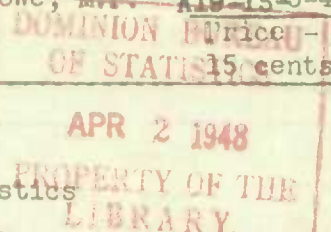


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Annual Industry Report

Manufactures of the Non-metallic Minerals Group

THE ARTIFICIAL ABRASIVES INDUSTRY, 1946

The factory selling value of all products made during 1946 by the manufacturers in Canada of artificial abrasives and artificial abrasive products amounted to \$25,444,396. This value represented a decrease of 0.2 per cent from the total of \$25,492,686 for 1945.

There were 15 firms engaged in manufacturing artificial abrasives and their products during the year, and of these, 13 were located in Ontario and 2 in Quebec.

The average number of employees in the industry was 2,409 and payments in salaries and wages totalled \$4,929,448. Expenditures for manufacturing materials amounted to \$8,425,629, and \$2,106,329 were paid out for fuel and electricity.

Artificial abrasives were made by 4 plants in Ontario and 2 in Quebec. The output of these 6 works was valued at \$20,359,535 and included 119,223 tons of crude fused alumina at \$12,310,247; 49,953 tons of crude silicon carbide at \$5,961,490 and other products and by-products, such as ferrosilicon, firesand, refractory brick, refractory cements, calcium boride and boron carbide. One of these concerns also made abrasive wheels. An average of 1,764 people were employed and salaries and wages totalled \$3,699,057.

Nine other plants were occupied chiefly in making abrasive products, such as wheels, paper, pulpstones and sharpening stones; 7 made abrasive wheels and segments; 4 made sharpening stones and files, and 2 made abrasive cloth and paper. The value of all products made in these establishments was \$5,084,861. The number of employees was 645 and payments for salaries and wages amounted to \$1,230,391. The total value of Canada's output of abrasive wheels and segments was \$2,922,089.

Table 1 - PRINCIPAL STATISTICS FOR THE ARTIFICIAL ABRASIVES INDUSTRY IN CANADA, 1944-1946

	1944	1945	1946
Number of firms	15	15	15
Number of employees -			
Supervisory and office	418	418	438
Wage-earners	2,355	1,935	1,971
Total	2,773	2,353	2,409
Salaries and wages - Salaries \$	1,131,044	1,116,441	988,241
Wages \$	4,379,986	3,654,785	3,941,207
Total \$	5,511,030	4,771,226	4,929,448
Cost of fuel and electricity \$	2,580,192	2,189,405	2,106,329
Cost of materials at works \$	9,926,243	8,223,797	8,425,629
Selling value of products at works \$	30,065,113	25,492,686	25,444,396

Note: Profits or losses cannot be calculated from the above figures as data are not available for general expense items, such as interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 2 - WAGE-EARNERS, BY MONTHS, 1945 and 1946 (Number on pay-roll on the last work day of each month)

Month	1945			1946		
	Male	Female	TOTAL	Male	Female	TOTAL
January	1,787	150	1,937	1,643	124	1,767
February	1,831	148	1,979	1,599	136	1,735
March	1,877	153	2,030	1,685	128	1,813
April	1,854	158	2,012	1,747	126	1,873
May	1,848	165	2,013	1,771	135	1,906
June	1,853	172	2,025	1,799	138	1,937
July	1,873	177	2,050	1,935	137	2,072
August	1,834	170	2,004	1,963	129	2,092
September	1,661	155	1,816	1,940	141	2,081
October	1,634	148	1,782	1,979	147	2,126
November	1,654	144	1,798	1,996	142	2,138
December	1,611	146	1,757	1,987	149	2,136
AVERAGE	1,778	157	1,935	1,836	135	1,971

Table 3 - FUEL AND ELECTRICITY USED, 1945 and 1946

Kind	Unit of measure	1945		1946	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Bituminous coal--Canadian	ton	4,577	28,916	2,755	24,313
Imported	ton	6,531	58,100	7,000	64,147
Anthracite coal (for fuel only)	ton	349	4,424	283	3,386
Coke (for fuel only)	ton	29	345	96	1,062
Gasoline	Imp.gal.	9,672	2,863	14,175	4,169
Kerosene	Imp.gal.	3,255	593	1,786	338
Fuel oil	Imp.gal.	430,252	34,354	418,816	35,742
Gas--Manufactured	M cu.ft.	1,505	1,478	1,810	1,786
Natural	M cu.ft.	3,564	3,046	4,346	4,235
Other fuel .....	...	...	94	...	542
Electricity purchased ...	K.W.H.	711,926,908	2,055,192	740,666,080	1,966,609
TOTAL .....	...	...	2,189,405	...	2,106,329

