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CANADA



THE ARTIFICIAL ABRASIVES INDUSTRY 1953

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NOTICE

The annual reports prepared by the Industry and Merchandising Division of the Bureau of Statistics are divided into 3 volumes, as follows: **Volume I** — The Primary Industries, including mining, forestry and fisheries; **Volume II** — Manufacturing; **Volume III** — Merchandising and Services. The volumes are made up of parts, and the parts in turn are subdivided according to the industries or provinces which they comprise.

Volume II consists of the following parts, the first two of which deal with manufacturing as a whole and the balance with the major manufacturing groups.

- I—General Review of the Manufacturing Industries, \$1.50
- II—The Manufacturing Industries of Canada, (7 sections, as follows):
 - Section A. Summary for Canada, 25¢
 - Section B. Atlantic Provinces, 25¢
 - Section C. Quebec, 25¢
 - Section D. Ontario, 25¢
 - Section E. Prairie Provinces, 25¢
 - Section F. British Columbia, 25¢
 - Section G. The Manufacturing Industries of Canada, Regional Distribution, 75¢
- III—Foods and Beverages
- IV—Tobacco and Tobacco Products
- V—Rubber Products
- VI—Leather Products
- VII—Textiles
- VIII—Wood and Paper Products
- IX—Printing Trades
- X—Iron and Steel Products
- XI—Transportation Equipment
- XII—Non-ferrous Metal Products
- XIII—Electrical Apparatus and Supplies
- XIV—Non-metallic Mineral Products
- XV—Products of Petroleum and Coal
- XVI—Chemicals and Allied Products
- XVII—Miscellaneous Manufactures

The present report belongs in Part XIV, Non-metallic Mineral Products. It is punched to permit of filing in a ring binder along with others of the group. The reports in this group are:

- A—General Review, 25¢
- B—The Artificial Abrasives Industry, 25¢
- C—The Asbestos Products Industry, 25¢
- P—The Cement Manufacturing Industry (also in Mining), 25¢
- D—The Concrete Products Industry, 25¢
- E—The Glass and Glass Products Industry, 25¢
- K—The Gypsum Industry (also in Mining), 25¢
- Q—The Clay and Clay Products Industry (also in Mining), 25¢
- R—The Lime Industry (also in Mining), 25¢
- M—The Salt Industry (also in Mining), 25¢
- T—The Stone Industry (also in Mining), 25¢
- G—The Miscellaneous Non-metallic Mineral Products Industry, 25¢

THE ARTIFICIAL ABRASIVES INDUSTRY

1953

Factory shipments of all products made by the manufacturers in Canada of artificial abrasives and artificial abrasive products were valued at \$46,253,877 in 1953, an increase of 26.0 per cent over the \$36,717,228 reported in the previous year.

There were 18 firms engaged in manufacturing abrasives and other products during the year, and of these 13 were located in Ontario and 5 in Quebec.

The number of employees in the industry was 2,742 and payments in salaries and wages totalled \$9,900,748. Expenditures for manufacturing materials amounted to \$16,868,606, and \$4,051,134 were paid out for fuel and electricity.

Artificial abrasives were made by 4 plants in Ontario and 4 in Quebec. Shipments by these 8

works were valued at \$37,869,977 and included 245,627 tons of crude fused alumina at \$25,499,674; 52,903 tons of crude silicon carbide at \$7,438,243; and other products and by-products, such as ferro-silicon, firesand, abrasive wheels, etc. A total of 2,089 people was employed and salaries and wages paid out amounted to \$7,591,160.

Ten other plants were occupied chiefly in making abrasive products such as wheels, paper, pulpstones and sharpening stones. Factory shipments of all products made in these establishments were valued at \$8,383,900. The number of employees was 653 and payments for salaries and wages amounted to \$2,309,588. The total value of Canada's output of abrasive wheels and segments was \$5,694,066.

TABLE 1. Principal Statistics for the Artificial Abrasives Industry, 1949-1953

Year	Number of plants	Number of employees	Salaries and wages for year	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
			\$	\$	\$	\$
1949	18	2,543	6,830,763	2,182,097	10,649,694	27,700,008
1950	19	2,603	7,359,351	2,329,029	12,541,899	32,836,573
1951	19	2,989	9,675,282	3,819,109	17,668,167	44,920,949
1952	20	2,607	9,248,935	3,312,052	13,967,649	36,717,228 ¹
1953	18	2,742	9,900,748	4,051,134	16,869,606	46,253,877 ¹
Per cent change, 1953 from 1952	—	+ 5.2	+ 7.0	+ 22.3	+ 20.8	+ 26.0

1. Factory shipments since 1952. The inventory value of finished products at plant at end of 1952 amounted to \$3,306,000 and at end of 1953 to \$2,669,000.

