Published by Authority of the HON. W.D. EULER, M.P.,
Minister of Trade and Commerce.

CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

CENSUS OF INDUSTRY

MINING, METALLURGICAL & CHEMICAL BRANCH

THE

FELDSPAR & QUARTZ MINING INDUSTRY

IN

CANADA

1937

OTTAWA
1939

Price 10 cents

Published by Authority of the HON. W. D. EULER, M.P., 43-21-12-38
Minister of Trade and Commerce

DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
MINING, METALLURGICAL AND CHEMICAL BRANCH
OTTAWA - CANADA

Dominion Statistician: R. H. Coats, LL.D., F.R.S.C., F.S.S. (Hon.)
Chief - Mining, Metallurgical and Chemical Branch: W. H. Losee, B.Sc.
Mining Statistician: R. J. McDowall, B.Sc.

THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1937.

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 bulletin issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa. 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.

During 1937 the gross value of production by the industry and including the value of feldspar, quartz and nepheline-syenite sold totalled $1,428,714 compared with corresponding values of $789,682 in 1936 and $901,998 in 1929. In 1937 commercial shipments of feldspar were made only from properties located in Ontario and Quebec; quartz in various forms was produced in Nova Scotia, Quebec, Ontario and Saskatchewan while production of nepheline-syenite was confined to the province of Ontario.

The number of firms reported as active in the industry in 1937 totalled 59, capital employed was recorded at $1,352,992, employees numbered 445, salaries and wages paid amounted to $384,698 and the value of fuel, electricity and process supplies consumed totalled $186,470. The net value of all products sold was estimated at $1,242,244.

FELDSPAR

Commercial shipments of feldspar by Canadian producers totalled 21,346 short tons valued at $178,222 in 1937 as against 17,846 tons worth $154,475 in the preceding year. The tonnage shipped during the year under review was the greatest since 1930 and its value the highest since 1931. Canadian production of feldspar established an all time high record in 1924 when shipments totalled 44,804 short tons valued at $358,540.

The initial development work in the Canadian feldspar industry was conducted on deposits located at Villeneuve, Templeton and Hull townships, in the province of Quebec. In Ontario work was commenced in 1900 on large feldspar deposits occurring in the townshipments of Bedford and Portland in the eastern part of the province. Later, deposits in the Hybla, Mattawa, Sudbury, Parry Sound and Bathurst districts in Ontario were developed and during recent years shipments of the mineral have been made from a property located in the Pointe du Bois district, Southeastern Manitoba. At present there are two Canadian mills engaged in the grinding of feldspar, one located at Buckingham, Quebec and the other at Kingston, Ontario. In 1937 the greater part of Ontario's output of feldspar came from a large property operated in Lanark county while in Quebec almost the entire output came from deposits contiguous to the Lièvre River, north of Buckingham.

The Bureau of Mines, Ottawa, reports that pegmatite dykes, the main source of commercial feldspar are distributed widely throughout the Precambrian rocks of eastern and northern Canada, and the potential reserves of the mineral are very great. Development possibilities, however, in view of the comparatively low unit value of the mineral, hinge upon the two important factors of run-of-mine freedom from iron-bearing impurities and cost of transportation to grinding plant. As indicating present consumption trends, an official survey of the feldspar industry in the United States showed that sales by percentages of ground feldspar in 1937 were as follows: glass 50.9; pottery 36.6; enamel and sanitary ware 9.0; other ceramic uses 2.3 and soaps, abrasives, binders and various, 1.2 per cent.

Imports of crude feldspar into Canada during 1937 totalled 439 short tons valued at $2,197 and those of ground feldspar, all from the United States amounted to 1,356 tons at $22,937. Exports of feldspar and nepheline-syenite from Canada in the same year totalled 27,462 short tons worth $197,000 and of these 27,335 tons at $193,472 were consigned to points in the United States.

