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CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

+ + + *Industry and Merchandising Division* + + +

MINING, METALLURGICAL & CHEMICAL SECTION

THE FELDSPAR & QUARTZ MINING INDUSTRY IN CANADA 1947

(including data relating to Nepheline-Syenite)

OTTAWA
1949

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THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1947

Owing to the very close physical association of these minerals in many Canadian deposits (pegmatites), it has been found difficult for some operators to make a separation of all data pertaining to the mining of each individual mineral and, for this reason, the general statistics relating to capital, employment, fuel and electricity, etc., have been combined in this report. Since 1936, corresponding statistics relating to the production of nepheline syenite have been included with those pertaining to the commercial production of feldspar and quartz.

Production in 1947, as measured by the sales of feldspar, nepheline syenite and quartz, was valued at $2,467,889 which was the highest recorded amount to date. Sales in the preceding year, 1946, amounted to $2,168,673.

Feldspar production came entirely from Ontario and Quebec; nepheline syenite came from Ontario only, and quartz (silica) in various forms was produced in Nova Scotia, Quebec, Ontario, Saskatchewan and British Columbia.

In 1947 there were 38 active firms in the industry and 31 of these properties made shipments during the year. The industry employed 593 persons to whom $1,134,107 was paid in salaries and wages. The cost of fuel, electricity, process supplies, containers and freight amounted to $719,986 which if deducted from the gross output value, yields a net value of $1,747,903 compared with $1,727,972 in the preceding year.

Table 1 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY (x), 1939-1947

Year	Number of shipping mines	Average number of employees	Total salaries and wages	Cost of purchased fuel and electricity at works	Cost of process supplies	Gross value of shipments f.o.b. works
			$	$	$	$
1939	38	338	330,170	79,114	99,607	1,352,671
1940	41	400	377,254	76,134	138,383	1,508,999
1941	35	506	610,489	91,165	159,818	1,838,054
1942	34	533	782,903	124,100	287,928	1,998,996
1943	34	535	768,199	134,247	322,605	2,138,229
1944	41	529	772,385	166,501	241,400	2,104,030
1945	27	483	767,517	180,799	220,873	2,093,880
1946	30	517	876,034	161,208	180,207	2,168,673
1947	31	593	1,134,107	221,166	376,570	2,467,889

(x) Includes nepheline syenite.

Table 2 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY, BY PROVINCES, 1946 and 1947

	Quebec		Other Provinces (b)(c)	
	1946	1947	1946	1947
Number of active firms (a)	17	21	17	18
Number of shipping mines	15	14	15	17
Number of employees: Administration	23	20	22	31
Workmen	248	241	224	301
Total	271	261	246	332
Salaries and wages: Salaries	$ 54,451	52,955	52,454	85,300
Wages	$389,165	421,742	379,964	574,110
Total	$443,616	474,697	432,418	659,410
Selling value of products (gross)	$943,109	1,060,517	1,225,564	1,407,372
Cost of fuel and purchased electricity	$ 91,672	101,108	69,536	120,058
Cost of process supplies, freight and containers .	$140,173	77,714	139,320	298,856
Net value of sales	$711,264	780,663	1,016,708	967,240

(a) Small shippers whose production is recorded from consumers' returns are sometimes not included in the total.
(b) Includes data relating to nepheline syenite.
(c) Includes plants in Nova Scotia, Saskatchewan, and British Columbia.

NOTE: This report was prepared by A. R. Deir, Mining Statistician.

Table 3 - NUMBER OF WORKMEN, BY MONTHS, 1947

Month	Quebec			Ontario				CANADA TOTAL (x)
	Surface	Mill		Surface		Underground	Mill	
	Male	Female	Male	Male	Female	Male	Male	
January	146	1	94	88	1	56	69	486
February	155	1	96	88	1	57	74	503
March	148	...	90	89	1	68	74	491
April	120	...	99	96	1	55	73	465
May	140	...	99	147	1	83	83	569
June	126	...	101	155	1	77	77	551
July	126	...	125	152	1	86	86	595
August	132	...	108	148	1	91	91	578
September	138	...	102	140	1	101	75	586
October	129	...	106	145	...	119	64	596
November	138	...	106	130	...	94	64	557
December	122	...	115	104	...	43	61	479
AVERAGE ...	138	1	102	125	1	76	71	542

(x) Includes a few employees in Nova Scotia in some months.

