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DEPARTMENT OF TRADE AND COMMERCE  
DOMINION BUREAU OF STATISTICS  
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FELDSPAR AND QUARTZ, 1933.

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

FELDSPAR

Production of feldspar in Canada during 1933 totalled 10,658 tons valued at \$105,117 as compared with 7,047 tons worth \$81,982 in 1932 and 18,343 tons at \$186,961 in 1931. The 1933 output represents a gain of 51 per cent in quantity and 28 per cent in value compared with 1932. This increase apparently reflects the stimulated uptrend in general industry, especially in certain branches of the ceramic trade, and it is encouraging to note that the improvement commenced in 1933 has extended into 1934 as evidenced by an increase of 85 per cent in the tonnage of feldspar shipments during the first six months of the current year as compared with the corresponding period of 1933.

Canadian production of feldspar both in 1933 and the first half of 1934 came entirely from the provinces of Quebec, Ontario and Manitoba. It is noteworthy that prior to 1933 the commercial output of feldspar was confined only to Quebec and Ontario with the exception of the year 1921 when a relatively small tonnage was shipped in Nova Scotia. Commencing in 1933 feldspar was recorded as being mined and sold on a commercial basis for the first time in Manitoba.

Most of the feldspar mined in Canada is of the high-potash variety. Deposits of soda-rich spar are relatively uncommon and often carry a high proportion of objectionable impurities. Until a couple of years ago, there was a small production of high-soda spar from a deposit in Aylwin township, Quebec, the material being used in scouring-soap compounds; this mine was closed down in 1931. A proportion of the best grade feldspar mined in the Buckingham district, Quebec, is utilized for dental purposes.

In Quebec the mineral was mined and shipped in the townships of Derry, Buckingham, Portland and Villeneuve of Papineau county. The grinding plant of the Canadian Flint and Spar Co. Ltd., located at Buckingham was in operation throughout the year; these works are equipped to produce a wide range of pulverized feldspars.

The greater part of the feldspar shipped in Ontario during 1933 was mined in Bathurst township, Lanark county; other important shipments were made from Hybla in the Bancroft area and from Britt in the Parry Sound district. At Kingston the Frontenac Floor and Wall Tile Co. Ltd. ground and marketed feldspar for consumption

in the ceramic and glass industries; ground feldspar was also utilized by this firm in the manufacture of tile.

During 1933 several tons of nepheline syenite bearing rock were mined and shipped in Methuen township, Peterborough county; this production was exported for treatment in the United States. The product made there was submitted to the glass trade and various ceramic laboratories in the United States, Canada and Great Britain for report as to the suitability of the material for ceramic purposes. Reports are stated to have been entirely favourable and the Department of Mines, Ottawa, reports that if the projected development of the industry materializes it may result in the substitution of this product for considerable tonnages of feldspar.

In Manitoba, the Winnipeg River Tin Mines Ltd., conducted feldspar mining operations during 1933 in the Lac du Bonnet district. Shipments of the mineral were made by this company to a grinding plant located in Minnesota, U.S.A.; shipments to both United States and Canadian points were continued during the first six months of 1934.

Production in Canada, Imports and Exports of Feldspar, 1932 and 1933.

	1	9	3	2		1	9	3	3
	Quantity		Value			Quantity		Value	
	Tons		\$			Tons		\$	
<u>PRODUCTION</u> --									
Quebec .....	3,390		39,062			6,183		59,283	
Ontario .....	3,657		42,920			4,387		45,350	
Manitoba .....	...		...			88		484	
TOTAL .....	7,047		81,982			10,658		105,117	
<u>IMPORTS</u> --									
Crude and ground .....	1,487		24,875			561		7,970	
<u>EXPORTS</u> .....									
	2,017		15,465			3,596		23,076	

Production of Feldspar in Canada, by Provinces, 1924-1933.

	Q U E B E C		O N T A R I O	
Year	Tons	\$	Tons	\$
1924 .....	16,147	142,118	28,657	216,422
1925 .....	11,287	94,730	17,394	141,059
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

"Metal and Mineral Markets," New York, quote feldspar prices in United States for August, 1934, as follows: per ton, f.o.b. North Carolina, potash feldspar, 200 mesh, white, \$17, in bulk; soda feldspar, \$19. F.O.B. Main, potash feldspar, white, 200 mesh, \$17 in bulk. Granular glass spar, white, 20 mesh, f.o.b. North Carolina, \$11.50 in bulk; semi-granular, \$10.75; soda feldspar, 200 mesh, white, \$19. Virginia: No. 1, 230 mesh, \$18; 200 mesh, \$17; No. 17 glassmakers, \$10.75; No. 18, \$11.50. Enamellers' \$14 to \$18; quotations on Spruce Pine N.C., basis. New Mexico: Crude clean No. 1 potash spar, \$4.75; ground, \$9.50.