TARIFF REVISIONS

Trade agreements between Canada and the United States and between the United Kingdom and the United States were signed at Washington on Thursday November 17, 1938. The following statement prepared by the United States Tariff Commission shows the former and new rates of duty on feldspar and nepheline-syenite in schedule II (United States concessions to Canada), and the total imports of such products into the United States and the imports from Canada according to preliminary United States statistics for the year 1937: Crude feldspar; duty under the tariff act of 1930, 50 cents per ton; under the 1935 agreement 35 cents per ton and under the new agreement 25 cents per ton; imports of crude feldspar, into the United States in 1937 were valued at $91,885, all from Canada. Ground feldspar: duty under 1930 tariff and 1935 agreement 30 per cent; under new agreement 15 per cent. No imports of ground feldspar into the United States are recorded for 1937. Ground nepheline-syenite duties same as recorded for ground feldspar; data relating to imports in 1937 not available. Crude nepheline-syenite is placed on the free list but in the event imports of crude and ground nepheline-syenite together exceed 50,000 tons per annum, the two governments shall consult regarding action to be taken. If consultation results in no agreement, the United States Government shall be free to impose a duty.

Table 1 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF FELDSPAR 1936 and 1937.

	1936		1937	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
PRODUCTION (SALES) -				
Quebec	8,115	75,703	12,285	105,612
Ontario	8,409	70,840	9,061	72,610
Manitoba	1,322	7,932	-	-
TOTAL	17,846	154,475	21,346	178,222
IMPORTS OF FELDSPAR -				
Crude only	23	285	439	2,197
Ground (a)	718	13,955	1,356	22,937
EXPORTS OF FELDSPAR /				
TOTAL	14,133	94,537	27,462	197,000
To - United Kingdom	21	520	30	625
United States	14,042	92,419	27,335	193,472

(a) All from the United States. / Including nepheline-syenite.

Table 2. - PRODUCTION OF FELDSPAR IN CANADA, JANUARY 1 to JUNE 30, 1937 and 1938.

	1937		1938	
	Quantity	Value	Quantity	Value
	Tons	$	Tons	$
PRODUCTION (SALES) -				
Quebec	4,577	43,125	1,687	22,419
Ontario	3,848	34,091	3,883	29,741
Manitoba	...	...	78	78
TOTAL	8,425	77,216	5,648	52,238

Table 3. - PRODUCTION OF FELDSPAR IN CANADA, BY PROVINCES, 1926 - 1937.

Years	QUEBEC		ONTARIO		MANITOBA	
	Tons	$	Tons	$	Tons	$
1926	13,168	111,136	22,783	199,102	...	...
1927	12,730	104,618	17,119	154,533	...	...
1928	12,943	104,789	18,954	180,153	...	...
1929	15,790	133,492	21,737	206,979	...	...
1930	17,074	163,802	9,722	104,667	...	...
1931	10,381	86,842	7,962	100,119	...	...
1932	3,390	39,062	3,657	42,920	...	...
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	...	...

Table 4. - CONSUMPTION OF FELDSPAR IN CANADA, BY SPECIFIED INDUSTRIES, 1930-1937.

Year	Abrasive Products Industry		Imported clay products Industry		TOTAL - ALL NON-METALLIC MANUFACTURES INDUSTRIES (x)	
	Tons	$	Tons	$	Tons	$
1930	19	370	2,254	51,211	6,406	129,316
1931	8	190	1,885	34,394	5,405	93,175
1932	6	173	1,406	28,043	5,093	89,818
1933	6	115	861	16,297	5,762	98,393
1934	25	688	1,488	30,577	9,738	130,842
1935	34	939	1,135	21,977	5,097	84,878
1936	36	999	1,572	28,521	5,730	105,121
1937	53	1,506	2,428	46,028	5,408	100,063

(x) Includes feldspar consumed in the manufacture of glass.
(a) Not yet complete.

Table 5. - FELDSPAR USED IN THE MANUFACTURE OF CANADIAN SOAPS AND CLEANING PREPARATIONS, 1930-1937.

Year	Tons	$	Year	Tons	$
1930	1,000	29,904	1934	1,091	13,420
1931	1,001	37,460	1935	1,257	12,817
1932	956	26,647	1936	939	10,221
1933	989	13,293	1937	1,119	13,329

Table 6. - FELDSPAR CONSUMED IN THE MANUFACTURE OF CANADIAN IRON AND STEEL PRODUCTS, 1931 - 1937.

