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THE ARTIFICIAL ABRASIVES INDUSTRY 1959



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PUBLICATIONS

The results of the annual Census of Industry are published by the Dominion Bureau of Statistics in a series of industry reports which are released each year as the compilations are completed. Reports for industries in the **Non-Metallic Mineral Products** Major Group are listed below, along with current and annual publications of related interest. Similar reports are issued for other industries. A complete catalogue of publications of the Bureau is available on request from the Information Services Division, Dominion Bureau of Statistics, Ottawa, or from the Queen's Printer, Ottawa.

A — Annual

M — Monthly

Catalogue number	Title	Price
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or to the Queen's Printer, Ottawa, Canada.*

EXPLANATORY NOTES

This report is one in a series of about 130 publications which present the results of the 1959 Census of Manufactures. Most reports in this series refer to specific industries, but there are summary reports for Canada and the provinces and for major industry groups. An annual Census of Manufactures has been carried out by the Dominion Bureau of Statistics since 1916.

Industry statistics given in these reports refer to number of establishments, employees, salaries and wages, cost of materials, supplies, fuel and electricity, gross value of shipments, inventories and value added by manufacturing. Details of materials used and products shipped are also given. Descriptions of the principal industry statistics, with special reference to 1959 are as follows:

Period Covered

Firms are asked to submit figures for the calendar year, if at all possible, and most reports are on this basis. Financial year reports for periods differing from the calendar year are accepted in instances where the firms find it impossible to supply calendar year data from accounting records. However the data on employees, salaries and wages are requested on a calendar year basis in all cases.

Establishment

Data for the annual census is collected on an establishment basis. A firm with more than one plant is required to file a report for each plant. In most cases an establishment is a complete factory. Sometimes, however, a plant is divided into two or more establishments when it carries out operations classifiable to different industries and when separate accounting records are available. Usually the statistics for an establishment relate only to the manufacturing activities. Other activities such as construction at the plant by its own employees, wholesale or retail activities carried on at the plant location, etc., are not included. Plants engaged solely in repair work (except in the case of furniture, shipbuilding, boat building, aircraft and railway rolling stock industries) are not included but plants occupied in assembling parts into complete units are included.

Employees

Administrative and office employees include all executives and supervisory officials such as presidents, vice-presidents, secretaries, treasurers, etc., together with managers, professional and technical employees, superintendents and factory supervisors above the working foremen level and clerical employees. Working owners and partners are also included in this category.

Production and related workers include all other factory workmen whether paid on a monthly, weekly, hourly or piece-work basis. Working foremen doing work similar to that of the employees they supervise are included, as are maintenance, warehousing and delivery staffs. Employees on new construction work, in retail or wholesale operations, on outside piece work etc., are not included.

Production workers are reported by months, an average for the year being obtained by summing the monthly figures and dividing by twelve. This procedure is followed even though the plant did not operate in all months. Figures on employment refer to calendar years whether or not some establishments reported other data on a financial year basis.

Salaries and Wages

Salaries and wages refer to gross earnings of the employees described above, including salaries, wages, commissions, bonuses, the value of room and board where provided, deductions for income tax and social services such as sickness and unemployment insurance, pensions, etc., as well as any other allowances forming part of the employees' wages. Payments for overtime are included.

Salaries refer to amounts paid to administrative and office employees. Withdrawals by working owners or partners for normal living expenses for self and family are included but not their withdrawals for income tax. Wages refer to the amounts paid to production and related workers as defined above. Data on earnings refer to the calendar year whether or not some establishments reported other data on a financial year basis.

Cost of Fuel and Electricity

Figures for fuel refer to amounts actually used, (including fuel used in cars and trucks), not to purchases unless the quantities are the same. Values refer to the laid-down cost at the works, including freight, duty, etc.

Materials and Supplies Used

Figures represent quantities and laid-down cost values, at the works, of materials and supplies actually used during the year whether purchased from others or received as transfers from other plants of the reporting company. Amounts paid to other manufacturers for work done on materials owned by the reporting company are included. Returnable containers or any other items charged to capital account are not included. Fuels are not included. Goods bought from others or received as transfers from other plants of reporting companies for resale without further processing are not included. Maintenance and repair supplies not chargeable to capital account are included.

