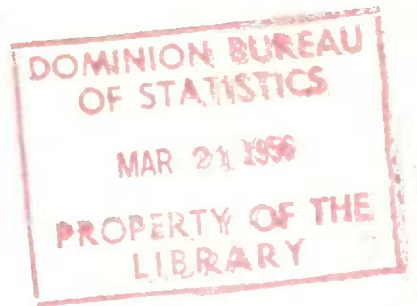


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THE ACIDS, ALKALIES AND SALTS INDUSTRY

1954



Published by Authority of
The Right Honourable C. D. Howe, Minister of Trade and Commerce

DOMINION BUREAU OF STATISTICS
Industry and Merchandising Division
Metal and Chemical Products Section

6512-605-124

Price 25 cents

Vol. 2—Part XVIII—B-1

202-112

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—Textile Mills
- VIII—Knitting Mills
- IX—Clothing
 - X—Wood and Paper Products
- XI—Printing Trades
- XII—Iron and Steel Products
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- XIV—Non-ferrous Metal Products
 - XV—Electrical Apparatus and Supplies
- XVI—Non-metallic Mineral Products
- XVII—Products of Petroleum and Coal
- XVIII—Chemicals and Allied Products
- XIX—Miscellaneous Manufactures

The present report belongs in Part XVIII, Chemicals and Allied 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 Acids, Alkalies and Salts Industry, 25¢
- C—The Fertilizers Industry, 25¢
- D—The Fertilizer Trade in Canada, 25¢
- E—The Medicinal and Pharmaceutical Preparations Industry, 25¢
- F—The Paints, Varnishes and Lacquers Industry, 25¢
- G—The Primary Plastics Industry, 25¢
- H—The Soaps, Washing Compounds and Cleaning Preparations Industry, 25¢
- I—The Toilet Preparations Industry, 25¢
- J—The Vegetable Oils Industry, 25¢
- K—The Inks Industry, 25¢
- L—The Adhesives Industry, 25¢
- M—The Polishes and Dressings Industry, 25¢
- N—The Compressed Gases Industry, 25¢
- O—The Coal Tar Distillation Industry, 25¢
- P—The Miscellaneous Chemical Products Industry, 25¢

THE ACIDS, ALKALIES AND SALTS INDUSTRY

1954

Forty-three plants in Canada, classified under the Acids, Alkalies and Salts Industry, were engaged chiefly in the production of chemicals in 1954. Factory shipments reported by this group were valued at \$142,001,601, an increase of 11.6 per cent over the total for the previous year. Twenty-two of these plants were located in Ontario, 15 in Quebec, 2 in British Columbia, 2 in Alberta, 1 in Nova Scotia and 1 in the Northwest Territories. These concerns gave employment to 8,408 people who were paid \$33,425,864 in salaries and wages. Materials used in manufacturing processes cost \$49,400,551 and expenditures for fuel and electricity amounted to \$13,358,379.

Except for sulphuric acid, caustic soda and chlorine, separate figures for the production of chemicals in this group are not published as many of the individual items were made by only one or two concerns. However, a special compilation, which gives a fairly good summary of the total output of chemicals as gathered up from all industries, is shown in Table 4. A list of the more important chemicals made by the factories in this group is shown in the directory which appears at the back of this bulletin.

The output of sulphuric acid increased to 923,800 tons (100% acid) in 1954 from the 822,608 tons in 1953. Ten plants were operated by seven companies, as follows: The Consolidated Mining and Smelting Company of Canada, Limited, at Trail, British Columbia; Canadian Industries Limited, at Copper Cliff and Hamilton in Ontario; Nichols Chemical Company Limited, at Sulphide, Ontario, Valleyfield, Quebec, and Barnet, British Columbia; Dominion Steel and Coal Corporation Limited, at Sydney, Nova Scotia; Aluminum Company of Canada Ltd. at Arvida, Quebec; the North American Cyanamid, Limited (Welland Works), at Niagara Falls, Ontario, and Eldorado Mining and Refining Ltd., at Port Radium, Northwest Territories. The first two of these works, at Trail and Copper Cliff, operated entirely on sulphur-bearing smelter gases.

Production of chlorine, either as a gas or liquid, totalled 167,000 tons in 1954, while the output of caustic soda amounted to 199,000 tons. In 1954 there were 11 caustic soda-chlorine plants in Canada. The Canadian Industries (1954) Limited, had works at Windsor and Cornwall in Ontario, and at Shawinigan Falls, Quebec. Other producers included the Dow Chemical of Canada Limited, Sarnia, Ontario; the Standard Chemical Company Limited, Beauharnois, Quebec; the Aluminum Company of Canada Limited, Arvida, Quebec; Western Chemical Limited, Duvernay, Alberta; the Canadian International Paper Company, Temiskaming, Ontario; the Howard Smith Paper Mills Limited, Cornwall, Ontario; the KVP Company Limited, Espanola, Ontario; and the Marathon Paper Mills of Canada Limited, Marathon, Ontario. The last four concerns are paper mills which make these chemicals for their own use.

Note: Figures for value added by manufacture shown in Table 1 prior to 1952 were obtained by subtracting the cost of materials used, including fuel and electricity, from the value of production. In 1952, the gross value of production was replaced by value of factory shipments, f.o.b. plant. As no information on inventory change is available for 1952 and 1953, value added figures for these years were obtained by subtracting from the value of shipments the cost of materials, fuel and electricity. In 1954, information on the value of year-end inventory holdings at plant and plant warehouses was collected as part of the annual Census of Industry and information thus made available was taken into account in calculating the value added figure for 1954.

