	-2
Manitoba	3 197	1 963		2 996	2 153		1 206	808	
Saskatchewan	2 098	1 702		1 851	1 711		836	818	
Alberta	17 692	13 906		18 671	13 373		6 703	7 156	
Subtotal, Prairie provinces	22 987	17 571	-34	23 518	17 237	-27	8 745	8 782	-
British Columbia	39 408	27 057	-31	41 168	33 772	-18	27 205	20 250	-26
Total Canada	154 057	110 933	-28	162 085	11 950	-26	71 562	62 039	-13

Source: Canada Mortgage and Housing Corporation.

TABLE 5. CANADA, VALUE OF CONSTRUCTION BY TYPE, 1991-93

	1991 ^a	1992 ^b	1993 ^b
	(\$ millions)		
BUILDING CONSTRUCTION			
Residential	34 768	33 676	32 577
Industrial	3 642	2 563	2 219
Commercial	13 436	9 331	8 479
Institutional	5 845	4 536	4 123
Other building	3 210	1 854	1 840
Subtotal	60 901	51 960	49 238
ENGINEERING CONSTRUCTION			
Marine	553	415	243
Transportation	6 334	5 113	5 340
Waterworks, sewage systems	2 660	903	793
Dams, irrigation	399	1 175	1 303
Electric power	6 859	5 944	5 347
Railway, telephones	3 135	1 561	1 587
Gas and oil facilities	9 629	7 291	9 503
Other engineering	3 686	2 055	2 188
Subtotal	33 254	24 457	26 304
Total construction	94 154	76 417	75 542

Sources: Natural Resources Canada; Statistics Canada, Catalogue no. 64-201 (1991) and Catalogue no. 61-223 (1992 and 1993).

^a Expenditures include total value of new and repair work purchased.

^b Expenditures include value of new as well as major renovation work purchased.

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

TABLE 6. WORLD PRODUCTION OF GYPSUM, 1994 AND 1995

	1994	1995 ^e
	(000 tonnes)	
United States	17 200	17 300
People's Republic of China	10 500	11 000
Iran	8 430	8 500
Canada	8 587	8 000
Thailand	8 140	8 000
Spain	7 250	7 500
Mexico	5 530	5 500
Japan	5 300	5 300
France	5 000	5 000
United Kingdom	2 500	2 800
Australia	2 000	2 100
Other countries	20 630	20 700
Total world	101 067	101 700

Sources: Natural Resources Canada; U.S. Bureau of Mines' Mineral Commodity Summaries, January 1996.

^e Estimated.