Factory Shipments

Factory shipments refer to shipments of goods made from own materials either in the reporting plant or by other manufacturers on the basis of a charge to the reporting plant for work done. All products and by-products shipped from the establishment are included whether for domestic use, export, or for government departments. Transfer shipments to sales outlets, distributing warehouses or to other manufacturing units of the reporting firm are included. Goods bought or received as transfers and resold without further processing are not included. Values are computed on f.o.b. plant or

plant warehouse basis, and do not include sales tax or excise duties. Values of containers not returnable are included. Amounts received in payment for work done on materials owned by others are included.

In a few industries such as shipbuilding, aircraft, etc., where work on principal products extend over a relatively long period, the value of production is recorded rather than the value of shipments. For those industries production is computed from the value of deliveries of complete units during the year plus the value of work done during the year on unfinished units less the value of work done in previous years on finished units delivered in the year under review.

Inventories

Values represent the book values of manufacturing inventories owned and held at the reporting plant. Figures include inventories held in warehouses or selling outlets which have been included with plant operations for purposes of reporting shipments.

Value Added by Manufacturing

Figures are computed from value of shipments plus or minus changes in inventories of finished goods and goods in process less cost of materials, fuel and electricity. This figure is sometimes referred to as net production.¹

Standard Industrial Classification

The Standard Industrial Classification Manual, prepared by the Dominion Bureau of Statistics, provides for 135 three-digit industries in the manufacturing sector, arranged in 17 major groups. Reporting establishments are classified or allotted to specific industries on the basis of the value of principal products made or shipped.

Short Forms

Between 1949 and 1957, in an effort to ease the reporting burden for smaller firms, a short form was used asking for the total value of shipments only or, in a few cases where losses of detail were significant, for quantities and values of principal products. For purposes of publication, missing data were estimated on the basis of appropriate ratios. In general the cut-off point for these short forms was set at \$50,000 value of shipments. About 40% of the total number of establishments reported on the short form and accounted for less than 3 per cent of the total value of shipments.

In 1958, in order to establish a new base year, the small firms were asked to report all items of principal statistics together with some detail on materials and products.

¹ To arrive at the National Accounts concept of "gross domestic product at factor cost", it would be necessary to subtract also the cost of office supplies used, advertising, insurance and other goods and services obtained from other businesses. Data on these inputs are not collected on the annual Census of Manufactures. Value added figures for "The primary industries and construction" are published in D.B.S. publication 61-202, *Survey of Production*.

For the 1959 Census, the short form was used again, but further steps were taken to ease the respondents' burden. First, the general limit for short forms was raised to \$100,000 value of shipments. In addition, a new intermediate form was developed. This form is a shortened version of the long form in that most of the general questions were pared down and the detailed lists of materials and products were limited to the more important items. The general limits for firms in this category were set at between \$100,000-\$500,000 value of shipments, but in the case of both the short and intermediate forms there were lower cut-offs for a number of industries in which the smaller firms accounted for a larger share of total shipments. On the other hand, limits were raised where this could be done without a significant loss of coverage. On most of the short forms for 1959, in addition to total value of shipments, data on principal products were requested. In a few industries, where loss of employment and earnings data were considered too large because of higher cut-offs, a question on total payroll was placed on the short form.

The intermediate and long forms provide complete data for the compilation of all elements of principal industry statistics and the details of materials and products. The one-page short form, although containing data on principal products and total value of shipments, does not request information on other elements of principal statistics such as value of inventories, materials, fuel and electricity and, in most cases, employment and salaries and wages, nor does it contain detailed data on volume and value of materials used. For purposes of compiling aggregates of principal statistics by industry and by geographic location, the missing data for each establishment were estimated for 1959 by using, in general, ratios based on the change in the value of shipments between 1958 and 1959. The proportion of the estimated data was generally less than 5 per cent of the total in each category of principal statistics.

The general request for the principal items of products on the short form for 1959 permitted a fairly complete compilation of the detailed quantities and values of commodity shipments. In the case of the detailed quantities and values of materials, fuel and electricity, however, and the monthly distribution of production workers, only the totals of data actually reported on the intermediate and long forms are contained in published reports and no attempt was made as in past years to estimate the generally small proportion of individual totals represented by detailed items omitted from the short forms.

