Government of Canada

THE FELDSPAR & QUARTZ MINING INDUSTRY

IN CANADA

1948

(Including data relating to Nepheline-Syenite)

D.B.S.
PUBLICATION

DOMINION BUREAU OF STATISTICS

DEPARTMENT OF TRADE AND COMMERCE

THE FELDSPAR & QUARTZ MINING INDUSTRY

IN CANADA

1948

(Including data relating to Nepheline-Syenite)

Published by Authority of the Rt. Hon. C. D. Howe,
Minister of Trade and Commerce

Prepared in the Mining, Metallurgical and Chemical Section,
of the Industry and Merchandising Division,
Dominion Bureau of Statistics, Ottawa

700 - 8-12-49 Price 25 cents A21-49

THE FELDSPAR AND QUARTZ MINING INDUSTRY - 1948

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 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 1948, as measured by the sales of feldspar, nepheline syenite and quartz was valued at $3,265,065. This exceeded the previously recorded high of $2,641,857 in 1947.

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.

The industry employed 562 persons to whom $1,184,257 was paid in salaries and wages. The cost of fuel, electricity, process supplies, containers and freight amounted to $666,906 which if deducted from the gross output value, yields a net value of $2,598,159 compared with $1,921,871 in the preceding year.

Table 1 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY (*), 1939-1948

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	2,641,857
1948	34	562	1,184,257	214,580	340,733	3,265,065

(*) Includes nepheline syenite.

Table 2 - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY, BY PROVINCES, 1947 and 1948

		Quebec		Other Provinces (b)(c)	
		1947	1948	1947	1948
Number of active firms (a)		21	18	18	18
Number of shipping mines		14	16	17	18
Number of employees: Administration		20	17	31	38
Workmen		241	236	301	271
Total		261	253	332	309
Salaries and wages: Salaries	$	52,955	40,958	85,300	116,794
Wages	$	421,742	452,181	574,110	574,324
Total	$	474,697	493,139	659,410	691,118
Selling value of products (gross)	$	1,060,517	1,342,977	1,407,372	1,922,088
Cost of fuel and purchased electricity	$	101,108	74,547	120,058	140,033
Cost of process supplies, freight and containers	$	77,714	53,578	298,856	287,155
Net value of sales	$	780,663	1,103,919	967,240	1,494,240

(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, Ontario, Saskatchewan, and British Columbia.

Table 3 - NUMBER OF WORKMEN, BY MONTHS, 1948

Month	Quebec			Ontario				CANADA TOTAL (*)
	Surface	Underground	Mill	Surface		Underground	Mill	
	Male	Male	Male	Male	Female	Male	Male	
January	108	...	132	113	...	28	30	447
February	102	...	131	162	1	16	5	453
March	107	...	136	111	1	21	32	444
April	109	...	131	188	1	28	24	518
May	142	...	134	208	1	28	42	589
June	144	6	138	202	1	28	39	594
July	128	7	89	206	1	26	32	527
August	128	7	90	220	1	27	39	551
September	129	8	88	218	1	24	40	549
October	133	7	87	196	1	25	37	526
November	118	7	86	186	...	24	28	487
December	95	3	86	106	...	24	30	373
AVERAGE	122	3	111	177	1	25	31	507

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

Table 4 - FUEL AND ELECTRICITY USED, 1948 (*)

Kind	Unit of measure	Ontario		Quebec		CANADA	
		Quantity	Cost at works	Quantity	Cost at works	Quantity	Cost at works
			$		$		$
Bituminous coal -							
Canadian	short ton	933	11,891	...	...	933	11,891
Foreign	short ton	2,646	25,971	970	11,640	3,616	37,611
Anthracite coal -							
United States	short ton	...	...	16	355	16	355
Gasoline	Imp. gal.	65,628	20,917	45,443	15,990	117,234	39,372
Kerosene	Imp. gal.	290	70	511	122	801	192
Fuel oil	Imp. gal.	219,718	41,911	101,151	16,719	320,869	58,630
Wood	cord	162	582	139	1,178	301	1,760
Electricity purchased .	K.W.H.	2,907,280	31,353	2,423,400	28,532	5,681,748	64,769
TOTAL	...	...	132,695	...	74,547	...	214,580
Electricity generated for own use	K.W.H.	...	...	1,111,310	...	1,111,310	...