TABLE 1. Principal Statistics of the Acids, Alkalies and Salts Industry, Significant Years 1929-54, and by Provinces, 1953 and 1954

Year and province	Estab- lish- ments	Em- ployees	Earnings	Cost of fuel and electricity at plant	Cost at plant of materials used	Value added by manufacture ¹	Gross selling value of products ¹
	No.	No.	\$	\$	\$	\$	\$
1929.....	15	2,897	4,338,686	2,921,129	6,301,121	18,799,722	28,021,972
1931.....	14	1,694	2,426,880	2,167,585	2,407,682	6,377,230	10,952,497
1937.....	21	3,359	4,893,418	2,810,364	6,008,977	13,590,827	22,410,168
1939.....	25	3,128	5,032,898	2,548,217	6,021,716	14,486,673	23,056,606
1944.....	28	7,964	15,752,782	8,980,955	29,540,390	42,801,806	81,323,151
1946.....	29	5,338	11,158,999	6,431,503	14,650,883	26,219,014	47,301,400
1949.....	28	5,861	16,504,908	7,355,353	27,392,521	39,663,922	74,411,796
1950.....	28	6,020	18,039,492	8,639,420	30,327,614	48,527,331	87,494,365
1951.....	29	7,371	24,579,398	11,127,663	39,238,794	67,456,301	117,822,758
1952.....	29	7,591	27,208,422	11,167,181	37,777,278	65,243,067	114,187,526
1953							
Nova Scotia.....	1	3,317	12,506,097	4,488,449	18,793,180	25,392,251	48,673,880
Quebec.....	16						
Ontario.....	20	4,502	17,177,592	8,523,098	22,651,512	43,717,546	74,892,156
Alberta.....	1						
British Columbia.....	2	459	1,490,790	252,604	1,638,483	1,842,314	3,733,401
Northwest Territories.....	1						
Canada.....	41	8,278	31,174,479	13,264,151	43,083,175	70,952,111	127,299,437
1954							
Nova Scotia.....	1	3,452	13,965,190	5,219,662	21,910,974	28,696,766	56,229,798
Quebec.....	15						
Ontario.....	22	4,507	17,505,366	7,758,764	25,091,181	44,492,971	77,333,737
Alberta.....	2						
British Columbia.....	2	449	1,955,308	379,953	2,398,396	6,186,552	8,438,066
Northwest Territories.....	1						
Canada.....	43	8,408	33,425,864	13,358,379	49,400,551	79,376,289	142,001,601

1. See footnote to text.

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. Inventories¹, 1954

	Raw materials and supplies	Goods in process	Finished goods of own manufacture	Total
	\$	\$	\$	\$
Opening:				
Nova Scotia and Quebec.....	6,891,070	87,225	4,062,987	10,977,860
Ontario.....	7,701,554	1,006,283	4,084,716	12,792,553
Alberta, British Columbia and Northwest Territories.....	699,007	156,962	591,544	1,447,513
Canada.....	15,228,209	1,250,470	8,739,247	25,217,926
Closing:				
Nova Scotia and Quebec.....	6,891,070	114,279	3,660,591	10,665,940
Ontario.....	6,940,199	823,745	4,093,895	11,857,839
Alberta, British Columbia and Northwest Territories.....	664,357	280,811	1,118,379	2,063,547
Canada.....	14,495,626	1,218,835	8,872,865	24,587,326

1. (a) Book value of all manufacturing inventories 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 Acids, Alkalies and Salts Industry for the year under review are shown in the above table.

TABLE 3. Materials Used in the Acids, Alkalies and Salts Industry, 1953 and 1954

Material	1953		1954	
	Quantity	Cost at works \$	Quantity	Cost at works \$
Acetone	lb.	1,273,514	902,433	92,834
Acetylene	M cu. ft.	44,574	44,620	394,088
Acid:				
Acetic, 99½%	lb.	1,727,563	10,436	1,427
Hydrochloric (muriatic)	"	2,825,061	2,787,002	60,036
Nitric, 42° Be	"	2,635,623	1,984,244	96,225
Sulphuric, 100%	"	18,212,965	19,259,013	322,004
Alcohol:				
Butyl	lb.	381,501	248,957	50,092
Ethyl	Imp. gal.	305,826	3,786	4,719
Isopropyl	lb.	137,588	174,377	23,720
Methyl	Imp. gal.	830,000	1,376,151	419,767
Ammonia liquor	lb. NH ₃	1,189,156	1,247,792	91,329
Ammonia, anhydrous	lb.	4,045,237	12,545,001	679,761
Benzol	"	7,300,405	1,926,936	107,831
Calcium chloride	"	552,879	434,100	11,470
Carbon, activated	"	1	522,765	190,023
Chlorine, liquid	"	17,829,294	45,763,688	1,063,147
Coal (except for fuel):				
Anthracite	tons	38,394	27,184	380,728
Bituminous	—	—	—	—
Coke (except for fuel):				
Petroleum	tons	633	—	—
Other	"	174,341	188,525	3,385,543
Electrodes (purchased)	—	—	—	685,217
Fatty acid (oleic, stearic, etc.)	lb.	1	372,604	58,705
Fluorspar	tons	59,556	63,751	1,985,027
Formaldehyde	lb.	1	1,155,597	46,172
Graphite	lb.	635,134	496,753	113,769
Limestone	tons	971,337	958,176	1,697,758
Lime, hydrated	"	41,855	35,376	246,131
Lime, quick	"	10,512	16,349	256,720
Mercury	lb.	113,513	134,870	283,794
Phenol	"	1	845,200	143,136
Petrochemical feed stocks	—	1	—	2,794,897
Phthalic anhydride	lb.	1	1,325,316	241,513
Pyrites	tons	77,997	74,465	659,581
Quartz, quartzite and silica sand	"	44,798	51,818	314,893
Sodium carbonate (soda ash)	lb.	86,722,387	81,557,426	1,755,005
Sodium chloride, dry and brine (salt content) ..	tons	636,922	645,993	2,951,810
Sodium bichromate	lb.	239,888	116,697	11,564
Sodium hydroxide (caustic soda)	"	15,311,932	23,420,572	863,539
Sodium nitrate	"	540,354	265,264	9,454
Sodium silicate (water glass)	"	1,400	1,400	42
Sodium sulphide	"	153,680	145,833	7,881
Sulphur (brimstone)	tons	89,479	80,871	2,989,836
Urea	lb.	1	460,263	30,697
Zinc oxide	lb.	71,780	63,061	8,973
Containers of all kinds and packing materials	—	—	—	3,009,104
Steel sheets for making containers	tons	3,224	3,823	610,087
Lumber	M bd. ft.	327	161	10,648
All other materials and supplies	—	—	—	20,239,854
Total	—	—	—	49,400,551