Year	Tons	$	Year	Tons	$
1931	(a)	3,386	1934	300	5,496
1932	(a)	2,799	1935	662	11,554
1933	147	2,969	1936	369	6,503
			1937(b)	441	7,385

(a) Quantity statistics not available.
(b) Subject to revision.

FELDSPAR PRICES (November, 1938) -

UNITED STATES - Per ton, f.o.b. North Carolina, potash feldspar, 200 mesh, white, $17 in bulk; soda feldspar, $19. F.O.B. Maine, potash feldspar, white, 200 mesh, $17, in bulk. Granular glass spar, white, 20 mesh, F.O.B. North Carolina, $12.50 in bulk; semi-granular, $11.75; soda feldspar, 200 mesh, white, $19. Virginia: No. 1, 230 mesh, $18; 200 mesh. $17; No. 17 glassmakers', $11.75; No. 18, $12.50. Enamelers, $14 to $16. Quotations on Spruce Pine, N.C., or Keene, N.H., basis. (Engineering and Mining Journal's "Metal and Mineral Markets" - New York).

Canadian prices remained at the level of 1936, with No. 1 ceramic grade quoted at $5.50 F.O.B. rail or mill. Ground spar sold at $16 per ton, ex mill.

Table 7. - WORLD'S PRODUCTION OF FELDSPAR, 1935-37.

(U.S. Bureau of Mines)

Country (1)	1935	1936	1937
Argentina (shipments)	495	1,082	(2)
Australia:			
New South Wales (3)	166	101	(2)
South Australia (3)	315	553	(2)
Western Australia (exports)	2,703	3,097	(2)
Canada (shipments)	16,095	16,190	19,350
China (4)	(2)	(2)	(2)
Egypt	72	45	(2)
Finland (exports)	2,071	2,520	(2)
Germany (Bavaria)	6,337	9,524	(2)
India, British	713	798	(2)
Italy	7,616	8,620	(2)
Norway (exports)	24,228	29,985	32,540
Rumania	14,180	(2)	(2)
Sweden	48,637	56,799	(2)
United States (shipments)	192,592	248,654	272,842

(1) In addition to countries listed, feldspar is produced in Czechoslovakia. Official figures of output are not available, but it is estimated that the annual production is approximately 30,000 metric tons. (Stat. Comm. Czechoslovak Ceram. Soc.)
(2) Data not yet available.
(3) Includes some china stone.
(4) Includes Manchuria.

Table 8. - WORLD'S IMPORTS OF FELDSPAR, 1934-36. (Less Re-exports).
(Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries")

Importing Country	1934	1935	1936
		(Long tons)	
British Empire			
United Kingdom (b)	16,884	24,903	27,045
Canada	928	543	662
Foreign Countries			
Austria	734	561	518
Belgium-Luxemburg E.U.	6,576	7,621	10,286
Czechoslovakia	964	1,125	1,206
Denmark	981	1,004	1,551
Finland (total imports)	303	593	74
Germany	33,573	29,944	34,277
Latvia	...	106	81
Netherlands	2,376	9,749	8,706
Sweden	895	760	604
Mexico	416	(a)	438
United States	9,744	8,938	10,904

(a) Information not available.
(b) Including china stone.

The "Chemical Age" states that Y.P. Varshney reports, in "Science and Culture", results of experiments made on the utilization of slags produced in iron and steel plants as a constituent in glass-making batches. He has shown that glass cheaply made with slag and feldspar can be easily used for manufacturing bottles, jars, floor tiles, roof tiles, etc., in various transparent colours as well as in opaque and black varieties. A batch of the following composition gave a most workable and fluid bubble-free bottle green glass at a temperature of 1,350° C.: - slag 100 parts, sand 150 parts, feldspar 150 parts, slacked lime 35 parts and soda ash 90 parts. The use of slag in these glasses reduces the cost by about 50 per cent.