Table 4 - POWER EQUIPMENT, 1945 and 1946

	1 9 4 5		1 9 4 6	
	Number of units	Total rated horse power	Number of units	Total rated horse power
Diesel engines: Ordinarily in use	1	41	1	41
Gasoline engines -				
In reserve or idle	2	130	2	130
Ordinarily in use	3	85	6	249
Electric motors run by purchased power: Ordinarily in use	1,761	11,657	1,789	11,930
In reserve or idle	177	1,883	211	2,567
Stationary boilers -				
Ordinarily in use	6	1,000	6	1,000
In reserve or idle	1	60	1	60
Motor-generator sets -				
Ordinarily in use	23	744	19	545
In reserve or idle	4	154	4	102

Table 5 - MATERIALS USED IN MANUFACTURING, 1945 and 1946

Material	Unit of measure	1 9 4 5		1 9 4 6	
		Quantity	Cost at works \$	Quantity	Cost at works \$
Bauxite and pure alumina	ton	138,789	3,145,934	134,708	3,111,606
Coal (not for fuel) -					
For fused alumina	ton	378	2,130	793	5,377
For silicon carbide	ton	3,185	23,130	1,552	11,248
Coke (not for fuel) -					
For fused alumina:					
Petroleum coke	ton	2,365	18,178	594	8,983
Other coke	ton	6,048	37,654	5,956	38,044
For silicon carbide:					
Petroleum coke	ton	34,696	495,958	40,959	610,430
Other coke	ton	15,401	235,871	17,258	301,687
For other uses: Other coke	ton	16	239	...	...
Electrodes	ton	2,964	379,963	3,034	385,931
Feldspar	ton	11	240	15	318
Iron borings	ton	17,799	223,808	12,367	179,600
Salt	ton	256	3,426	332	4,517
Sawdust	ton	12,107	41,044	13,550	44,058
Silica sand	ton	74,406	442,164	83,636	504,873
Artificial abrasive grains -					
For re-treatment only:					
Fused alumina	ton	19,167	559,197	10,424	331,565
Silicon carbide	ton	32	5,954	73	13,945
For wheels, paper, etc.:					
Fused alumina	ton	2,611	538,770	2,051	490,068
Silicon carbide	ton	1,194	244,868	1,338	295,557
Natural abrasive grains -					
Garnet	lb.	463,303	41,513	752,069	70,793
Emery	lb.	216,590	12,005	209,074	11,960
Quartz or flint	lb.	550,947	8,267	547,866	7,342
Other	lb.	40,343	4,405	86,984	8,564

Artificial Abrasives

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Table 5 - MATERIALS USED IN MANUFACTURING, 1945 and 1946 (Concluded)

Material	Unit of measure	1 9 4 5		1 9 4 6	
		Quantity	Cost at works \$	Quantity	Cost at works \$
Bonding and bushing materials:					
Clay bonds	lb.	860,402	37,859	709,022	31,186
Silicate (quantity in equivalent solid form) ...	lb.	10,623	779	211,236	8,978
Elastic mixture	lb.	10,581	3,958	13,821	4,460
Bakelite and synthetic resins	lb.	276,523	83,996	347,968	99,619
Lead for bushings	lb.	98,543	5,573	100,797	5,560
Cotton cloth .....	...	...	281,504	...	224,288
Kraft paper .....	...	...	27,087	...	115,962
Containers and packing material	...	...	94,586	...	117,620
All other materials .....	...	...	1,223,737	...	1,381,490
TOTAL .....	...	...	8,223,797	...	8,425,629

Table 6 - PRODUCTS MANUFACTURED, 1945 and 1946

Product	1 9 4 5		1 9 4 6	
	Short tons	Selling value at works \$	Short tons	Selling value at works \$
Crude silicon carbide	45,419	5,361,279	40,953	5,961,490
Crude fused alumina	133,192	13,573,311	119,223	12,310,247
Silicon carbide firesand, etc.	120	7,295	2,408	60,212
Abrasive wheels and segments..	...	3,131,289	...	2,922,089
Sharpening stones and files ..	...	218,940	...	245,731
Ferrosilicon	3,755	62,380	10,993	166,720
Other products (*) .....	...	3,138,192	...	3,777,907
TOTAL .....	...	25,492,686	...	25,444,396

(*) Includes abrasive cloth, abrasive paper, tiles, artificial pulpstones, artificial graphite, boron carbide, boron carbide shapes, calcium boride, fused magnesia, refractory cements, firebrick, etc., each of which was reported by only one or two companies.