1. Included with "All other materials".

Total Production of Chemicals

It is very difficult to get, from official reports, the statistics covering the total production in Canada of heavy and fine chemicals. There are two reasons for this, the first being that data for many of the individual items cannot be shown because they were made by only one or two concerns, and the second being that chemicals are made in a number of different industries. Ethyl alcohol, for example, is a product of the distilled liquors industry; methyl alcohol comes under wood distillation; some fine chemicals are made in the phar-

maceutical industry; ammonium sulphate is produced in coke plants; cobalt and nickel salts are made in the non-ferrous metal refineries, and so on. The Bureau has made, therefore, a special compilation shown in Table 4 which gives a fairly good summary of the total output as gathered up from all industries. The values cover only the products made for sale as there is no adequate record of the intermediates made for the further use of the producers. The output in 1954 was around \$279,846,000 compared with \$255,582,000 in 1953.

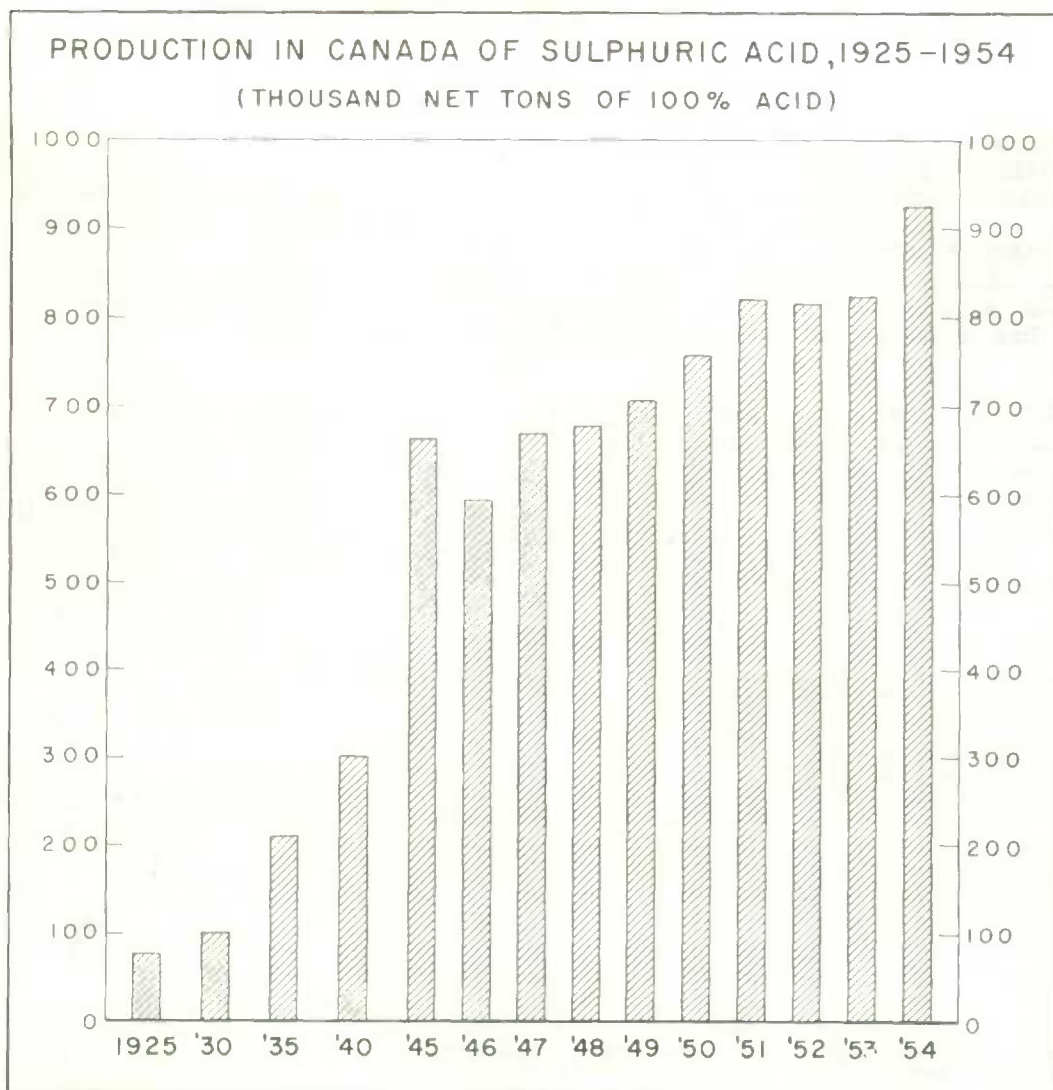
TABLE 4. Total Production of Chemicals, 1953 and 1954