Table 4 - FUEL AND ELECTRICITY USED, 1947 (*)

Kind	Unit of measure	CANADA		Ontario		Quebec	
		Quantity	Cost at works	Quantity	Cost at works	Quantity	Cost at works
			$		$		$
Bituminous coal -							
Canadian	short ton	862	10,126	860	10,107	...	...
Foreign	short ton	4,026	36,903	2,547	20,975	1,479	15,928
Anthracite coal -							
United States	short ton	23	474	...	...	23	474
Gasoline	Imp. gal.	106,990	32,935	51,354	15,582	49,641	15,554
Kerosene	Imp. gal.	118,442	18,999	117,724	18,855	718	144
Fuel oil	Imp. gal.	475,986	65,090	127,180	20,924	348,806	44,166
Wood	cord	139	726	56	168	83	558
Electricity purchased	K.W.H.	5,732,275	55,913	3,410,575	29,510	2,164,644	24,284
TOTAL	...	...	221,166	...	116,121	...	101,108
Electricity generated for own use	K.W.H.	2,483,025	...	1,025	...	2,482,000	...

(*) Data relating to production of silica flux by some smelting companies are included with those of the non-ferrous smelting and refining industry or the sand and gravel industry.

Table 5 - POWER EQUIPMENT, 1947

Description	Quebec		Ontario (x)	
	Number	Horse power	Number	Horse power
Ordinarily in Use				
Steam engines	1	35	8	508
Diesel engines	7	1,131	14	1,281
Other internal combustion engines	12	532	22	1,088
Electric motors operated by purchased power	75	1,409	110	1,751
Electric motors operated by establishment power .	120	1,184	3	17
Stationary boilers	...	...	8	745
Motor-generator sets	11	282	11	573
In Reserve or Idle				
Other internal combustion engines	4	305	1	30
Electric motors operated by purchased power	7	183	17	241
Electric motors operated by establishment power .	16	99	...	...

(x) Includes 1 property in Nova Scotia.

FELDSPAR

Production of feldspar, crude and ground, during 1947 was 36,104 tons valued at $381,360 compared with 35,243 tons worth $384,677 in 1946. Quebec produced the major portion, namely 29,146 tons worth $320,981.

Exports of feldspar from Canada totalled 18,311 tons worth $120,998 and imports of ground and crude feldspar amounted to 321 tons valued at $7,947.

The greater part of the production of feldspar is used in the pottery, glass, enamelware and other ceramic trades, and the remainder mainly in scouring soaps and cleansers, and for bonding of fired abrasive wheels and other shapes. Some coarsely crushed spar, usually made from impure waste or quarry fines, is sold for stucco dash, artificial stone, chicken grit, etc. Small tonnages of specially selected crude ("dental spar") are used in the manufacture of artificial teeth, and such material commands a large premium.

Most of the feldspar used is of the high-potash type, though some high-soda spar is used for blending purposes and in low-fired enamels and glazes. Practically all colours are equally acceptable for ceramic uses, but for cleanser purposes, pale shades of white to buff are demanded.

Table 6 - PRODUCTION OF FELDSPAR, CRUDE AND GROUND, IN CANADA, BY PROVINCES, 1933-1947

Year	Quebec		Ontario		Manitoba	
	Tons	$	Tons	$	Tons	$
1933	6,183	59,283	4,387	45,350	88	484
1934	9,207	78,853	7,302	61,665	1,793	6,763
1935	7,002	63,075	8,656	75,003	2,084	6,252
1936	8,115	75,703	8,409	70,840	1,322	7,932
1937	12,285	105,612	9,061	72,610	...	...
1938	5,874	62,878	8,106	65,964	78	451
1939	5,399	60,923	7,061	51,056	40	330
1940	8,548	89,004	12,907	98,619	...	...
1941	14,218	137,160	11,822	107,124	...	...
1942	16,802	164,588	5,468	49,353	...	...
1943	17,199	176,222	6,659	61,549	...	...
1944	17,842	177,271	5,667	50,361	...	...
1945	26,389	247,242	3,857	35,414	...	...
1946	29,758	330,981	5,485	53,696	...	...
1947	29,146	320,964	6,958	60,396	...	...

Table 7 - CONSUMPTION OF GROUND FELDSPAR IN CANADA, 1942-1946.