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

TABLE 2. Principal Statistics for the Artificial Abrasives Industry, by Provinces, 1952 and 1953

Province	Number of plants	Number of employees	Salaries and wages for year	Cost of fuel and electricity at works	Cost of materials at works	Value of factory shipments
			\$	\$	\$	\$
1952						
Quebec	5	403	1,381,389	1,124,265	2,603,355	6,298,130
Ontario	15	2,204	7,867,546	2,187,787	11,364,294	30,419,098
Canada	20	2,607	9,248,935	3,312,052	13,967,649	36,717,228
1953						
Quebec	5	391	1,313,278	1,202,097	2,485,548	6,781,789
Ontario	13	2,351	8,587,470	2,849,037	14,384,058	39,472,088
Canada	18	2,742	9,900,748	4,051,134	16,869,606	46,253,877

TABLE 3. Products of the Artificial Abrasives Industry, 1952 and 1953

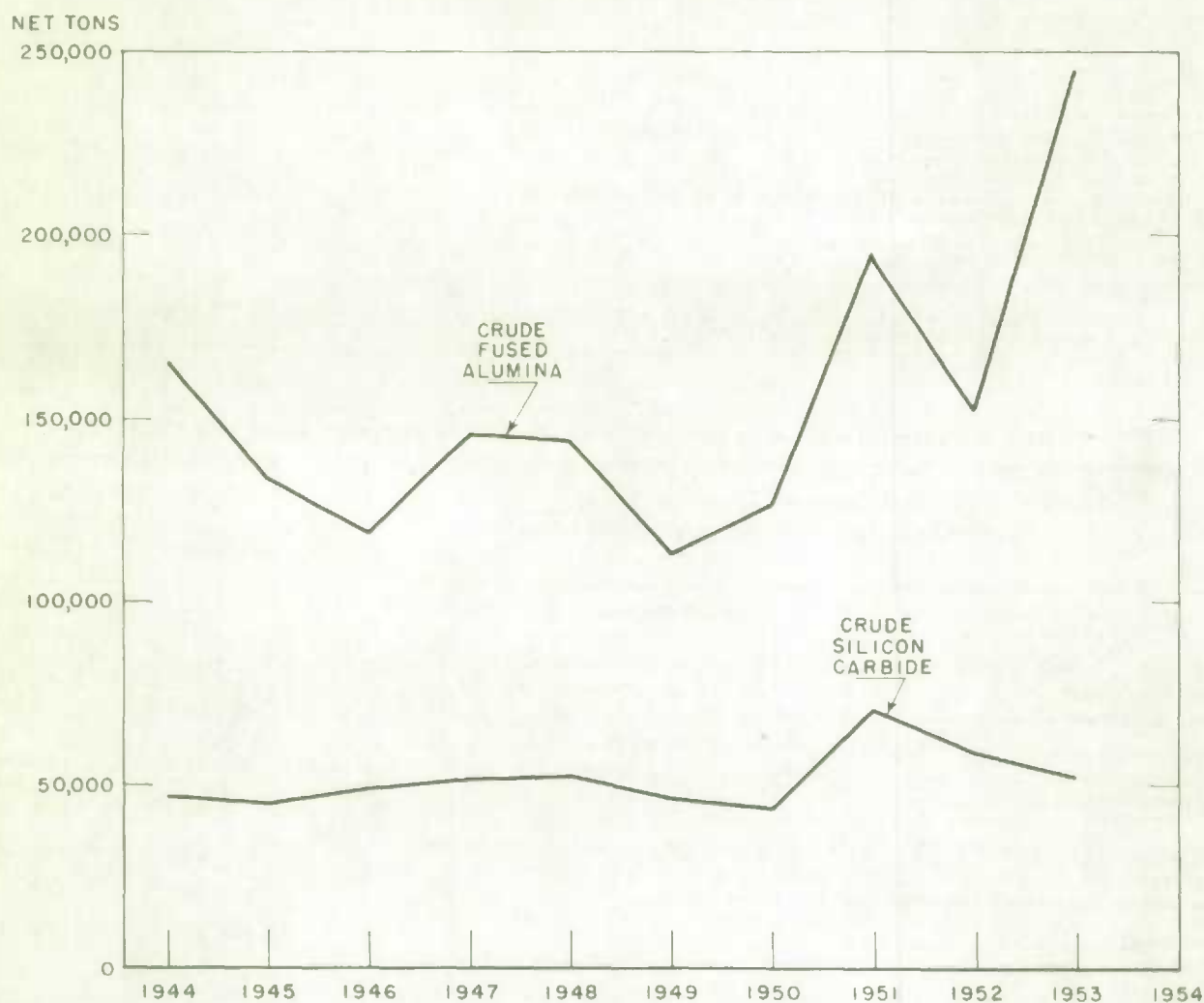
Product	1952		1953	
	Short tons	Value of factory shipments	Short tons	Value of factory shipments
		\$		\$
Crude silicon carbide.....	59,277	8,275,099	52,903	7,438,243
Crude fused alumina.....	152,086	16,643,519	245,627	25,499,674
Silicon carbide firesand, etc.....	434	31,014	1,724	69,595
Abrasive wheels and segments.....	—	5,501,377	—	5,694,066
Sharpening stones and files.....	—	381,809	—	416,414
Ferrosilicon.....	14,516	596,853	20,088	938,767
Other products ¹	—	5,287,557	—	6,197,118
Total.....	—	36,717,228	—	46,253,877