The new approach has relieved an additional 12,000 establishments from filling out the regular long form. Establishments now receiving the short form number in excess of 20,000 and account for more than 54 per cent of the total number of establishments and a little more than 3 per cent of the total value of shipments.

THE ARTIFICIAL ABRASIVES INDUSTRY

1959

Factory shipments of all products made by the manufacturers in Canada of artificial abrasives and abrasive products were valued at \$44,226,296 in 1959 an increase of 11.9 per cent over the \$37,211,006 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 2,522 and payments in salaries and wages totalled \$11,853,197. Expenditures for manufacturing materials amounted to \$17,783,503 and \$5,022,388 were paid out for fuel and electricity.

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

8 works were valued at \$32,945,889 and included 152,319 tons of crude fused alumina at \$15,414,241, 86,248 tons of crude silicon carbide at \$12,660,211 and other products and by-products such as ferro-silicon, firesand, abrasive wheels, etc. A total of 1,875 people were employed and salaries and wages paid amounted to \$9,059,306.

Ten other plants were occupied chiefly in making abrasive products such as wheels, paper, pulpstone and sharpening stones. Factory shipments of all products made in these establishments were valued at \$11,280,407. The number of employees was 647 and payments for salaries and wages amounted to \$2,793,891. The total value of Canada's output of abrasive wheels and segments was \$7,550,473.

TABLE 1. Principal Statistics of the Artificial Abrasives Industry, Significant Years 1929-59 and by Provinces, 1958 and 1959

Year and province	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electricity at works	Cost at plant of materials used	Value added by manufacture ¹	Gross selling value of products ¹
	number			dollars			
1929	12	828	1,270,898	873,068	2,905,928	5,182,955	8,961,951
1932	14	386	519,013	480,601	449,624	559,330	1,489,555
1937	16	1,289	1,995,589	1,222,529	4,351,854	8,599,968	14,174,351
1939	16	1,099	1,630,889	777,654	2,971,056	5,526,433	9,275,143
1943	15	3,336	6,453,769	2,988,814	11,581,923	22,039,191	36,609,928
1946	15	2,409	4,929,448	2,106,329	8,425,629	14,912,438	25,444,396
1949	18	2,543	6,830,763	2,182,097	10,649,694	14,868,217	27,700,008
1955	17	2,695	10,567,048	4,422,194	15,293,264	21,933,836	42,519,695
1956	17	2,816	11,746,942	4,921,814	18,371,516	23,287,988	46,023,192
1957	17	2,851	12,668,517	5,421,469	20,333,646	24,902,569	51,049,441
1958							
Quebec	5	406	1,769,540	1,902,719	2,855,249	4,575,255	9,379,738
Ontario	13	1,908	8,932,756	2,452,519	11,695,087	13,998,569	27,831,268
Canada	18	2,314	10,702,296	4,355,238	14,550,336	18,573,824	37,211,006
1959							
Quebec	5	428	2,082,366	1,944,516	3,422,460	4,126,422	9,466,877
Ontario	13	2,094	9,770,831	3,077,872	14,361,043	17,123,185	34,759,419
Canada	18	2,522	11,853,197	5,022,388	17,783,503	21,249,607	44,226,296

¹ Due to lack of inventory data, figures for "Value added by manufacture" prior to 1954 were obtained by subtracting the cost of materials used, including fuel and electricity, from the total value of factory shipments. In 1954 and 1955 the "Value added" adjustment incorporated the increase or decrease to shipments values resulting from changes in the value of inventories over the period. For these two years, the adjustments that were made used only the change in finished product inventory owned by manufacturers. Beginning with 1956 the calculation of the "Value added" figure was further adjusted to take into account the "Goods in process" as well as the finished goods held at plant of plant warehouse.