(*) 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, 1948

Description	Number	Horsepower
Ordinarily in Use		
Steam engines	8	508
Diesel engines	22	2,822
Other internal combustion engines	41	1,927
Electric motors operated by purchased power	178	3,276
Electric motors operated by establishment power ..	135	1,289
Stationary boilers	6	615
Motor-generator sets	12	361
In Reserve or Idle		
Other internal combustion engines	7	490
Electric motors operated by purchased power	17	610
Electric motors operated by establishment power ..	1	5

FELDSPAR

Production of feldspar, crude and ground, during 1948 was 54,851 tons valued at $564,437 compared with 36,104 tons worth $381,360 in 1947. The greater portion of the production came from deposits in Quebec.

Exports of feldspar from Canada totalled 31,467 tons worth $223,945 and imports of ground and crude feldspar amounted to 207 tons at $4,640.

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, 1939-1948

Year	Quebec		Ontario		Manitoba	
	Tons	$	Tons	$	Tons	$
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	...	...
1948	42,800	464,926	12,051	99,511	...	...

Table 7 - CONSUMPTION OF GROUND FELDSPAR IN CANADA, 1943-1947

	1943	1944	1945	1946	1947
			(Tons)		
(a) By Uses					
Glass	2,614	2,382	2,740	2,701	3,267
Scouring powders	5,892	4,617	4,847	4,099	4,058
Abrasives	58	75	60	15	23
Clay products (pottery, tile, insulators, etc.)	2,947	2,625	2,347	4,800	6,975
Enamelling	1,667	1,372	2,684	1,499	1,690
Miscellaneous	...	102	266	...	...
TOTAL	13,178	11,173	12,944	13,114	16,013
(b) By Provinces					
Quebec	7,555	6,388	6,815	6,886	7,289
Ontario	5,210	4,485	5,769	5,849	7,802
Alberta	247	300	360	379	920
Other	166	...	...	...	2
CANADA	13,178	11,173	12,944	13,114	16,013

Table 8 - IMPORTS INTO CANADA AND EXPORTS OF FELDSPAR, 1947 and 1948

	1947		1948	
	Tons	$	Tons	$
Imports -				
Crude feldspar	5	126	11	309
Ground feldspar	316	7,821	196	4,331
Exports -				
Feldspar	18,311	120,998	31,467	223,945

NEPHELINE SYENITE

Production of nepheline syenite in Canada during 1948 was limited to one firm, The American Nepheline Corporation Ltd., at Lakefield, Ontario. Shipments were valued at $506,462 compared with $341,635 in 1947. The exports of nepheline syenite were 61,107 tons valued at $327,518 compared with 52,198 tons worth $188,352 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 (*) OF NEPHELINE SYENITE IN CANADA, 1939-1948

Year	Value	Year	Value
	$		$
1939	140,148	1944	217,989
1940	117,849	1945	275,766
1941	227,583	1946	229,198
1942	246,893	1947	341,635
1943	292,010	1948	506,462

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

Table 10 - CONSUMPTION OF GROUND NEPHELINE SYENITE IN CANADA, 1944-1947

	1944	1945	1946	1947
			(Tons)	
(a) By Uses				
Glass	7,285	7,778	5,584	9,122
Pottery	257	324	219	205
TOTAL	7,542	8,102	5,803	9,327
(b) By Provinces				
Quebec	1,498	1,570	1,192	1,972
Ontario	5,107	4,991	3,973	5,987
Alberta	937	1,541	638	1,368
TOTAL	7,542	8,102	5,803	9,327

QUARTZ (SILICA)

Production of quartz or siliceous material during the year under review was 2,017,262 tons valued at $2,082,573 compared with 1,836,428 tons worth $1,796,612 in 1947.