1. Includes abrasive cloth, abrasive paper, tiles, artificial pulpstones, boron carbide, fused magnesia, etc., each of which was reported by only one or two companies.

TABLE 4. Materials Used in the Artificial Abrasives Industry, 1952 and 1953

Material	Unit of measure	1952		1953	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Alumina, pure	ton	4,643	364,176	8,644	685,704
Bauxite.....	"	182,628	5,271,958	250,869	7,479,554
Boric acid glass.....	"	39	13,501	132	45,959
Coal (not for fuel).....	"	53	622	2,824	20,844
Coke (not for fuel):					
Petroleum coke.....	ton	64,462	1,335,534	56,903	1,109,453
Pitch coke.....	"	16,863	464,902	11,819	314,009
Other coke.....	"	7,924	61,060	10,914	86,710
Electrodes.....	ton	3,637	789,309	4,581	1,007,750
Feldspar.....	"	61	1,596	23	828
Iron borings.....	"	17,460	555,507	24,506	775,747
Salt.....	"	301	5,762	289	5,878
Sawdust.....	"	—	90,772	—	74,425
Silica sand.....	ton	99,349	849,004	85,517	748,961
Artificial abrasive grains:					
For wheels, paper, etc.:					
Fused alumina.....	ton	2,663	684,532	2,657	665,116
Silicon carbide.....	"	1,571	457,879	1,707	481,945
Natural abrasive grains:					
Garnet.....	lb.	420,762	40,572	463,960	51,704
Emery.....	"	170,742	12,409	197,878	16,372
Quartz or flint.....	"	492,060	14,855	404,180	17,656
Other.....	—	—	2,735	—	2,424
Bonding and bushing materials:					
Clay bonds.....	lb.	1,034,217	59,417	993,920	56,066
Silicate (quantity in equivalent solid form).....	—	—	1,170	—	1,285
Elastic mixture.....	—	—	6,472	—	7,156
Bakelite and synthetic resins.....	lb.	236,674	83,296	236,094	84,259
Lead for bushings.....	"	102,586	17,473	92,959	13,973
Glue, animal and hide.....	"	802,098	254,674	810,649	261,997
Cotton cloth.....	—	—	478,596	—	427,594
Kraft paper and other paper.....	—	—	221,804	—	252,050
Containers and packing material.....	—	—	112,511	—	137,531
All other materials.....	—	—	1,715,551	—	2,036,656
Total.....	—	—	13,967,649	—	16,869,606

PRODUCTION⁽¹⁾ OF SPECIFIED ARTIFICIAL ABRASIVES IN CANADA 1944-1953



(1) FACTORY SHIPMENTS SINCE 1952

TABLE 3. Production¹ of Specified Artificial Abrasives, 1944-1953

Year	Crude silicon carbide		Crude fused alumina		Total	
	Quantity	Selling value at works	Quantity	Selling value at works	Quantity	Selling value at works
	tons	\$	tons	\$	tons	\$
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
1947	51,704	6,359,937	146,433	15,253,482	198,137	21,613,419
1948	52,896	6,921,197	144,838	15,309,651	197,734	22,230,484
1949	46,398	6,008,384	113,199	10,230,521	159,597	16,238,905
1950	44,761	6,316,299	126,923	12,197,308	171,684	18,513,607
1951	70,282	9,913,060	195,374	20,835,165	265,656	30,748,225
1952	59,277	8,275,099	152,086	16,643,519	211,363	24,918,618
1953	52,903	7,438,243	245,627	25,499,674	298,530	32,937,917