WORLD PRODUCTION OF FELDSPAR, 1930-1932.

Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries."  
(Long tons)

Producing Country	1930	1931	1932
<u>BRITISH EMPIRE</u>			
United Kingdom - China stone .....	62,920	42,650	45,091
Canada .....	23,925	16,378	6,292
India .....	...	334	473
Australia (including china stone) .....	67	205	1,006
<u>FOREIGN COUNTRIES</u>			
Czechoslovakia (c) .....	30,000	30,000	30,000
Finland (exports) .....	611	66	1,505
France .....	12,600	(a)	(a)
Germany (Bavaria only) .....	5,069	4,921	3,494
Italy .....	5,659	4,675	(a)
Norway .....	28,056	16,151	20,249
Roumania (b) .....	1,932	100	670
Sweden .....	37,986	32,590	23,319
Egypt .....	...	26	176
United States (sales) .....	171,788	147,119	104,715
Argentina .....	193	169	363

NOTE - 19,987 long tons of Feldspar were produced in Russia during year ended September, 1928 - later figures are not available.

(a) Information not available.

(b) Converted from cubic metres at the rate of 1 cubic metre = 2 long tons.

(c) As estimated by U. S. Bureau of Mines.

WORLD IMPORTS OF FELDSPAR, 1930-1932 (Less Re-Exports)

Taken from the Imperial Institute's publication "The Mineral Industry of the British Empire and Foreign Countries"  
(Long tons)

Importing Country	1930	1931	1932
<u>BRITISH EMPIRE</u>			
United Kingdom (c) .....	(b)	10,251	11,057
Canada .....	2,836	1,676	1,327
<u>FOREIGN COUNTRIES</u>			
Austria .....	1,519	1,735	943
Belgium-Luxemburg E.U. ....	5,362	7,926	4,503
Czechoslovakia .....	1,813	1,472	1,265
Denmark .....	1,281	594	772
Finland .....	270	212	111
Germany .....	37,336	29,240	20,625
Latvia .....	...	22	30
Netherlands .....	3,235	2,059	2,987
Poland .....	4,571	2,639	1,612
Sweden .....	345	469	14
United States .....	20,057	10,790	1,897
Chile .....	5	15	(a)

(a) Information not available.

(b) Not separately recorded in the trade returns of the United Kingdom prior to 1931. The exports from Norway and Sweden to the United Kingdom were 13,386 long tons during 1930.

(c) Including china stone.

### QUARTZ

Silica production in 1933 and including quartzite, silicious fluxing gravel, lode quartz and natural silica sand, totalled 185,783 tons valued at \$297,820 as compared with 189,132 tons worth \$276,147 in 1932. The 1933 output came from the provinces of Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan and British Columbia.

The following notes relating to silica products are supplied by L. H. Cole of the Department of Mines, Ottawa: "Quartz and quartzite in sizes from 2 to 6 inches are used in the manufacture of ferro-silicon and as a smelter flux. For silica brick, quartzite is crushed to about 8 mesh. Some quartz is also crushed to make silica sand. Silica sand is generally prepared from a friable sandstone by crushing, washing, drying and screening to recover different grades of material according to the industry for which it is required. For example, for the manufacture of glass the material should range between the 20 and 100 meshes. Silica sand is also being prepared from a friable quartz and from vein quartz. Silica is the washed sand or pure quartz crushed and ground in some form of ball mill, then either air or water-floated to recover the fine flour. The ceramic industry requires 150 mesh or finer while the paint trade requires air-floated material 250 mesh or finer."

"Iron Age" describing abrasives, states: "The type of finish desired also governs the selection of abrasives to some extent. Thus sands produce a so-called matte finish. Ordinary bank or building sands are of little value. Ocean sands are much used, but a carefully selected and prepared white silica sand has greater resistance to disintegration, creates less dust, and enables faster cleaning. Sand is graded into about four sizes, and the smaller sizes are more frequently used for cleaning sheets and rolled forms of brass, bronze, aluminum or steel. Most sands used for sand blasting weigh approximately 97 pounds per cubic foot."