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 (*) OF QUARTZ (SILICA) IN CANADA, 1939-1948

Year	Tons	$	Year	Tons	$
1939	1,582,935	1,100,214	1944	1,740,262	1,658,409
1940	1,858,302	1,203,527	1945	1,513,628	1,535,458
1941	2,052,878	1,366,187	1946	1,413,378	1,554,798
1942	1,738,174	1,538,162	1947	1,836,428	1,796,612
1943	1,776,749	1,608,448	1948	2,017,262	2,082,573

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

Table 12 - PRODUCTION OF QUARTZ, BY PROVINCES, 1947 and 1948

	1947		1948	
	Short tons	Value $	Short tons	Value $
Production (shipments) (*)				
Nova Scotia	9,146	55,393	7,651	52,863
Quebec	226,050	638,521	331,055	767,118
Ontario	1,442,341	949,210	1,496,652	1,019,997
Saskatchewan	124,322	43,513	151,676	53,086
British Columbia	34,569	109,975	30,228	189,509
CANADA	1,836,428	1,796,612	2,017,262	2,082,573

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

Table 13 - PRODUCTION (*) OF NATURAL LOW-GRADE SILICA SAND AND SILICA GRAVEL AS NON-FERROUS SMELTER FLUX, 1946 - 1948

	1946		1947		1948	
	Tons	$	Tons	$	Tons	$
Ontario	461,122	161,392	714,588	98,562	737,619	95,157
Saskatchewan	130,105	47,542	124,332	43,513	151,676	53,086
CANADA	591,227	208,934	838,920	142,075	889,295	148,243

(*) Included in totals shown in Tables 11 and 12.

Table 14 - IMPORTS INTO CANADA AND EXPORTS OF SILICA, 1947 and 1948

	1947		1948	
	Quantity	$	Quantity	$
	Tons		Tons	
Imports -				
Ground flint stone	335	12,739	739	25,749
Ganister	400	3,211	230	1,312
Silica sand for manufacturing	533,456	1,148,397	584,019	1,446,624
Silex or crystallized quartz	15,004	164,826	17,473	168,827
Silica fire brick	...	988,029	...	1,211,511
Exports -				
Quartzite	223,240	489,129	228,100	494,284

Table 15 - AVAILABLE STATISTICS ON THE CONSUMPTION OF SILICA SAND AND GROUND QUARTZ IN CANADA

	1945	1946	1947
	(Tons of 2,000 pounds)		
By Industries			
Paints, pigments and varnishes	1,904	1,959	1,886
Soaps and cleaning compounds	4,350	5,256	4,396
Clay products	3,659	4,554	5,861
Asbestos products	2,679	4,354	87
Miscellaneous non-metallic minerals	6,617	5,147	6,260
Roofing paper	885	1,193	1,710
Glass	135,959	123,910	172,859
Artificial abrasives	74,406	83,910	90,716
Fertilizers	25,871	44,077	69,669
Iron castings	4,331	3,764	4,603
Cooking and heating apparatus	2,149	2,048	2,111
Boilers, tanks and plate work	117	116	65
Farm implements	51	28	1,324
Railway rolling stock	3,353	1,454	1,763
Matches	384	356	471
Sweeping compounds	3	3	63
Disinfectants	1	9	12
Primary iron and steel	85,078	61,220	51,986
Heavy chemicals	16,943	19,305	30,152
Miscellaneous chemicals	126	151	166
Stone products	820	1,464	549
Machinery	1,134	1,544	1,324
Electrical apparatus	...	350	550
Cement manufacturing	29,424	31,222	36,223
Cement products	...	...	701
Miscellaneous iron and steel	...	...	33
Polishes	...	4	...
TOTAL	401,244	397,398	485,540
By Provinces			
Nova Scotia	2,001	2,659	6,124
New Brunswick	8,126	20,356	27,694
Quebec	192,481	193,504	227,896
Ontario	159,054	139,898	172,907
Manitoba	16,939	19,717	24,606
Saskatchewan	41	368	23
Alberta	17,235	16,572	22,298
British Columbia	5,366	4,324	3,992
CANADA	401,244	397,398	485,540