1. Factory shipments since 1952.

TABLE 6. Production² of Artificial Abrasive Wheels and Segments¹, 1944-1953

Year	Selling value at works	Year	Selling value at works
	\$		\$
1944	3,321,873	1949	3,826,726
1945	3,131,289	1950	4,683,163
1946	2,922,089	1951	5,655,676
1947	3,574,477	1952	5,501,377
1948	3,703,470	1953	5,694,066

1. Does not include artificial pulpstones or sharpening stones.

2. Factory shipments since 1952.

TABLE 7. Imports of Abrasives and Abrasive Products, 1952 and 1953

	1952	1953
Artificial abrasive grains, crushed or ground, for use in Canadian manufactures \$	1,500,260	1,767,547
Diamond dust or bort and black diamonds for borers..... \$	8,966,147	6,951,853
Diatomaceous earth or infusorial earth (Kieselguhr), ground or unground cwt.	317,758	386,995
..... \$	563,950	670,610
Emery in bulk, crushed or ground..... \$	133,426	166,855
Grinding wheels, manufactured by the bonding together of either natural or artificial abrasives..... \$	1,397,448	1,796,502
Grinding stones or blocks, manufactured by the bonding together of either natural or artificial abrasives \$	195,930	217,360
Manufactures of emery or of artificial abrasives, n.o.p..... \$	183,468	229,304
Grindstones, not mounted, and not less than 36 inches in diameter..... No.	297	230
..... \$	27,591	27,306
Grindstones, n.o.p..... No.	2,079	1,574
..... \$	7,105	7,231
Pumice and pumice stone, lava and calcareous tufa, not further manufactured than ground \$	110,369	165,709
Sandpaper, glass, flint and emery paper or emery cloth \$	756,830	866,526
Total..... \$	13,842,524	12,866,803

TABLE 8. Exports and Re-exports of Abrasives and Abrasive Products, 1952 and 1953

	1952	1953
Abrasives, natural, n.o.p., in ore or bulk, crushed or ground, including infusorial earth, rotten stone, tripoli, etc. cwt.	1,634	831
..... \$	7,980	19,111
Abrasives, artificial, crude, including carborundum cwt.	4,237,632	6,061,574
..... \$	17,703,755	28,982,689
Abrasives, artificial, made up into wheels and stones..... \$	27,690	24,294
Diamonds, industrial, and diamond dust or bort ¹ \$	3,821,010	4,308,298
Sandpaper, glass, flint and emery paper, and emery cloth \$	884,192	326,068
Grindstones, manufactured \$	20,118	22,736
Total..... \$	22,464,745	33,683,196

1. All re-exports.

TABLE 9. Employees and Their Earnings in the Artificial Abrasives Industry, 1952 and 1953

	Number of employees					Earnings		
	Supervisory and office		Workmen		Total	Supervisory and office	Workmen	Total
	Male	Female	Male	Female				
1952						\$	\$	\$
Quebec.....	25	9	367	2	403	153,438	1,227,951	1,381,389
Ontario.....	291	172	1,675	66	2,204	1,748,061	6,119,485	7,867,546
Canada.....	316	181	2,042	68	2,607	1,901,499	7,347,436	9,248,935
1953								
Quebec.....	27	9	349	6	391	158,363	1,154,915	1,313,278
Ontario.....	311	184	1,779	77	2,351	1,976,853	6,610,617	8,587,470
Canada.....	338	193	2,128	83	2,742	2,135,216	7,765,532	9,900,748

TABLE 10. Capital and Repair Expenditures in the Artificial Abrasives Industry, 1949-1953

Year	Capital expenditures		Sub-total	Repair and maintenance expenditures		Sub-total	Total capital and repair expenditures
	Construction	Machinery and equipment		Construction	Machinery and equipment		
	\$'000						
1949	1,388	1,531	2,919	117	1,058	1,175	4,094
1950	494	1,463	1,957	80	1,181	1,261	3,218
1951	726	2,247	2,973	196	1,297	1,493	4,466
1952	1,410	2,011	3,421	139	1,494	1,633	5,054
1953 ¹	52	860	912	107	1,314	1,421	2,333