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. Inventories,¹ by Provinces, 1959

	Raw materials and supplies	Goods in process	Finished goods of own manufacture	Total
	dollars			
Opening:				
Quebec	876,626	57,857	315,223	1,249,706
Ontario	3,290,187	823,024	2,654,752	6,767,963
Canada	4,166,813	880,881	2,969,975	8,017,669
Closing:				
Quebec	854,391	61,095	338,506	1,253,992
Ontario	3,518,462	932,259	2,348,198	6,798,919
Canada	4,372,853	993,354	2,686,704	8,052,911

¹ (a) Book value of all manufacturing inventories owned and held at plant and plant warehouses.

(b) Beginning with 1954, information on the value of year-end inventory holdings at plant and plant warehouses is being collected as part of the annual Census of Industry. These data were formerly collected by a separate survey. The summarized results for the Artificial Abrasives Industry for the year under review are shown in the above table.

(c) The opening inventory for 1959 does not agree with the closing inventory for 1958 because of minor adjustments reported on the 1959 returns. However, the value added figures for the previous year have not been recalculated to allow for the changes mentioned above.

TABLE 3. Products of the Artificial Abrasives Industry, 1958 and 1959

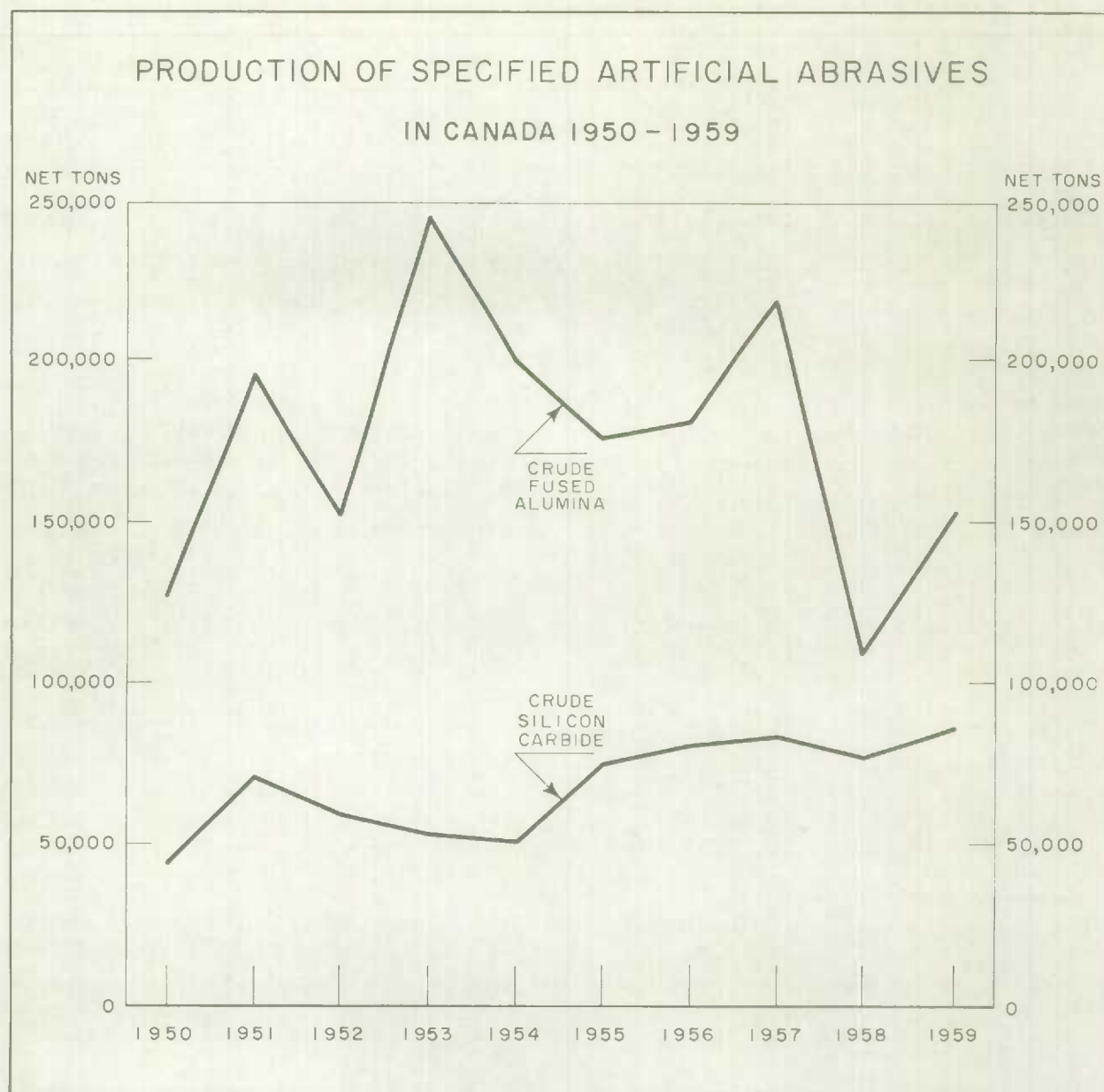
Product	1958		1959	
	Quantity	Value of factory shipments	Quantity	Value of factory shipments
	tons	\$	tons	\$
Crude silicon carbide	77,528	11,676,630	86,248	12,660,211
Crude fused alumina	109,507	10,994,270	152,319	15,414,241
Silicon carbide firesand, etc.	336	39,218	3,535	307,583
Abrasive wheels and segments	—	6,013,543	—	7,550,473
Sharpening stones and files	—	256,585	—	280,505
Ferrosilicon	12,488	690,356	15,867	675,308
Other products ¹	—	7,540,404	—	7,337,975
Totals	—	37,211,006	—	44,226,296