NEPHELINE-SYENITE

Production of nepheline-syenite in Canada during 1937 was valued at $121,481 compared with $37,426 in the preceding year. The output in both years came from properties located in eastern Ontario.

The following information relating to nepheline-syenite is abstracted from report No. 791 issued by the Bureau of Mines, Ottawa:- "Nephiline-syenite is an igneous rock consisting of a mixture of the feldspathoid mineral nepheline (or nephelite), a silicate of alumina and soda, and varying amounts of soda and potash feldspars. It is used in the ceramic trade (at present mainly in the glass industry) as a substitute for straight feldspar.

"Interest in the material as an industrial mineral or rock is of recent date, the first production being in 1936, when Canadian Nepheline Ltd., opened a quarry at Blue Mountain in Methuen township, Peterborough county, about 27 miles northeast of Lakefield, and erected a mill at Lakefield to crush and process the rock for market.

Processing of the quarry-run rock is necessary to remove the small amount of iron-bearing minerals present, principally magnetite. The material is of particular interest to the glass industry owing to its higher content of alumina (about 24 per cent) as compared with straight feldspar (about 20 per cent). Research indicates that the syenite may have useful application in other branches of ceramics, such as semi-vitrious ware and porcelain enamels. During 1937 operations of Canadian Nepheline Limited were further extended by the formation of a subsidiary, American Nepheline Corporation; during the year this company erected a large crushing and processing plant at Rochester, N.Y. for the treatment of the Canadian mined rock.

"In 1937 a second company, Gooderham-Nepheline commenced operations on a property in Glamorgan township, Haliburton county; from the Vardy property in Dungannon township, Hastings county, the Golding-Keene Company made shipments of the syenite to its mill at Keene, New Hampshire."

Table 9. - PRODUCTION OF NEPHELINE-SYENITE IN CANADA, / 1936-1937.

Year	Quantities	Value
		$
1936	(a)	37,426(b)
1937	(a)	121,481

/ Produced in Ontario Only.
(a) Quantity not published.
(b) First commercial production in Canada.

During the first six months of 1938 the Canadian production of nepheline-syenite was valued at $75,318 compared with $51,087 in the corresponding period of 1936.

QUARTZ (SILICA)

The production of natural silica or quartz in Canada during 1937 totalled 1,377,448 short tons valued at $1,129,011 compared with 1,046,649 tons at $597,781 in 1936. Output of primary silica products by the Canadian Quartz Mining industry includes 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 1937 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 sandblasting and various other purposes; in the same province large quantities of crushed quartzite or sandstone were mined and milled for the manufacture of silicon carbide and ferro-silicon. The greater part of the tonnage of silica shipped in Ontario during 1937 represented material intended for use in the production of silica brick and ferro-silicon and for the fluxing of nickel-copper ores. Quartz production as recorded for Saskatchewan represented natural silica sands or gravels shipped as flux to the Flin Flon Smelter of the Hudson Bay Mining and Smelting Co. Ltd.

The price per ton of the several grades of silica varies greatly, depending on its purity and on the purpose for which it is to be used. Silica, on the whole, is a comparatively low-priced commodity, and therefore the location of a deposit with respect to markets is of great importance. According to a report issued by the Bureau of Mines, Ottawa, the larger markets for silica are in the provinces of Quebec

and Ontario, and any new deposits being opened up should be within economic reach of either Montreal or Toronto.

Imports into Canada during 1937 of silex or crystallized quartz, ground or unground totalled 4,276 short tons valued at $103,940; imports of silica sand for glass, carborundum and steel and filtration plants etc., in the same year, amounted to 212,840 short tons worth $373,760.

Table 10. - PRODUCTION IN CANADA AND IMPORTS OF QUARTZ AND SILICA PRODUCTS, 1936 and 1937.