Table 7 - PRODUCTION OF CRUDE ARTIFICIAL ABRASIVES IN CANADA, 1936-1946

Year	Crude Silicon Carbide		Crude Fused Alumina		T O T A L	
	Quantity	Selling value at works	Quantity	Selling value at works	Quantity	Selling value at works
	tons	\$	tons	\$	tons	\$
1936 ...	23,805	2,299,602	59,533	5,762,217	83,338	8,061,819
1937 ...	25,644	2,808,016	86,604	8,435,371	112,248	11,243,387
1938 ...	19,094	2,002,041	50,515	5,165,920	69,609	7,167,961
1939 ...	17,225	1,865,604	51,118	4,565,569	68,343	6,431,173
1940 ...	24,562	3,053,047	85,336	8,249,815	109,898	11,302,862
1941 ...	32,258	3,661,868	130,881	13,665,811	163,139	17,327,679
1942 ...	44,410	5,494,257	160,935	17,750,623	205,345	23,244,880
1943 ...	51,281	6,846,087	190,727	20,543,657	242,008	27,389,744
1944 ...	47,100	5,499,628	166,098	17,768,484	213,198	23,268,112
1945 ...	45,419	5,361,279	133,192	13,573,311	178,611	18,934,590
1946 ...	49,953	5,961,490	119,223	12,310,247	169,176	18,271,737

Table 8 - PRODUCTION OF ARTIFICIAL ABRASIVE WHEELS AND SEGMENTS(*) IN CANADA, 1936-1946

Year	Selling value at works \$	Year	Selling value at works \$
1936	862,283	1942	5,075,258
1937	1,165,406	1943	5,114,962
1938	916,695	1944	3,321,873
1939	1,117,689	1945	3,131,289
1940	1,838,558	1946	2,922,089
1941	3,713,303		

(*) Does not include artificial pulpstones or sharpening stones.

Table 9 - IMPORTS INTO CANADA OF ABRASIVES AND ABRASIVE PRODUCTS, 1945 and 1946

		1 9 4 5	1 9 4 6
Artificial abrasive grains, crushed or ground, for use in Canadian manufactures	\$	1,615,623	1,582,112
Diamond dust or bort and black diamonds for borers	\$	1,985,299	4,002,457
Diatomaceous earth or infusorial earth (Kiesel- guhr) ground or unground	cwt.	264,330	341,262
	\$	262,882	469,968
Emery in bulk, crushed or ground	\$	80,829	114,029
Grinding wheels, manufactured by the bonding together of either natural or artificial abrasives	\$	350,161	366,116
Grinding stones or blocks, manufactured by the bonding together of either natural or arti- ficial abrasives	\$	79,195	106,647
Manufactures of emery or of artificial abrasives, n.o.p.	\$	88,837	102,296
Grindstones, not mounted, and not less than 36 inches in diameter	No.	466	675
	\$	45,494	65,814
Grindstones, n.o.p.	No.	549	2,304
	\$	2,381	6,500
Pumice and pumice stone, lava and calcareous tufa, not further manufactured than ground ..	\$	45,041	71,607
Sandpaper, glass, flint and emery paper or emery cloth	\$	68,067	111,321
TOTAL	\$	4,623,809	6,998,867



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Artificial Abrasives

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Table 10 - EXPORTS FROM CANADA AND RE-EXPORTS OF ABRASIVES AND ABRASIVE PRODUCTS,
1945 and 1946

		1945	1946
Abrasives, natural, n.o.p. in ore or bulk, crushed or ground, including infusorial earth, rotten stone, tripoli, etc.	cwt. \$	248 3,285	162 1,755
Abrasives, artificial, crude, including carborundum	cwt. \$	3,560,829 11,741,112	3,488,207 11,728,868
Abrasives, artificial, made up into wheels and stones	\$	153,909	87,992
Sandpaper, glass, flint and emery paper, and emery cloth	\$	235,361	332,193
Grindstones, manufactured	\$	19,646	35,526
TOTAL	\$	12,153,313	12,186,334

LIST OF FIRMS IN THE ARTIFICIAL ABRASIVES INDUSTRY, 1946

Name of Firm	Address
(a) Artificial Abrasives	
Simonds Canada Abrasive Company Limited	Arvida, Que.
Canadian Carborundum Company, Limited	P.O. Box 57, Niagara Falls, Ont. Plants at Shawinigan Falls, Que. and Niagara Falls, Ont.
The Exolon Company	H.C. Commercial Ave. and Erie R.R., Blasdell, New York, U.S.A. Plant at Thorold, Ont.
Lionite Abrasives Ltd.	Niagara Falls, Ont.
Norton Company	H.O. 1 New Bond St., Worcester, Mass., U.S.A. Plant at Chippawa, Ont.

(b) Abrasive Products

Bay State Abrasive Products Co. (Canada) Ltd.	188 Pearl St., Brantford, Ont.
Canadian Durex Abrasives Limited	Brantford, Ont.
Canadian Carborundum Company Limited	Niagara Falls, Ont.
Canada Sand Papers Limited	H.O. King and Argyle Sts., Preston, Ont., Plant at Plattsville, Ont.
Dominion Abrasive Wheel Co. Limited	49 Main St., Mimico, Ont.
The Empire Abrasives	24 Lewis St., Brantford, Ont.
Lion Grinding Wheels Ltd.	192 Pearl St. E., Brockville, Ont.
Norton Company of Canada Limited	3 Beach Road, Hamilton, Ont.
Ontario Abrasive Wheels Limited	41 George St., Prescott, Ont.
The Wright Abrasives Co.	2 Adam St., Hamilton, Ont.