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, 1958 and 1959

Material	1958		1959	
	Quantity	Cost at works	Quantity	Cost at works
		\$		\$
Alumina, pure	ton 2, 999	283, 573	9, 010	849, 917
Bauxite	" 135, 517	4, 084, 683	158, 597	4, 698, 163
Boric acid glass	" 42	15, 731	6	2, 441
Coal (not for fuel)	" 5, 893	76, 007	1, 700	19, 598
Coke (not for fuel):				
Petroleum coke	" 79, 453	1, 663, 429	109, 159	2, 193, 325
Pitch coke	" 4, 880	151, 352	3, 065	98, 036
Other coke	" 5, 097	55, 331	6, 755	76, 258
Electrodes	" 2, 124	684, 903	2, 656	751, 363
Iron borings	" 11, 000	322, 766	13, 180	371, 273
Salt	" 17	306	100	1, 765
Sawdust	—	94, 105	—	107, 425
Silica sand	ton 116, 948	1, 107, 347	140, 217	1, 311, 985
Artificial abrasive grains:				
For wheels, paper, etc.:				
Fused alumina	" 1, 656	440, 657	2, 583	811, 551
Silicon carbide	" 3, 237	761, 568	2, 625	641, 867
Natural abrasive grains:				
Garnet	lb. 504, 519	78, 781	465, 030	66, 481
Emery	" 86, 905	8, 938	201, 803	16, 895
Quartz or flint	" 289, 779	10, 004	284, 163	9, 457
Other	—	1, 306	—	726
Bonding and bushing materials:				
Clay bonds	lb. 870, 586	54, 452	906, 775	73, 765
Bakelite and synthetic resins	" 503, 043	170, 946	592, 428	214, 420
Lead for bushings	" 65, 587	9, 343	43, 995	6, 155
Glue, animal and hide	" 730, 054	217, 911	628, 917	184, 694
Other	—	39, 023	—	45, 502
Cotton cloth	—	382, 661	—	405, 149
Kraft paper and other paper	—	366, 211	—	373, 187
Containers and packing material	—	239, 708	—	281, 703
All other materials ¹	—	3, 229, 294	—	4, 170, 402
Totals	—	14, 550, 336	—	17, 783, 503

¹ No detailed information on materials used was collected from firms generally reporting value of shipments of less than \$500,000. The total value of materials used by these firms was \$112,484 and this amount is included in "all other materials".

**TABLE 5. Production¹ of Specified Artificial Abrasives, 1950 - 59**

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	\$
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
1954	50,321	6,944,862	199,857	18,883,589	250,178	25,828,451
1955	74,947	9,681,788	177,162	16,676,424	252,109	26,358,212
1956	80,467	10,430,549	181,830	17,636,382	262,297	28,066,931
1957	83,321	11,828,856	218,187	21,902,425	301,508	33,731,281
1958	77,528	11,676,630	109,507	10,994,270	187,035	22,670,900
1959	86,248	12,660,211	152,319	15,414,241	238,567	28,074,452

¹ Factory shipments since 1952.