	Selling value at works	
	1953	1954
	\$	\$
<i>Acids, including acetic, muriatic, nitric, sulphuric, phosphoric, stearic, etc....</i>	14,651,000	19,174,000
<i>Calcium compounds, including carbide, chloride, phosphide, cyanamide, cyanide acid phosphate, grey acetate, arsenate, chloride of lime, etc.....</i>	16,032,000	16,469,000
<i>Sodium compounds, including hydroxide, phosphate, cyanide, silicate, hypochlorite, bisulphite, salt cake, Glauber's salt, chlorate, acid pyrophosphate, soda ash, sal soda, bisulphate, etc., (pharmaceutical salts included elsewhere)...</i>	30,814,000	30,664,000
<i>Organic chemicals, including acetic anhydride, butyl acetate, ethyl acetate, paraldehyde, glycols, pentasol acetate, vinyl acetate, ethyl alcohol, methyl hydrate, glycerine, phenol, cresol, benzol, etc., (acetic acid and acetylene included elsewhere).....</i>	61,539,000	72,936,000
<i>Compressed and liquefied gases, etc., including acetylene, carbon dioxide, oxygen, nitrous oxide, liquid sulphur dioxide, liquid chlorine, anhydrous and aqua ammonia, liquefied petroleum gases, etc.</i>	31,130,000	33,723,000
<i>Fertilizer chemicals, including ammonium sulphate, ammonium nitrate (fertilizer grade), ammonium phosphate, and superphosphate</i>	50,682,000	45,386,000
<i>Synthetic resins, including casein type, vinyls, polystyrene, phenol-formaldehyde, urea-formaldehyde, alkyds, sodium carboxymethylcellulose, etc.....</i>	26,251,000	36,647,000
<i>Other chemicals, including white lead, zinc oxide, red lead, litharge, cobalt salts, nickel salts, ferric chloride, lead arsenate, phosphorus, white arsenic, ammonium nitrate, fine chemicals, precious metal salts, etc.</i>	24,483,000	24,847,000
Total	255,582,000	279,846,000

TABLE 5. Production, Imports, Exports and Apparent Consumption of Sulphuric Acid, 1925-1954

Year	Production	Imports	Exports	Apparent consumption ¹
Short tons of 100% acid				
1925	77,700	52	19,179	58,573
1930	100,020	150	571	99,599
1935	209,083	83	1,027	208,139
1940	301,444	142	2,244	299,342
1945	664,302	149	11,203	653,248
1946	593,577	166	3,296	590,447
1947	668,802	116	29,909	639,009
1948	679,448	59	29,478	650,029
1949	707,717	24	17,336	690,405
1950	756,110	332	44,417	712,025
1951	820,867	1,162	57,000	765,029
1952	816,270	85	33,135	783,220
1953	822,608	70	47,889	774,789
1954	923,800	110	21,930	901,980

1. No allowance made for changes in inventories.

**TABLE 6. Production, Imports and Exports of Chlorine and Caustic Soda, 1950-1954**

Year	Chlorine	Caustic soda ² (100% Na OH)
(a) Production:		
1950	131,000	148,000
1951	155,000	180,000
1952	169,000	190,000
1953	169,000	192,000
1954	167,000	199,000
(b) Imports:		
1950	5,498	15,600
1951	12,916	23,300
1952	15,800	28,500
1953	20,400	43,700
1954	32,100	65,900
(c) Exports¹:		
1952	14,200	6,600
1953	17,900	2,600
1954	2,900	200

1. Not available separately prior to 1952.

2. Imports of caustic soda solution shown in Table 14 represent gross weight which is in terms of 50% NaOH approximately. Figures in Table 6 have been converted to 100% Na OH to agree with the basis used in production and exports.

TABLE 7. Consumption of Sulphuric Acid, by Industries, 1952-1954

Industry	1952	1953	1954
	Short tons of 100% acid		
Fertilizers	510,600	485,600	603,200
Heavy chemicals	103,300	124,400	123,400
Explosives	31,300	29,000	4
Non-ferrous metal smelting and refining	12,900 ¹	19,300 ²	19,300 ¹
Textiles	28,000	30,200	4
Coke and gas	33,700	33,600	31,000
Petroleum refining	9,500	7,400	7,000
Leather tanning	1,900	2,100	1,900
Iron and steel	29,400	29,900	22,300
Electrical apparatus	5,700	5,700	6,000
Plastics	8,000	9,100	13,700
Soaps	8,700	10,400	10,600
Adhesives	500	300	500
Miscellaneous chemicals	2,100	3,000	4
Sugar refining	400	400	300
Pulp and paper	4,000	6,900	9,300
Vegetable oils	100	100	100
Sausage and sausage casings	N.A.	N.A.	4
Miscellaneous ³	-	-	73,050
Total accounted for	790,100	797,400²	921,650