	1936		1937	
	Short Tons	Value	Short Tons	Value
		$		$
PRODUCTION (x) (SHIPMENTS) -				
Nova Scotia	6,764	10,819	11,732	14,078
Quebec	78,975	320,634	127,535	448,327
Ontario	884,585	216,037	1,142,372	633,073
Manitoba	90	45	...	...
Saskatchewan	76,089	49,458	95,809	33,533
British Columbia	146	788	...	...
CANADA	1,046,649	597,781	1,377,448	1,129,011
IMPORTS -				
Ganister	4,097	8,140	2,405	5,980
Flint and ground flint stones	1,234	23,079	1,811	38,616
Silex or crystallized quartz, ground or unground	4,056	84,393	4,276	103,940
Silica sand for glass, carborundum and steel and filtration plants and sand blasting (a)	143,611	270,824	212,840	373,760
Silica fire brick, 90% + silica	...	261,974	...	539,253

(x) Includes both crude and crushed quartz and quartzite, silica flux and natural silica sands. See footnote to Table 11.

(a) 139,070 tons from the United States and 4,449 tons from Belgium in 1936 and 212,386 tons from the United States, 222 tons from Belgium and 232 tons from the United Kingdom in 1937.

Table 11. - PRODUCTION (x) (USE) OF NATURAL LOW GRADE SILICA SAND AND SILICA GRAVEL AS NON-FERROUS SMELTER FLUX, 1936 and 1937.

	1936		1937	
	Tons	$	Tons	$
Ontario	814,634	90,925	980,427	343,149
Saskatchewan	76,089	49,458	95,809	33,533
CANADA TOTAL	890,723	140,383	1,076,236	376,682

(x) Included in totals shown in Table 10; also complete date for production of this material in Ontario during previous years are not available.

and Ontario, and any new deposits being opened up should be within economic reach of either Montreal or Toronto.

Imports into Canada during 1937 of silex or crystallized quartz, ground or unground totalled 4,276 short tons valued at $103,940; imports of silica sand for glass, carborundum and steel and filtration plants etc., in the same year, amounted to 212,840 short tons worth $373,760.

Table 10. - PRODUCTION IN CANADA AND IMPORTS OF QUARTZ AND SILICA PRODUCTS, 1936 and 1937.

	1936		1937	
	Short Tons	Value	Short Tons	Value
		$		$
PRODUCTION (x) (SHIPMENTS) -				
Nova Scotia	6,764	10,819	11,732	14,078
Quebec	78,975	320,634	127,535	448,327
Ontario	884,585	216,037	1,142,372	633,073
Manitoba	90	45	...	...
Saskatchewan	76,089	49,458	95,809	33,533
British Columbia	146	788	...	...
CANADA	1,046,649	597,781	1,377,448	1,129,011
IMPORTS -				
Ganister	4,097	8,140	2,405	5,980
Flint and ground flint stones	1,234	23,079	1,811	38,616
Silex or crystallized quartz, ground or unground	4,056	84,393	4,276	103,940
Silica sand for glass, carborundum and steel and filtration plants and sand blasting (a)	143,611	270,824	212,840	373,760
Silica fire brick, 90% / silica	...	261,974	...	539,253

(x) Includes both crude and crushed quartz and quartzite, silica flux and natural silica sands. See footnote to Table 11.

(a) 139,070 tons from the United States and 4,449 tons from Belgium in 1936 and 212,386 tons from the United States, 222 tons from Belgium and 232 tons from the United Kingdom in 1937.

Table 11. - PRODUCTION (x) (USE) OF NATURAL LOW GRADE SILICA SAND AND SILICA GRAVEL AS NON-FERROUS SMELTER FLUX, 1936 and 1937.

	1936		1937	
	Tons	$	Tons	$
Ontario	814,634	90,925	980,427	343,149
Saskatchewan	76,089	49,458	95,809	33,533
CANADA TOTAL	890,723	140,383	1,076,236	376,682

(x) Included in totals shown in Table 10; also complete date for production of this material in Ontario during previous years are not available.

Table 12. - PRODUCTION OF QUARTZ (SILICA) IN CANADA, 1926 - 1937.

Year	Ton	$	Year	Ton	$
1926	232,082	553,161	1932	189,132	276,147
1927	233,984	496,364	1933	185,783	297,820
1928	282,522	523,933	1934	272,563	482,265
1929	265,949	561,527	1935	233,002	424,882
1930	226,200	418,127	1936 (x) ...	1,046,649	597,781
1931	195,724	303,158	1937 (x) ...	1,377,448	1,129,011

(x) See footnote to Table 10.