TABLE 6. Production¹ of Abrasive Wheels and Segments,² 1950 - 59

Year	Selling value at works	Year	Selling value at works
	\$		\$
1950	4,683,163	1955	5,666,352
1951	5,655,676	1956	7,206,636
1952	5,501,377	1957	7,100,348
1953	5,694,066	1958	6,013,543
1954	4,422,413	1959	7,550,473

¹ Factory shipments since 1952.² Does not include artificial pulpstones or sharpening stones.

TABLE 7. Principal Statistics, classified according to Type of Ownership, 1958 and 1959

Type	Estab- lish- ments	Employees	Salaries and wages	Cost at plant of materials used	Selling value of factory shipments
	number		dollars		
1958					
Individual ownership	1	2,314	10,702,296	14,550,336	37,211,006
Incorporated companies	17				
Totals	18	2,314	10,702,296	14,550,336	37,211,006
1959					
Individual ownership	1	2,522	11,853,197	17,783,503	44,226,296
Incorporated companies	17				
Totals	18	2,522	11,853,197	17,783,503	44,226,296

TABLE 8. Principal Statistics of the Artificial Abrasives Industry, grouped according to Selling Value of Factory Shipments, 1958 and 1959

Establishments reporting factory shipments of	Estab- lish- ments	Employees	Salaries and wages	Cost at plant of materials used	Selling value of factory shipments
	number		dollars		
1958					
Under \$500,000	5	35	151,107	82,607	385,881
\$500,000 - \$999,999	4	178	750,907	838,203	2,626,823
\$1,000,000 and over	9	2,101	9,800,282	13,629,526	34,198,302
Totals	18	2,314	10,702,296	14,550,336	37,211,006
1959					
Under \$500,000	5	50	194,733	112,484	531,185
\$500,000 - \$999,999	3	137	650,329	728,251	2,475,813
\$1,000,000 and over	10	2,335	11,008,135	16,942,768	41,219,298
Totals	18	2,522	11,853,197	17,783,503	44,226,296

TABLE 9. Capital and Repair Expenditures in the Artificial Abrasives Industry, 1955 - 59

Year	Capital expenditures		Sub-total	Repair and maintenance expenditures		Sub-total	Total capital and repair expenditures
	Construc- tion	Machinery and equipment		Construc- tion	Machinery and equipment		
	thousands of dollars						
1955	225	757	982	83	1,599	1,682	2,664
1956	331	742	1,073	114	2,140	2,254	3,327
1957	1,274	1,947	3,221	108	2,472	2,580	5,801
1958	254	603	857	90	1,583	1,673	2,530
1959	371	985	1,356	243	2,265	2,508	3,864

TABLE 10. Employees and their Earnings in the Artificial Abrasives Industry, 1958 and 1959

	Employees					Earnings		
	Supervisory and office		Workmen		Total	Supervisory and office	Workmen	Total
	Male	Female	Male	Female				
	number					dollars		
1958								
Quebec	32	8	366	—	406	232,814	1,536,726	1,769,540
Ontario	413	137	1,270	88	1,908	3,356,671	5,576,085	8,932,756
Canada	445	145	1,636	88	2,314	3,589,485	7,112,811	10,702,296
1959								
Quebec	33	8	387	—	428	231,605	1,850,761	2,082,366
Ontario	424	180	1,396	94	2,094	3,249,597	6,521,234	9,770,831
Canada	457	188	1,783	94	2,522	3,481,202	8,371,995	11,853,197

TABLE 11. Production Workers, By Months, 1959

Month	Establishments reporting monthly detail ¹	
	Male	Female
January	1,333	92
February	1,408	91
March	1,444	91
April	1,407	92
May	1,422	93
June	1,455	96
July	1,396	94
August	1,346	97
September	1,305	98
October	1,267	97
November	1,292	93
December	1,300	91
Average for establishments reporting monthly detail	1,751	94
Average estimated for small establishments ²	32	—
Average for all establishments	1,783	94

¹ The number of production workers, by months, was collected only for establishments generally reporting value of shipments of \$500,000 and over.