	1942	1943	1944	1945	1946
			(Tons)		
(a) By Uses					
Glass	2,880	2,614	2,382	2,740	2,701
Scouring powders	4,344	5,892	4,617	4,847	4,099
Abrasives	119	58	75	60	15
Clay products (pottery, tile, insulators, etc.)	3,234	2,947	2,625	2,347	4,800
Enamelling	1,676	1,667	1,372	2,684	1,499
Miscellaneous	...	...	102	266	...
TOTAL	12,253	13,178	11,173	12,944	13,114
(b) By Provinces					
Quebec	5,626	7,555	6,388	6,815	6,886
Ontario	6,588	5,210	4,485	5,769	5,849
Manitoba	...	166	...	...	...
Alberta	39	247	300	360	379
CANADA	12,253	13,178	11,173	12,944	13,114

Table 8 - IMPORTS INTO CANADA AND EXPORTS OF FELDSPAR, 1946 and 1947

	1946		1947	
	Tons	$	Tons	$
Imports -				
Crude feldspar	...	...	5	126
Ground feldspar	705	13,622	316	7,821
Exports -				
Feldspar	19,239	140,403	18,311	120,998

NEPHELINE SYENITE

Production of nepheline syenite in Canada during 1947 was confined to one company, The American Nepheline Corporation Ltd. at Lakefield, Ontario. Shipments were valued at $167,667 compared with $229,198 in 1946. The exports of nepheline syenite were 52,198 tons valued at $188,352 compared with 51,839 tons worth $168,895 in the preceding year.

Nepheline syenite is a quartz-free rock consisting essentially of nephelite and albite and of microline feldspar. It usually contains small amounts of iron-bearing impurities, chiefly magnetite hematite and biotite mica as well as such minor accessory minerals as sodalite, cancrinite, corundum zircon, muscovite mica, calcite, etc. In the developed Canadian deposits, iron-bearing impurities are of coarse sizes and can be readily removed from the crude rock by magnetic means. Other objectionable minerals, notably corundum and muscovite, can be extracted by flotation methods, with the recovery of commercial grades of such products. Nepheline syenite is relatively high in alumina (24 per cent in average Canadian commercial rock) compared with straight feldspar (17 to 20 per cent), and for this reason it is used as a feldspar substitute in a number of ceramic industries, more especially in the glass trade.

Table 9 - PRODUCTION (x) OF NEPHELINE SYENITE IN CANADA, 1938-1947

Year	Value	Year	Value
	$		$
1938	142,737	1943	292,010
1939	140,148	1944	217,989
1940	117,849	1945	275,766
1941	227,583	1946	229,198
1942	246,893	1947	167,667

(x) Only one or two producers in recent years; quantity not available for publication.

Table 10 - CONSUMPTION OF GROUND NEPHELINE SYENITE IN CANADA, 1943-1946

	1943	1944	1945	1946
		(Tons)		
(a) By Uses				
Glass	5,630	7,285	7,778	5,584
Pottery	...	257	324	219
Total	5,630	7,542	8,102	5,803
(b) By Provinces				
Quebec	1,268	1,498	1,570	1,192
Ontario	4,133	5,107	4,991	3,973
Alberta	229	937	1,541	638
Total	5,630	7,542	8,102	5,803

QUARTZ (SILICA)

Production of quartz or siliceous material during the year under review was 1,836,428 tons valued at $1,796,612, an increase over the previous year's production of 1,413,378 tons worth $1,554,798.

Output included crude and crushed dyke quartz, quartzite, sandstone and natural silica sands and gravels. The mineral in one or more of the forms thus defined was produced during 1946 in Nova Scotia, Quebec, Ontario and Saskatchewan. Shipments of silica in Nova Scotia were made to steel plants largely for the making of silica brick. In Quebec, high-grade silica sands were produced for the manufacture of glass and chemicals while a considerable tonnage of these same sands was sold for sand-blasting, moulding and various other purposes; in the same province relatively large quantities of crushed quartzite were mined and milled for the manufacture of silicon carbide and other products. The greater part of the tonnage of silica shipped in Ontario during 1946 represented material intended for use in the production of silica brick, cement and ferro-silicon and for the fluxing of nickel-copper ores. Quartz production as recorded for Saskatchewan represented low-grade natural silica sands or gravels shipped as flux to the Flin Flon smelter of the Hudson Bay Mining and Smelting Co. Ltd.

Table 11 - PRODUCTION (x) OF QUARTZ (SILICA) IN CANADA, 1933-1947

Year	Tons	$	Year	Tons	$
1933	185,783	297,820	1941	2,052,878	1,366,187
1934	272,563	482,265	1942	1,738,174	1,538,162
1935	233,002	424,882	1943	1,776,749	1,608,448
1936	1,046,649	597,781	1944	1,740,262	1,658,409
1937	1,377,448	1,129,011	1945	1,513,628	1,535,458
1938	1,380,011	961,617	1946	1,413,378	1,554,798
1939	1,582,935	1,100,214	1947	1,836,428	1,796,612
1940	1,858,302	1,203,527			

(x) Complete data for production of this material in Ontario previous to 1936 are not available.