Table 13. - PRODUCTION OF SILICA BRICK IN CANADA, 1928 - 1937.

Year	M	Value	Year	M	Value
		$			$
1928	3,224	155,502	1933	636	23,185
1929	3,951	173,581	1934	2,528	85,945
1930	2,418	97,379	1935	2,461	96,194
1931	900	35,746	1936	2,393	97,285
1932	93	4,304	1937	3,744	181,126

Table 14. - PRODUCTION OF QUARTZ (SILICA) IN CANADA, BY PROVINCES, JANUARY 1 to JUNE 30, 1937 and 1938.

Province	1937 Tons	1937 $	1938 Tons	1938 $
Nova Scotia	3,222	5,542	396	709
Quebec	46,904	198,175	46,540	165,801
Ontario (x)	533,861	260,320	609,391	235,604
Manitoba	...	...	...	...
Saskatchewan (x)	44,820	31,374	53,927	18,874
British Columbia	...	...	...	...
CANADA	628,807	495,411	710,254	420,988

(x) See footnote to Table 10.

PRICES -

UNITED STATES (NOVEMBER, 1938) - Silica, per ton, water ground and floated, in bags, f.o.b. Illinois: 325 mesh, $21 to $40 for 92 to 99½ per cent grades. Dry ground, air floated, 325 mesh, 92 to 99½ per cent silica, $20 to $30. Glass sand, f.o.b. producing plant, $1.25 to $5 per ton; molding sand, 50 cents to $3.50; blast sand, $1.75 to $6. California: $5 for quartz and $2.50 for sand. Quartz rock crystals for fusing, all sizes, $100 per ton; prisms for piezo-electrical and optical use command premium. (Engineering and Mining Journal's "Metal and Mineral Markets" - New York).

"Canadian Chemistry and Metallurgy" - Toronto - quotations (October, 1938) - silica sand, various grades, car lots, ton $8 to $9. Silica quartz 99 per cent, 110-220 grade, car lots - to $15 per ton. The price for the lower grades of crude quartz varies greatly according to purity and purpose of use.

Table 15. - CONSUMPTION OF QUARTZ, SILICA SAND, etc., IN CANADA, BY INDUSTRIES, ACCORDING TO CENSUS OF INDUSTRY REPORTS, 1936 and 1937.

Industry	1936 Quantity	1936 Cost at works	1937 Quantity	1937 Cost at works
	Short tons	$	Short tons	$
SILICA SAND AND SILICA (including ground quartz)				
Soaps and cleaning preparations	4,918	79,020	4,685	76,378
Acids and salts	11,715	60,279	11,659	54,769
Paints	739	28,522	836	21,306
Refractories	285	1,778		(a)
Roofing paper	1,993	10,072	1,976	11,657
Abrasives	44,455	217,499	45,240	211,899
Glass	68,176	331,844	82,267	382,728
Enameling	434	3,366		(a)
Products from imported clays	2,305	26,722	3,032	44,648
Foundry facings and supplies	36	374	...	...
Non-ferrous smelters (x)	890,723	140,383	1,076,236	376,682
Steel foundries	23,420	121,142	37,015	207,510
TOTAL ACCOUNTED FOR	1,049,199	1,021,001	...	...
QUARTZ AND QUARTZITE -				
Acids and salts	2,183	6,396	1,537	3,632
Ferro-alloys	15,777	45,661	35,633	80,201
Non-ferrous smelters	146	788	...	...
TOTAL ACCOUNTED FOR	18,106	52,845	37,170	83,833

NOTE - Consumption values are costs at works.

(x) The quantities reported under this industry represent low grade natural silicious sands used for fluxing purposes.

(a) Data not yet complete.

In addition to the quantities shown in table 15 a relatively large quantity of quartz or quartzite is consumed in the manufacture of silica brick - see table 13.

Table 16. - PRINCIPAL STATISTICS OF THE FELDSPAR AND QUARTZ MINING INDUSTRY, 1936 and 1937.