1. Estimated.

2. Revised.

3. Includes explosives, textiles, miscellaneous chemicals and sausage and sausage casings groups in 1954.

4. Included with "miscellaneous".

TABLE 8. Available Data on Consumption of Chlorine, by Industries, 1952-1954

Industry	1952	1953	1954
	Tons		
Pulp and paper	89,000	97,400	114,700
Heavy chemicals	60,300	65,300	69,300
Soaps	3,200	3,300	3,900
Municipal waterworks	1,200	1,340	1,400 ¹
Mining	1,100 ¹	3,000 ²	3,000 ¹
Starch and glucose	200	160	100
Dyeing and finishing of textiles	30	30	10
Miscellaneous chemicals	50	50	50
Fertilizers	100	30	30
Synthetic textiles	430	30	30
Primary plastics	130	140	200
Medicinal and pharmaceutical preparations	120	230	140
Total accounted for	155,860	171,010	192,860

1. Estimated.

2. Revised.

TABLE 9. Available Data on Consumption of Caustic Soda, by Industries, 1952-1954

Industry	1952	1953	1954
	Tons		
Pulp and paper	80,900	102,200	117,100
Soaps, washing compounds and cleaning preparations	19,100	19,600	20,000
Heavy chemicals	48,000	53,900	52,900
Synthetic textiles and silk industry	16,500	19,200	5
Petroleum refining	6,600	6,900	8,200
Primary plastics	6,000	6,100	7,600
Miscellaneous chemicals	2,500	3,300	5
Miscellaneous foods	1,650	1,500	1,400
Mining	1,300 ¹	1,400 ⁴	1,400 ¹
Coke and gas	800	800	1,000
Medicinals and pharmaceuticals	500	1,500	1,100
Non-ferrous metal refining	260 ¹	260 ¹	2

TABLE 9. Available Data on Consumption of Caustic Soda, by Industries, 1952-1954 - Concluded

Industry	1952	1953	1954
	Tons		
Starch and glucose	450	400	400
Dyeing and finishing of textiles	80	90	60
Toilet preparations	240	300	300
Compressed gases	160	170	200
Fertilizers	140	420	200
Sausage and sausage casings	n.a.	n.a.	5
Sugar refining	50	30	50
Vegetable oils	100	130	50
Adhesives	520	630	900
Miscellaneous ³	-	-	30,700
Total accounted for	185,850	218,570	243,560

1. Estimated.

2. Included with "mining".

3. Includes synthetic textiles, miscellaneous chemicals and sausage and sausage casings groups in 1954.

4. Revised.

5. Included with "miscellaneous".

TABLE 10. Principal Statistics of the Acids, Alkalies and Salts Industry in Canada, Grouped According to Size of Establishments, 1953 and 1954

Establishments having a production of	Estab- lish- ments	Employees	Earnings	Cost at plant of materials used	Selling value of factory shipments
	No.	No.	\$	\$	\$
1953					
Under \$10,000	1	45	164,514	364,938	483,895
\$50,000 to \$99,999	2				
\$100,000 to \$199,999	2				
\$200,000 to \$499,999	9	474	1,881,718	2,722,216	3,215,515
\$500,000 to \$999,999	3	103	386,685	886,959	2,363,603
\$1,000,000 to \$4,999,999	16	2,250	8,176,989	10,965,339	32,759,923
\$5,000,000 and over	8	5,009	18,777,835	28,143,723	88,476,501
Head offices	-	397	1,786,738	-	-
Total	41	8,278	31,174,479	43,083,175	127,299,437
1954					
\$25,000 to \$49,999	1	26	114,204	202,323	367,029
\$50,000 to \$99,999	1				
\$100,000 to \$199,999	2				
\$200,000 to \$499,999	5	149	524,212	853,059	1,706,688
\$500,000 to \$999,999	7	346	1,220,511	2,807,728	5,758,184
\$1,000,000 to \$4,999,999	18	1,986	8,025,324	14,924,606	38,792,778
\$5,000,000 and over	9	5,500	21,415,165	30,612,835	95,376,922
Head offices	-	401	2,126,448	-	-
Total	43	8,408	33,425,864	49,400,551	142,001,601

TABLE 11. Employees and Earnings, by Provinces, 1953 and 1954

Province	Number of employees				Total	Earnings		Total earnings
	Administrative		Workmen			Admin-istrative	Workmen	
	Male	Female	Male	Female	\$			\$
1953								
Quebec	665	209	2,409	24	3,307	3,937,835	8,503,713	12,441,548
Ontario	1,049	316	3,114	23	4,502	5,993,230	11,184,362	17,177,592
Other provinces	161	44	225	39	469	671,204	884,135	1,555,339
Canada	1,875	569	5,748	86	8,278	10,602,269	20,572,210	31,174,479
1954								
Quebec	693	179	2,552	19	3,443	4,442,686	9,456,830	13,899,516
Ontario	1,245	346	2,893	23	4,507	6,652,570	10,852,796	17,505,366
Other provinces	96	43	319	—	458	601,742	1,419,240	2,020,982
Canada	2,034	568	5,764	42	8,408	11,696,998	21,728,866	33,425,864