Table 12 - PRODUCTION OF QUARTZ, BY PROVINCES, 1946 and 1947

	1946		1947	
	Short tons	Value	Short tons	Value
		$		$
Production (shipments) (x)				
Nova Scotia	7,525	15,550	9,146	55,393
Quebec	214,076	612,128	226,050	638,521
Ontario	1,052,644	852,713	1,442,341	949,210
Saskatchewan	130,105	47,542	124,322	43,513
British Columbia	9,028	26,865	34,569	109,975
CANADA	1,413,378	1,554,798	1,836,428	1,796,612

(x) Includes both crude and crushed quartz, crushed sandstone and quartzite, and natural silica sands.

Table 13 - PRODUCTION (x) OF NATURAL LOW-GRADE SILICA SAND AND SILICA GRAVEL AS NON-FERROUS SMELTER FLUX, 1945 - 1947

	1945		1946		1947	
	Tons	$	Tons	$	Tons	$
Ontario	523,558	183,245	461,122	161,392	714,588	98,562
Saskatchewan	141,799	52,544	130,105	47,542	124,332	43,513
CANADA .	665,357	235,789	591,227	208,934	838,920	142,075

(x) Included in totals shown in Tables 12 and 13.

Table 14 - IMPORTS INTO CANADA AND EXPORTS OF SILICA, 1946 and 1947

	1946		1947	
	Quantity	$	Quantity	$
	Tons		Tons	
Imports -				
Ground flint stone	823	34,449	335	12,739
Ganister	518	3,367	400	3,211
Silica sand for manufacturing	390,014	914,456	533,456	1,148,397
Silex or crystallized quartz	10,690	114,450	15,004	164,826
Silica fire brick	...	979,079	...	...
Exports -				
Quartzite	200,916	441,976	283,340	489,189

Table 15 - CONSUMPTION OF SILICA SAND AND GROUND QUARTZ IN CANADA, BY INDUSTRIES AND BY PROVINCES, 1942-1946

	1942	1943	1944	1945	1946
	(Tons of 2,000 pounds)				
(a) By Industries					
Steel foundries	134,724	129,881	89,807	81,590	58,503
Iron foundries	9,146	15,104	7,498	11,135	8,953
Ferro-alloys	4,338	4,535	6,481	9,949	6,013
Enamelling	632	1,071	394	423	633
Brass foundries	1,874	3,237	2,514	...	...
White metal foundries	42	12	41	...	...
Smelters	321	3,774	191	...	...
Electrical apparatus	329	681	...	...	350
Glass	145,005	132,992	131,987	135,959	123,910
Artificial abrasives and abrasive products	76,943	89,022	73,771	74,406	83,910
Products from imported clays	3,036	2,773	3,441	3,659	4,554
Monumental and ornamental stone	1,385	980	759	820	1,464
Prepared foundry supplies	1,082	126	169	108	142
Cement mills	20,711	19,473	23,942	29,424	31,222
Refractories	1,642	1,365	1,023	1,114	983
Roofing paper	2,879	2,135	4,307	885	1,193
Chemicals	15,296	17,305	19,708	17,073	19,456
Fertilizers	15,848	37,988	20,715	25,871	44,077
Paints	1,310	1,239	1,767	1,904	1,959
Soaps and washing compounds	180	246	4,545)	4,350	5,256
Cleaning preparations	2,282	3,004	58)		
Matches	333	334	349	385	356
Miscellaneous	402	236	74	2,678	4,464
TOTAL	439,740	467,513	393,541	401,733	397,398
(b) By Provinces					
Prince Edward Island	309	335	...	...	...
Nova Scotia	4,836	2,364	1,087	2,001	2,659
New Brunswick	3,996	6,810	705	8,126	20,356
Quebec	207,244	210,909	204,970	192,482	193,504
Ontario	190,465	210,875	153,871	159,543	139,898
Manitoba	12,635	11,989	11,168	16,939	19,717
Saskatchewan	35	59	72	41	368
Alberta	14,777	16,205	16,947	17,235	16,572
British Columbia	5,443	7,967	4,721	5,366	4,324
CANADA	439,740	467,513	393,541	401,733	397,398