	ONTARIO(x)(b) 1936	ONTARIO(x)(b) 1937	QUEBEC 1936	QUEBEC 1937
Number of firms (a)	16	18	18	21
Capital employed	$ 661,911	485,663	738,113	867,329
Number of employees - On salary	14	25	17	25
On wages	122	160	171	235
Total	136	185	188	260
Salaries and wages - Salaries	$ 16,788	30,697	29,310	38,163
Wages	$ 97,192	151,297	95,558	164,541
Total	$ 113,980	181,994	124,868	202,704
Selling value of products (gross)	$ 393,345	874,775	396,337	553,939
Cost of fuel and purchased electricity	$ 21,159	29,092	35,785	53,519
Cost of process supplies	$ 91,339	75,130	12,630	28,729
Net value of sales	$ 280,847	770,553	347,922	471,691

(x) In 1936 includes 1 firm operating in Nova Scotia, Manitoba, Saskatchewan and British Columbia (a total of 4). In 1937 includes 1 firm in Nova Scotia and 1 in Saskatchewan. (a) Small shippers from whom reports were unobtainable and whose production is recorded from consumers returns are sometimes not included in the total. (b) Includes data relating to production of nepheline-syenite.

Table 17. - NUMBER OF WAGE-EARNERS ON PAY ROLL, BY MONTHS, 1932 - 1937.

Month	1932	1933	1934	1935	1936	1937
January	69	39	170	180	188	278
February	81	32	153	168	186	282
March	106	34	153	161	192	289
April	56	18	145	147	199	338
May	102	123	263	239	254	345
June	111	172	300	266	321	416
July	122	187	356	313	354	461
August	113	193	389	329	364	455
September	84	200	377	254	407	490
October	90	163	355	261	383	484
November	122	139	286	233	331	474
December	105	132	232	195	303	367

Table 18. - NUMBER OF WAGE-EARNERS IN MONTH OF HIGHEST EMPLOYMENT IN 1937 WHOSE REGULAR HOURS PER WEEK WERE -

Hours	Number	Hours	Number
40 hours or less	24	51 - 53 hours	101
41 - 43 hours	2	54 hours	45
44 hours	4	55 hours	18
45 - 47 hours	6	56 - 59 hours	27
48 hours	119	60 hours	129
49 - 50 hours	1	60 hours plus	34

Table 19. - FUEL AND ELECTRICITY USED, 1936 and 1937.(b)

Kind	Unit of measure	1936 Canada Quantity	1936 Canada Cost at works $	1937 Ontario Quantity (a)	1937 Ontario Cost at works $	1937 Quebec Quantity	1937 Quebec Cost at works $
Bituminous coal -							
Canadian	short ton	956	6,288	17	259	1,169	7,750
Foreign	short ton	2,758	17,704	3,685	22,348	100	900
Anthracite coal -							
United States	short ton	20	260	...	...	...	...
Other	short ton	13	213	...	...	2	30
Coke	short ton	4	77	...	...	9	120
Gasoline	Imp. gal.	(x)19,508	4,346	12,200	2,463	53,945	11,544
Kerosene	Imp. gal.	865	168	987	191	...	...
Fuel oil	Imp. gal.	186,617	13,304	2,596	285	224,190	19,760
Wood	cord (/)	508	1,655	325	989	55	203
Electricity purchased	K.W.H.	738,450	12,929	348,243	2,557	912,410	13,212
TOTAL	$	...	56,944	...	29,092	...	53,519
Electricity generated for own use	K.W.H.	1,056,100	...	12,579	...	1,363,734	...

(x) Exclusive of consumption by motor vehicles. (/) 128 cubic feet. (a) Includes data for 1 property in Nova Scotia. (b) Data relating to production of silica flux by smelting companies are included with those of the non-ferrous smelting and refining industry.

Table 20. - POWER EQUIPMENT INSTALLATION, 1937.

Description	Number of units	Total horse power (Manufacturers' rating)
Steam engines and steam turbines	6	560
Diesel engines	6	957
Other internal combustion engines	30	1,134
Electric motors operated by purchased power ..	58	1,135
Electric motors operated by establishment power	82	508
Boilers	37	1,002

LIST OF FIRMS IN THE CANADIAN FELDSPAR AND QUARTZ MINING INDUSTRY, 1937.