TABLE 12. Production Workers, by Months, 1953 and 1954

Month	1953			1954		
	Male	Female	Total	Male	Female	Total
Number						
January	5,297	49	5,346	6,055	44	6,099
February	5,305	52	5,357	5,989	46	6,035
March	5,344	60	5,404	5,928	50	5,978
April	5,380	36	5,416	5,816	42	5,858
May	5,686	51	5,737	5,817	45	5,862
June	5,883	64	5,947	5,842	41	5,883
July	6,041	107	6,148	5,782	43	5,825
August	5,974	121	6,095	5,659	44	5,703
September	6,014	126	6,140	5,688	41	5,729
October	6,052	120	6,172	5,610	41	5,651
November	6,064	123	6,187	5,547	38	5,585
December	5,946	129	6,075	5,445	38	5,483
Average	5,748	86	5,834	5,764	42	5,806

TABLE 13. Capital and Repair Expenditures in the Acids, Alkalies and Salts Industry, 1950-1954

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							
1950	1,143	4,324	5,467	1,029	7,477	8,506	13,973
1951	2,448	9,050	11,498	1,222	9,871	11,093	22,591
1952	41,591	40,822	82,413	1,638	10,661	12,299	94,712
1953	22,272	56,536	78,808	1,451	11,077	12,528	91,336
1954 ¹	2,304	7,040	9,344	2,427	11,864	14,291	23,635

1. Preliminary.

TABLE 14. Imports of Acids and Certain Inorganic Chemicals, 1953 and 1954

Commodity	1953		1954		
	Quantity	Value \$	Quantity	Value \$	
ACIDS					
Inorganic acids:					
Acid, boracic, in packages of not less than 25 pounds	lb.	3,803,483	197,927	2,349,177	127,528
Acid, hydrofluosilicic	"	125,951	14,029	104,476	12,323
Acid, muriatic	"	1,132,261	16,227	2,633,492	42,992
Acid, nitric	"	297,965	19,253	862,809	42,627
Acid, phosphoric	"	843,550	57,767	701,299	57,401
Acid, sulphuric	"	140,248	3,575	220,285	3,884
Acid, arsenic	"	1,126,802	40,181	1,099,314	38,641
Acid, chromic	"	900,322	224,566	842,175	209,424
Organic acids:					
Acid, salicylic and acetylsalicylic	lb.	735,801	361,911	664,697	340,473
Acid, lactic	"	588,078	115,582	565,575	113,241
Acid, nicotinic	"	83,215	252,183	86,863	244,297
Acid, oleic, or red oil	"	781,746	125,622	1,265,090	236,957
Acid, acetic and pyroigneous	gal.	613	1,356	1,156	1,390
Acid, citric	lb.	1,864,626	414,924	1,100,095	254,609
Acid, cresylic	"	588,727	48,156	381,685	30,826
Xanthates and sulpho-thiophosphoric (dithiophosphoric compounds, for concentrating ores, metals or minerals)	"	5,850,066	1,400,501	6,397,681	1,563,377
Acid, oxalic	"	824,924	100,197	708,254	97,683
Acid, stearic	"	1,206,203	145,428	1,060,626	155,326
Acid, tannic	"	391,005	66,397	333,079	71,903
Tartaric acid crystals or powder	"	811,571	187,232	763,095	197,818
Acid, ascorbic	"	42,070	350,451	33,906	249,576
Acid, formic	"	822,124	92,593	496,268	56,208
Acid, carbolic or phenol	"	11,899,073	2,152,742	7,933,646	1,232,148
Acids, other, n.o.p.	"	2,567,143	873,584	3,589,322	1,018,600
Total acids	—	—	7,262,384	—	6,399,252
INORGANIC CHEMICALS, N.O.P.					
Alum, in bulk, ground or unground, but not calcined	cwt.	14,097	49,748	17,481	64,338
Chloralum or chloride of aluminum	"	12,328	111,845	10,403	121,286
Sulphate of iron (copperas)	"	17,426	29,537	14,875	25,554
Sulphate of alumina or alum cake	"	288,593	509,861	339,204	591,073
Ammonia, nitrate of	lb.	1,609,181	79,088	1,628,615	86,017
Sal ammoniac	"	488,088	29,056	613,254	33,986
Sal ammoniac skimmings	"	271,982	24,289	274,037	24,208
Ammonia, anhydrous	"	16,805,079	698,653	54,037,690	2,280,305
Ammonia compounds, n.o.p.	"	5,818,457	229,539	6,412,502	283,455
Antimony, arsenic, copper, tin and zinc compounds:					
Antimony salts, viz., tartar emetic, chloride and lactate (antimonine)	lb.	30,125	17,437	27,000	14,669
Arsenious oxide and arsenic sulphide	"	32,233	5,881	—	—
Copper, sub-acetate of, or verdigris, dry, and precipitate of	"	400	174	400	194
Copper, sulphate of	"	3,991,666	467,757	2,125,312	206,490
Tin, bichloride of, and tin crystals	"	6,040	5,750	8,012	7,671
Zinc, chloride of	"	272,014	29,457	296,229	27,722
Zinc, sulphate of	"	2,530,301	142,547	2,814,210	123,535
Bismuth and lead compounds:					
Bismuth salts	—	—	18,979	—	31,136
Lead, acetate of, not ground	lb.	119,850	18,921	89,478	13,967
Lead, arsenate of,	"	44,832	8,517	98,168	16,447
Lead, nitrate of, not ground	"	150,337	21,917	237,984	34,516
Compounds of tetraethyl lead	"	26,859,098	10,456,800	30,590,786	11,429,398
Bromine, chlorine and iodine compounds:					
Bromine	lb.	10,956	4,460	79,603	12,880
Chlorine, liquid, or chlorine gas	"	40,823,682	1,129,112	64,274,784	1,811,338
Iodine, crude	"	114,666	186,485	102,087	121,506
Iodized mineral salts, for use in the feeding of animals	—	—	16,815	—	22,218