Most of the sand used for glass making contains more than 99 per cent silica states the "Chemical Age," London; quality depends largely on the kind and quality of glass being made. Glass may be classified according to chemical composition or the predominating basic oxide, or by physical characteristics that are largely controlled by the quality of the sand used. On this basis it may be separated into optical glass, requiring sand of the highest purity; flint glass, for high-grade tableware to be cut and polished; requiring sand almost equal to that for optical glass; plate glass to be ground and polished, requiring a high-grade sand; window glass, and plate glass which is used in the form of ribbed or wired glass, requiring a sand of still less purity; green bottle glass, which may contain much more iron oxide and different grades of amber glass, for which a sand with a fairly high content of iron oxide is permissible."

There are now in operation in Canada several modern plants producing high-grade silica products including sands suitable for glass making, foundries, chemical plants, abrasives, silica brick, etc.

"Metal and Mineral Markets" quote August silica prices in the United States as follows: 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; moulding sand, 50 cents to \$3.50; blast sand, \$1.75 to \$6. California: \$5 for quartz and \$2.50 for sand.



"Canadian Chemistry and Metallurgy" quote Canadian prices in August, 1934, as follows: silica, sand, various grades, car lots, ton \$8.00 to \$9.00. Silica quartz, 99 per cent, 110 to 220 grade, car lots, ton - \$15.00.

Production in Canada and Imports of Quartz and Silica Products, 1932 and 1933.

	1	9	3	2	1	9	3	3
	Tons				Value			
					\$			
<u>PRODUCTION(x)</u> ..								
Nova Scotia .....	...			...		1,017		1,447
Quebec .....	20,123			71,645		28,294		109,533
Ontario .....	66,135			93,574		66,562		86,146
Manitoba .....	87,253			102,493		7,736		23,507
Saskatchewan .....	...			...		59,506		59,506
British Columbia .....	15,621			8,435		22,668		17,681
CANADA .....	189,132			276,147		185,783		297,820

IMPORTS ..

Flint and ground flint stones .....	1,926	16,075	2,277	26,615
Silex or crystallized quartz, ground or unground .....	6,186	167,997	4,370	82,823
Silica sand for glass, carborundum and steel and filtration plants and sand blasting .....	59,176	162,869	64,114	160,131
Silica fire brick, 90% silica .....	...	122,952	...	147,901

EXPORTS .....

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

Production of Quartz in Canada, 1924-1933.

Years	Ton	\$
1924 .....	150,896	323,156
1925 .....	197,224	363,612
1926 .....	232,082	553,161
1927 .....	233,984	496,364
1928 .....	282,522	523,933
1929 .....	265,949	561,527
1930 .....	226,200	418,127
1931 .....	195,724	303,158
1932 .....	189,132	276,147
1933 .....	185,783	297,820

Silica Consumed in Specified Canadian Industries, 1932 and 1933.

Industry	Item	1	9	3	2	1	9	3	3
		Tons				\$			
Glass Industry .....	Silica sand	59,143			290,854	52,585			272,689
Acids, Alkalies and Salts ....	Silica	6,342			20,321	5,800			21,714
Artificial Abrasives .....	Silica sand	5,207			27,588	13,574			68,186
Imported Clay Products .....	Flint	1,136			18,277	752			10,457

Principal Statistics of the Feldspar and Quartz Mining Industry in Canada,  
1932 and 1933.

	1932	1933
Number of firms .....	33	28(x)
Capital employed .....\$	936,177	1,143,792
Number of employees - On salary .....	20	23
On wages .....	100	123
Total .....	120	146
Salaries and wages - Salaries .....\$	32,462	34,979
Wages .....\$	59,141	82,058
Total .....\$	91,603	117,037
Cost of fuel and electricity .....\$	13,397	26,327
Selling value of products .....\$	358,129	402,937

(x) Some small shippers from whom no reports were received but whose production was recorded from consumers returns are not included in 1933.

Number of Wage-Earners on Payroll, by Months, 1932 and 1933.

Month	1932	1933
January .....	69	39
February .....	81	32
March .....	106	34
April .....	56	18
May .....	102	123
June .....	111	172
July .....	122	187
August .....	113	193
September .....	84	200
October .....	90	163
November .....	122	139
December .....	105	132

Fuel and Electricity Used during 1932 and 1933.