1. Preliminary.

TABLE 11. Fuel and Electricity Used¹ in the Artificial Abrasives Industry, 1948 and 1953

Kind	Unit of measure	1948		1953	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Bituminous coal:					
Canadian.....	ton	3,112	30,643	346	5,115
Imported.....	"	7,508	91,745	8,685	105,060
Anthracite coal.....	"	553	7,746	345	6,096
Coke.....	"	132	2,149	2,061	29,383
Gasoline.....	Imp. gal.	30,576	10,382	91,882	33,962
Kerosene.....	"	7,932	1,908	12,778	2,896
Fuel oil.....	"	458,726	63,847	683,832	90,680
Gas:					
Manufactured.....	M cu. ft.	4,128	3,808	8,210	9,466
Natural.....	"	2,290	2,179	6,625	6,933
Wood.....	cord	11	116	—	—
Other fuel.....	—	—	—	—	—
Electricity purchased.....	k.w.h.	820,768,205	2,205,775	1,029,783,547	3,761,543
Total.....	—	—	2,420,298	—	4,051,134

1. Details shown in Tables 11 and 12 are collected only every five years; accordingly, data for intervening years are not available.

TABLE 12. Power Equipment¹, 1948 and 1953

	Ordinarily in use		In reserve or idle	
	Number of units	Total rated horse power	Number of units	Total rated horse power
1948				
Steam turbines	2	18	—	—
Diesel engines	2	85	—	—
Gasoline, gas and oil engines, other than Diesel engines	11	2,771	2	130
Hydraulic turbines or water-wheels	2	102	—	—
Total primary	17	2,976	2	130
Electric motors operated by purchased power.....	2,136	13,817	324	2,865
Total	2,153	16,793	326	2,995
Stationary power boilers.....	8	880	4	186
Motor-generator sets	19	488 k. v. a.	4	94 k. v. a.
1953				
Gasoline, gas and oil engines, other than Diesel engines	14	399	—	—
Total primary	14	399	—	—
Electric motors operated by purchased power.....	3,283	20,458	382	2,799
Total	3,297	20,857	382	2,799
Stationary power boilers.....	—	—	—	—
Motor-generator sets	15	1,116 k. v. a.	3	18 k. v. a.

1. See footnote to Table 11.

List of Firms in the Artificial Abrasives Industry, 1953

Name of firm	Address
(a) ARTIFICIAL ABRASIVES	
Canadian Carborundum Company, Limited ¹	P.O. Box 337, Niagara Falls, New York, U.S.A. Plants at Shawinigan Falls, Quebec, and Niagara Falls, Ontario
Electro Refractories & Abrasives Canada Ltd.	Cap-de-la-Madeleine, Quebec
The Exolon Company	East Niagara St., Tonawanda, New York, U.S.A. Plant at Thorold, Ontario
Lionite Abrasives Ltd.....	Niagara Falls, Ontario
Norton Company.....	1 New Bond St., Worcester, Massachusetts, U.S.A. Plants at Chippawa, Ontario, and Cap-de-la-Madeleine, Quebec
Simonds Canada Abrasive Company Limited.....	Arvida, Quebec
(b) ABRASIVE PRODUCTS	
Bay State Abrasive Products Co. (Canada) Ltd.	188 Pearl St., Brantford, Ontario
Behr-Manning (Canada) Limited	Brantford, Ontario
Canadian Grinding Wheel Co.	245 Kenilworth Ave. S., Hamilton, Ontario
Canada Sand Papers Limited.....	King and Argyle Sts., Preston, Ontario Plant at Plattsville, Ontario
Dominion Abrasive Wheel Co. Limited	49 Main St., Mimico, Ontario
Lion Grinding Wheels Ltd.....	192 Pearl St. E., Brockville, Ontario
Micromatic Hone Limited	55 George St., Brantford, Ontario
Norton Company of Canada Limited	3 Beach Road, Hamilton, Ontario
Plasticraft Co.....	2027 St. Timothee St., Montreal, Quebec
Wright Abrasives	2 Adam St., Hamilton, Ontario

1. This company also makes abrasive wheels, etc., at its Niagara Falls works and all operations at that point are covered by the one report.