TABLE 14. Imports of Acids and Certain Inorganic Chemicals, 1953 and 1954 -Concluded

Commodity	1953		1954	
	Quantity	Value	Quantity	Value
		\$		\$
Calcium compounds:				
Calcium arsenate..... lb.	236,672	15,888	110,000	6,050
Calcium chloride..... cwt.	189,719	245,264	166,380	220,135
Chloride of lime..... "	38,321	177,427	29,448	186,844
Calcium molybdate, vanadium oxide and tungsten oxide, for the manufacture of steel..... lb.	197,758	101,433	121,339	73,950
Calcium compounds, n.o.p..... "	5,648,701	536,528	4,830,197	612,289
Potash and potassium compounds, n.o.p.:				
Argols..... -	-	-	-	-
Cream of tartar in crystals..... lb.	291,018	62,988	247,466	48,412
Potash and pearl ash..... "	360,255	25,279	255,787	23,026
Potash, bicarbonate of..... "	18,810	2,717	9,460	1,253
Potash, bichromate of, crude..... "	259,021	37,054	303,418	42,305
Potash, caustic..... "	4,345,697	246,334	5,445,133	288,058
Potash, chlorate of, not further prepared than ground..... "	98,187	13,191	118,242	15,587
Potash, red and yellow, prussiate of..... "	97,268	22,261	19,534	7,045
Potash, nitrate of, or saltpetre..... "	1,208,365	72,421	989,308	58,546
Potash compounds, n.o.p..... "	2,155,476	346,934	2,335,059	388,433
Soda and sodium compounds, n.o.p.:				
Borax, in packages of not less than 25 pounds, and fused borax known as borax-glass..... lb.	19,160,379	567,060	16,905,673	511,006
Glauber's salt..... "	10,986,420	150,263	10,267,472	144,979
Soda, arseniate, binarseniate and stannate of..... "	137,798	41,650	109,772	27,343
Soda ash or barilla..... "	221,408,146	3,146,748	187,665,644	2,516,720
Soda, bicarbonate of..... "	15,326,954	286,400	16,643,466	331,426
Soda, bichromate of..... "	5,003,229	505,411	4,345,491	443,798
Soda, bisulphate of, or nitre cake..... "	2,351,479	60,588	2,393,310	65,233
Soda, bisulphite of..... "	409,996	18,120	555,009	25,275
Soda, caustic, in packages..... "	8,171,246	350,845	13,026,775	514,883
Soda, caustic, in solution..... "	158,614,004	2,004,458	237,509,516	3,003,865
Soda, chlorate of..... "	220,240	15,314	299,936	25,834
Sodium cyanide..... "	8,323,569	1,010,742	7,581,788	933,896
Sodium glutamate..... "	914,727	1,482,822	892,703	1,338,788
Soda, hyposulphite of..... "	885,850	40,350	556,649	26,237
Soda, nitrite of..... "	961,446	39,884	1,147,581	47,525
Soda, peroxide of..... "	695,071	122,603	830,627	129,935
Soda phosphate, di-sodium..... "	114,566	8,139	83,130	6,245
Soda phosphate, tri-sodium..... "	1,063,860	51,009	841,180	42,895
Soda phosphate, n.o.p..... "	9,398,911	761,987	5,386,124	500,144
Soda, prussiate of..... "	520,041	62,621	720,632	76,943
Soda, sal..... "	67,308	1,752	65,000	1,269
Soda, silicate of, in crystals or in water solution..... "	4,926,516	170,111	5,161,792	184,877
Soda, sulphate of, crude, or salt cake..... "	65,604,024	516,863	60,470,777	482,652
Soda, sulphide of..... "	2,618,044	116,805	2,282,841	102,739
Soda, sulphite of..... "	3,689,576	143,901	6,902,951	167,882
Soda, benzoate of..... "	125,189	31,427	122,800	41,357
Soda, bromide of..... "	66,814	20,437	50,945	17,852
Soda, citrate of..... "	81,566	20,078	103,151	25,592
Soda, fluoride of..... "	182,657	23,109	208,310	27,966
Soda, antimonate of..... "	303,440	82,329	317,380	84,298
Sodium compounds, n.o.p..... "	12,846,728	1,371,236	16,050,376	1,518,557
Other inorganic chemicals:				
Acid phosphate, not medicinal..... lb.	2,496,921	211,238	2,288,097	206,559
Hydrogen peroxides, solutions of..... "	361,387	99,291	523,006	132,459
Magnesium carbonate, basic or otherwise, excepting crude rock; and magnesium carbonate, for use in the compounding or manufacture of rubber products..... "	636,972	48,111	739,468	51,917
Magnesium salts or compounds, n.o.p..... "	6,708,858	273,587	12,195,325	342,572
Magnesium sulphate, or Epsom salts..... "	5,522,791	80,885	4,730,761	70,374
Mercury salts..... -	-	34,155	-	18,472
Phosphorus and compounds thereof, n.o.p..... lb.	43,204	11,900	162,292	30,618
Radium..... -	-	428,251	-	282,133
Molybdenum oxide..... lb.	358,124	374,518	423,344	207,744
Barium peroxide..... "	6,000	1,376	-	-
Total inorganic chemicals, n.o.p..... -	-	30,986,718	-	34,066,701