Name of Firm	Head Office Address	Location of mine or mill
NOVA SCOTIA -		
Nairn, J.S. (a)	Sydney (24 Whitney Ave.)	Leitches Creek
QUEBEC -		
Barr, W.J.	Westmeath, Ont.	Pontiac Co.
Brazeau, Maurice (a)	Buckingham, Que.	W. Portland Tp.
Canadian Carborundum Co. Ltd. (a) (b)	Box 65, Niagara Falls, Ont.	St. Canut
Canadian Flint & Spar Co. Ltd. (b)	Box 340, Buckingham	Derry Tp.
Canadian Kaolin Silica Products Ltd. (a) (b)	1007 Canada Cement Bldg., Montreal	St. Remi d'Amherst
Donaldson, Robert J.	Glen Almond, Que.	Buckingham Tp.
Evans, W.H.	Box 386, Buckingham	Buckingham Dist.
Hill, Nelson (a)	Glen Almond, Que.	Buckingham Tp.
Landry, J.N.	Buckingham	Buckingham Dist.
Laviolette, A.	Buckingham	Buckingham Dist.
Laviolette, Nathias	Buckingham	Buckingham Dist.
McDonnell, B.A.	Buckingham	Derry Tp.
Montpetit Euclyd (a) (b)	Melocheville	Beauharnois
Murphy, Wm.	Buckingham	Portland Tp.
Ottawa Silica & Sandstone Ltd. (a) (b)	East Templeton, Que.	East Templeton
Parcher, Alfred	Glen Almond	Derry Tp.
Pedneaud, G.	Glen Almond	Glen Almond
Perkins Mining Co.	Gatineau Point, Que.	Derry Tp.
St. Amour, Orphila	Notre Dame de la Salette	Papineau Co.
Sellers, W. & Parcher, Earl	Glen Almond	Derry Tp.
ONTARIO -		
Bathurst Feldspar Mines Ltd.	508 - 21 King St. E., Toronto	Bathurst Tp.
Cameron, Wallace B.	Madawaska	Murchison Tp.
Charette, Sam.	Estaire	Burwash Tp.
Craig, T.H.	Perth	Bathurst Tp.
Dominion Mines & Quarries Ltd. (a) (b)	Canada Life Bldg., Toronto	Killarney
Frontenac Floor & Wall Tile Co. Ltd. (b)	Kingston	Kingston
Gunters Mine	Prince's Lake	Sabine Tp.

LIST OF FIRMS IN THE CANADIAN FELDSPAR AND QUARTZ MINING INDUSTRY, 1937 (concluded)

Name of Firm	Head Office Address	Location of mine or mill
ONTARIO - (concluded)		
Meeks, Leonard	Verona	Verona
MacDonald, Pete	Hybla	Hybla
Prince & Prince	Prince's Lake	Sabine Tp.
Raymond, F. & Sawyer, L.	Madawaska	Jones Tp.
Wright & Co. (a)	960 Queen St., Sault Ste. Marie	Deroche Tp.
MANITOBA		
Winnipeg River Tin Mines Ltd. /	403 Avenue Bldg., Winnipeg	Pointe du Bois

(a) Reported shipments of silica only.
(b) Operates a mill.
/ Active but not producing.

NOTE - In addition to the firms listed, there are Canadian metallurgical companies producing low grade silica sand for their own use.

- - - - - - -

PRODUCERS OF NEPHELINE-SYENITE, 1937.

ONTARIO		
Canadian Nepheline Ltd. (a)	714 Canada Permanent Bldg., Toronto, Ontario	Lakefield, Ont.
Gooderham Nepheline	24 Dickson St., Galt	Glamorgan Tp.
Golding-Keene Co.	Keene, New Hampshire	Bancroft
Morrison, Wm.	64 Tyrrel Ave., Toronto	Eastern Ontario.

(a) Operates a mill in Canada.

- - - - - - -