		1932		1933	
	Unit of measure	Quantity	Cost at plant	Quantity	Cost at plant
			\$		\$
Bituminous coal - Canadian ..	short ton	171	1,083	170	982
Foreign ...	short ton	734	3,827	899	6,099
Coke .....	short ton	1	12	1	16
Gasoline .....	Imp. gal.	3,030	729	13,152	3,138
Kerosene .....	Imp. gal.	274	57	271	59
Fuel oil .....	Imp. gal.	3,900	536	65,026	5,946
Wood .....	cord	8	46	...	...
Gas - Manufactured .....	M cu.ft.	...	...	342	1,300
Other fuel .....	xx	....	...	...	96
Electricity purchased .....	K.W.H.	225,010	7,107	286,762	8,691
TOTAL .....	xx	...	13,397	...	26,327
Electricity generated for own use .....	K.W.H.	58,140	...	438,300	...

LIST OF FIRMS IN THE CANADIAN FELDSPAR AND QUARTZ MINING INDUSTRY, 1933.

<u>Name</u>	<u>Head Office</u>	<u>Location of mine or plant</u>
<u>NOVA SCOTIA -</u>		
(a) Dominion Steel & Coal Corp. Ltd.	Sydney	Leitches Creek
(b) River Denys Sand and Clay Co.Ltd.	Box 57, Port Hood	Melford
<u>QUEBEC -</u>		
(x) Canadian Flint & Spar Co. Ltd.	Box 340, Buckingham	Buckingham
(a) Bigelow, Robt.	Buckingham	Hull Co.
(a) Bourne, W.	Poupore	Buckingham Dist.
(a) (x) Canadian Carborundum Co.Ltd.	Box 65, Niagara Falls,Ont.	St. Canut
(a) (x) Canadian Kaolin Silica Products, Ltd.	660 St. Catherine St.W., Montreal	St.Remi d'Amherst
(a) Chalifoux, J. S.	Notre Dame de la Salette	N.D. de la Salette
(a) Couture, E.	Glen Almond	Glen Almond
Derry Mining Co.	Buckingham	Derry Tp.
Evans, W. H.	Buckingham	Buckingham Tp.
Lonsdale, S.	Poupore	Poupore
(a) Mason, Jas. H.	1451 King St.W.,Toronto,Ont.	Guigues
(a) McClements, Albert	Buckingham	Papineau Co.
(a) McDonald, Ed.	Buckingham	Buckingham Dist.
McDonnell, Jas.	Box 92, Buckingham	Derry Tp.
O'Brien & Fowler, Ltd.	Victoria Bldg., Ottawa, Ont.	Buckingham Dist.
(a) (x) Ottawa Silica & Sandstone,Ltd.	East Templeton	Templeton Tp.
Parcher, Alfred	Glen Almond	Derry Tp.
(a) Pedneaud, G.	Buckingham	Buckingham Dist.
St. Amour, O.	Notre Dame de la Salette	Villeneuve Tp.
(b) (x) Silica Products of Canada,Ltd.	Lac Bouchette	Lac Bouchette
(a) Stewart, Wm.	Buckingham	Buckingham Dist.
(a) Stookes, Allan	Buckingham	Buckingham Dist.
Toutloff, Frank	Gatineau Point	Portland Tp.
(a) Warwick, W. M.	Glen Almond	Papineau Co.
(a) Winning, Bush	Notre Dame de la Salette	N.D. de la Salette
<u>ONTARIO -</u>		
Anderson, J.G. & Son	Lucknow	Britt
Bathurst Feldspar Mines Ltd.	230 King St. E.,Toronto	Lanark Co.
Craig, T. H.	Box 302, Perth	Lanark Co.
(a)(x) Dominion Mines & Quarries	Canada Life Bldg.,Toronto	Killarney
(x) Frontenac Floor & Wall Tile Co.Ltd.	Kingston	Kingston
MacDonald, P.	Hybla	Hybla
<u>MANITOBA -</u>		
(a) Lake Bar Sand & Gravel Co.	Winnipeg Rink, Langside St., Winnipeg	Black Island
Winnipeg River Tin Mines Ltd.	102 Hurst Block, Winnipeg	Lac du Bonnet Dist.
(a) Reported production of silica only.		
(b) Idle in 1933.		
(x) Operated mills.		

NOTE - In addition to these operators, metallurgical plants in Ontario, Manitoba and British Columbia produced silica flux for their own use.



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