² For establishments generally reporting value of shipments of less than \$500,000, no data on number of workers were collected. Average was estimated by using change in value of shipments to arrive at value of payroll which was then used in conjunction with estimated average earnings to arrive at number of workers.

TABLE 12. Imports of Abrasives and Abrasive Products, 1958 and 1959

	1958	1959
Artificial abrasive grains, crushed or ground, for use in Canadian manufactures	\$ 1,921,437	2,373,079
Diamond dust or bort and black diamonds for borers	\$ 5,460,487	6,298,061
Diatomaceous earth or infusorial earth (Kieselguhr), ground or unground cwt.	545,153	545,198
..... \$	1,184,427	1,157,976
Emery in bulk, crushed or ground	\$ 235,041	240,845
Grinding wheels, manufactured by the bonding together of either natural or artificial abrasives	\$ 1,808,523	2,172,854
Grinding stones or blocks, manufactured by the bonding together of either natural or artificial abrasives	\$ 292,516	357,681
Manufactures of emery or of artificial abrasives, n.o.p.	\$ 580,604	692,680
Grindstones, not mounted, and not less than 36 inches in diameter	No. 150	—
..... \$	9,171	—
Grindstones, n.o.p.	No. 860	708
..... \$	5,508	20,434
Pumice and pumice stone, lava and calcareous tufa, not further manufactured than ground	\$ 297,964	236,190
Sandpaper, glass, flint and emery paper or emery cloth	\$ 799,906	833,371
Totals	\$ 12,595,584	14,383,171

TABLE 13. Exports and Re-exports of Abrasives and Abrasive Products, 1958 and 1959

	1958	1959
Abrasives, natural, n.o.p., in ore or bulk, crushed or ground, including infusorial earth, rotten stone, tripoli, etc. cwt.	968	1,322
..... \$	10,111	29,667
Abrasives, artificial, crude	cwt. 3,772,511	4,857,864
..... \$	22,723,369	27,736,800
Abrasives, artificial, made up into wheels and stones	\$ 65,127	210,368
Diamonds, industrial, and diamond dust or bort ¹	\$ 5,045,474	3,806,923
Sandpaper, glass, flint and emery paper, and emery cloth	\$ 739,018	669,040
Grindstones, manufactured	\$ 71,643	64,875
Totals	\$ 28,654,742	32,517,673

¹ All re-exports.



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TABLE 14. Fuel and Electricity Used in the Artificial Abrasives Industry, 1959

Kind	Quantity	Cost at plant
		\$
1. Establishments reporting commodity detail: ¹		
Bituminous coal—From Canadian mines	ton 595	7,450
Imported	" 6,285	84,269
Anthracite coal	" 159	3,143
Coke	" 137	2,080
Gasoline (including gasoline used in cars and trucks)	Imp. gal. 50,100	17,605
Fuel oil including kerosene or coal oil	" 677,220	77,734
Gas—Liquefied petroleum gases	" 18,994	5,876
Other manufactured gas	M cu. ft. 582	1,385
Natural gas	" 44,362	44,359
Electricity purchased	kwh. 1,070,647,045	4,739,178
Steam purchased	" ..	23,951
2. Estimate for establishments for which no data were collected: ²		
Cost of fuel and electricity	15,358
3. All establishments:		
Total cost of fuel and electricity	5,022,388

¹ Establishments generally reporting value of shipments of \$500,000 and over.² Establishments generally reporting value of shipments of less than \$500,000.

.. Figures not available.

... Figures not appropriate or not applicable.

List of Firms in the Artificial Abrasives Industry, 1959

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. Ltd.	790 Rennie St., 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
Macklin of Canada	Harrow, Ontario
Norton Company of Canada Limited	3 Beach Road, Hamilton, Ontario
Plasticraft Co.	2027 St. Timothee St., Montreal, Quebec
Simonds Canada Saw Co., Ltd.	192 Pearl St. E., Brockville, Ontario
Wright Abrasives Ltd.	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.