DIRECTORY OF FELDSPAR AND QUARTZ MINING INDUSTRY, 1947

(a) Produces silica
(b) Produces feldspar
(c) Operates a mill
(d) Also produces kaolin
(e) Produces nepheline syenite
(f) Produces grinding pebbles
(g) Contractor
(h) Produces scapolite

Name of Firm	Head Office Address	Location of Mine or Mill
Nova Scotia -		
Dominion Steel & Coal Corp. Ltd.	Sydney	Chegoggin Point
Nairn, J. (a)	24 Whitney Ave., Sydney	Leitches Creek
Quebec -		
Belval, T. (b)	Farnham	Farnham
Bigelow, Gordon (b)(g)	Glen Almond	Derry Tp.
Bigelow, Robt. & Sons (b)	Buckingham	Portland East Tp.
Bon Ami Ltd. (b)(c)	13719 Notre Dame St.E., Montreal	Montreal
Broullet Sand & Gravel Co. Ltd. (a)	Rawdon	Rawdon
Buckingham Mining Corp. (b)	1502 Athlone Rd., Montreal	Buckingham
Canada China Clay & Silica Ltd. (a)(d)	1600 Royal Bank Bldg., Toronto, Ont.	Amherst Tp.
Canadian Carborundum Co. Ltd. (a)(c)	Box 57, Niagara Falls, Ont.	St. Canut
Canadian Flint & Spar Co. Ltd.(a)(b)(c)	Room 512 Victoria Bldg., Ottawa, Ont.	Buckingham
Consumers Industrial Minerals Ltd. (b)	8661 Drolet, Montreal	Montcalm Co.
Feldspar Products Ltd. (b)	1224 St.Catherine St., Montreal	Papineau
Hill, Wm. (a)(f)	Glen Almond	Buckingham Tp.
Industrial Silica Corp. (a)	Room 408 - 266 St.James St., Montreal	Roberval Co.
Lafrance, Ovila (a)	Angers	Buckingham Tp.
Law, S. H. (a)(b)	Room 28, 14 Toronto St., Toronto, Ont.	Derry Tp.
McGill, Lawrence (h)	Pointe-au-Chêne	Grenville
St.Lawrence Alloys & Metals Ltd. (a)(c)	Beauharnois	Beauharnois Co.
Suzorite Co. Ltd. (b)	907 Dominion Square Bldg., Montreal	Shawinigan Falls
Théoret, E. and Y. (a)	Glen Almond	Buckingham
Valley, E. (b)	Buckingham	Buckingham
Ontario -		
American Nepheline Corp. (e)	Lakefield	Methuen Tp.
Bancroft Mica & Stone Products (b)(c)	Bancroft	Faraday Tp.
Bathurst Feldspar Mines Ltd. (b)	Room 508 - 21 King St. E., Toronto	Bathurst Tp.
Buffalo Ankerite Gold Mines Ltd. (f)	Box 533, South Porcupine	Deloro Tp.
Canadian Flint & Spar Co. Ltd. (b)	512 Victoria Bldg., Ottawa	Bedford Tp.
Canspar Mines Ltd. (b)	100 Adelaide St.W., Toronto	Barry's Bay
Conger Feldspar Mining Co. Ltd. (b)	10 Adelaide St.E., Toronto	Conger Tp.
Craig, T. H.	46 Acacia Road, Toronto	Bathurst Tp.
Dominion Mines & Quarries Ltd. (a)(c)	Canada Life Bldg., Toronto	Killarney
International Nickel Co. of Canada Ltd. (a)	Copper Cliff	Lawson Tp.
Kingston Silica Mines Ltd. (a)(c)	R. R. No.1, Kingston	Pittsburg Tp.
Lapa Cadillac Gold Mines (1937) Ltd.(a)(c)	100 Adelaide St.W., Toronto	Little Current
Laurentian Feldspar Corp. Ltd.	104 Sparks St., Ottawa	Perth
Opeongo Mining Co. (b)	1631 Benjamin Ave., Windsor	Dickenson Tp.
Shaw, E. (b)	Parry Sound	Parry Sound
Verona Rock Products Ltd. (a)(b)	330 Bay St., Toronto	Verona
Wright and Co. (a)(c)	960 Queen St., Sault Ste. Marie	Deroche Tp.
Saskatchewan -		
Hudson Bay Mining & Smelting Co. (a)	Flin Flon, Man.	
British Columbia -		
Consolidated Mining & Smelting Co. Ltd. (a)	Trail, B.C.	Fairview

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