DIRECTORY OF FELDSPAR AND QUARTZ MINING INDUSTRY, 1948

(a) Produces silica
(b) Produces feldspar
(c) Operates a mill
(d) Produces nepheline syenite
(e) Produces grinding pebbles
(f) Produces scapolite

Name of Firm	Head Office Address	Location of Mine or Mill
Nova Scotia -		
Dominion Steel & Coal Corp. Ltd. (a)	Sydney	Chegoggin Point
Nairn, J. (a)	24 Whitney Ave., Sydney	Leitches Creek
Quebec -		
Belval, T. (b)	Farnham	Farnham
Bigelow, Gordon (b)	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
Canada China Clay & Silica Ltd. (a)	1600 Royal Bank Bldg., Toronto, Ontario	Amherst Tp.
Canadian Carborundum Co. Ltd. (a) (c)	Box 57, Niagara Falls, Ontario	St. Canut
Canadian Flint & Spar Co. Ltd. (a)(b)(c)	Room 512 Victoria Bldg., Ottawa, Ontario	Buckingham
Consumers Industrial Minerals Ltd. (b)	8661 Drolet St., Montreal	Montcalm Co.
Feldspar Products Ltd. (b)	1224 St. Catherine St., Montreal	Papineau
Champagne, L. (a)	1834 rue Champlain, Montreal	Berthier Co.
Kensington Industries Ltd. (b)	1224 St. Catherine St. W., Montreal	Buckingham
Laroque & Hebert (a)(b)	Glen Almond	Buckingham
Lachaine, Regis (b)	St. Pierre de Wakefield	Wakefield
Law, S. H. (a) (b)	Room 28, 14 Toronto St., Toronto, Ontario	Derry Tp.
McGill, Lawrence (f)	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
Wallingford, Wm. & A.O. (b)	Gatineau Point	Cantley
Ontario -		
American Nepheline Corp. (d)	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. (e)	Box 533, South Porcupine	Deloro Tp.
Canadian Flint & Spar Co. Ltd. (b)	512 Victoria Bldg., Ottawa	Bedford Tp.
Canadian Silica Corp. (Ltd.) (a)	100 Adelaide St. W., Toronto	Little Current
Conger Feldspar Mining Co. Ltd. (b)	10 Adelaide St. E., Toronto	Conger Tp.
Craig, T. H. (b)	46 Acacia Road, Toronto	Bathurst Tp.
Dominion Mines & Quarries Ltd. (a)(c)	Canada Life Bldg., Toronto	Killarney
Hybla Feldspar Corp. Ltd. (b)	33 Melinda St., Toronto	Monteagle Tp.
International Nickel Co. of Canada Ltd. (a)	Copper Cliff	Lawson Tp.
Kingston Silica Mines Ltd. (a)(c)	R. R. No. 1, Kingston	Pittsburg Tp.
Laurentian Feldspar Corp. Ltd. (b)	104 Sparks St., Ottawa	Perth
Opeongo Mining Co. (b)	1631 Benjamin Ave., Windsor	Dickenson Tp.
Shaw, E. (b)	Parry Sound	Parry Sound
Vardy, D. C. (b)	Box 70, Bancroft	Monteagle Tp.
Wright and Co. (a) (c)	960 Queen St., Sault Ste. Marie	Deroche Tp.
Saskatchewan -		
Hudson Bay Mining & Smelting Co. (a)	Flin Flon, Manitoba	Flin Flon
British Columbia -		
Consolidated Mining & Smelting Co. Ltd. (a)	Trail	Fairview

- - - - -