TABLE 15. Exports of Acids and Inorganic Chemicals, 1953 and 1954

Commodity	1953		1954	
	Quantity	Value	Quantity	Value
Acid, sulphuric	cwt.	\$		\$
Acids, n.o.p.	"			
Total acids	-	1,868,972	-	1,711,072
Ammonium sulphate	cwt.	6,492,953	3,095,199	6,964,552
Ammonium compounds, n.o.p.	"	13,837	12,172	51,094
Arsenic	"	39,675	14,226	58,871
Acetate of lime	-	-	-	-
Calcium compounds	cwt.	1,388,955	691,513	2,436,420
Lye	-	1,636	-	1,141
Baking powder	cwt.	546	41	616
Soda and sodium compounds	"	7,012,873	2,549,642	6,532,614
Cobalt oxide and cobalt salts	lb.	1,900,399	836,205	1,454,648
Chlorine, liquid, or chlorine gas	cwt.	810,799	58,775	173,859
Caustic soda	"	138,500	3,770	10,201
Total other chemicals	-	17,800,173	-	17,684,016

List of Firms in the Acids, Alkalies and Salts Industry, 1954

Name and location of plant	Principal chemicals made
Nova Scotia: Dominion Iron & Steel, Ltd. Sydney	Sulphuric acid.
Quebec: Aluminum Company of Canada, Ltd. Arvida	Sulphuric acid; aluminum sulphate (alum); aluminum fluoride; refined fluor-spar; liquid chlorine; recovered cryolite; sodium hydroxide (caustic soda); aluminum chloride.
B. A. — Shawinigan Limited	Acetone; phenol.
Canadian Industries (1954) Limited	Perchloroethylene; trichloroethylene; chlorine (liquid); anhydrous hydrogen chloride; sodium hydroxide (caustic soda); hydrogen peroxide (liquid); chloroform, hydrogen gas.
Defence Industries Limited	Hexachlorethane .
Durham Industries (Canada) Limited	Zinc oxide.
Electric Reduction Co. of Canada	Phosphoric acid; acid calcium phosphate; phosphorus (amorphous and yellow); potassium chlorate; sodium acid pyrophosphate; sodium chlorate; phosphates of sodium (mono-di-tri-tetra); weed-killing mixtures; ferrophosphorus; phosphorus sesquisulphide; rock wool; sodium tripolyphosphate.
Electric Reduction Co. of Canada	Yellow phosphorus.
Monsanto (Canada) Limited	Anhydrous caffeine; caffeine, hydrous; sodium benzoate; phenacetin; dioctyl phthalate; slimicides; acetic acid, oil additives.
The Nichols Chemical Co. Ltd.	Sulphuric acid; aluminum sulphate; pyrites cinder.
Shawinigan Chemicals Ltd.	Monochloroacetic acid; acetaldehyde; acetic anhydride; acetylene black; acetylene gas; acetic acid; butyl acetate; butyl alcohol; calcium carbide; dibutyl phthalate; ethyl acetate; pentasol acetate; vinyl acetate; vinyl acetate resins; cerium; paraldehyde; crotonic acid; polyvinyl alcohol; butyraldehyde; formvar resin.

List of Firms in the Acids, Alkalies and Salts Industry, 1954 - Continued

Name and location of plant	Principal chemicals made
Quebec - concluded:	
Shell Oil Company of Canada, Limited Montreal East	Acetone; isopropyl alcohol.
Standard Chemical Company Limited .. Beauharnois	Chlorine (liquid); sodium hydroxide (caustic soda); hydrogen gas.
Standard Chemical Company, Limited Montreal East	Ethylene glycol; polyglycols; ethylene dichloride; ethylene oxide.
St. Maurice Chemicals Limited Varenes	Formaldehyde; pentaerythritol.
Zinc Oxide Co. of Canada, Ltd. Montreal	Zinc oxide.
Ontario:	
Bunner Mond Canada, Ltd. Amherstburg	Calcium chloride; sodium carbonate (soda ash).
Cabot Carbon of Canada, Limited Sarnia	Carbon black.
Canadian Felling Zinc Oxide Ltd. Milton	Zinc oxide.
Canadian Industries (1954) Limited Hamilton	Hydrochloric (muriatic) acid; sulphuric acid; ammonium chloride; sodium sulphate (salt cake); sodium sulphite (anhydrous); sodium metabisulphite; sodium thiosulphite; zinc chloride (50% solution); soldering and galvanizing fluxes.
Canadian Industries (1954) Limited Cornwall	Hydrochloric (muriatic) acid; chlorine (liquid); sodium hydroxide (caustic soda); sodium hypochlorite; hydrogen gas.
Canadian Industries (1954) Limited Copper Cliff	Sulphuric acid; liquid sulphur dioxide.
Canadian Industries (1954) Limited Windsor	Chlorine (liquid); sodium hydroxide (caustic soda); ferric chloride; ammonia, anhydrous, 100%; ammonia, aqua, 26° Be.
Church & Dwight Ltd. Amherstburg	Sodium carbonate (sal soda).
Cornwall Chemicals Limited Cornwall	Carbon bisulphide; sodium hydrosulphide.
Dow Chemical of Canada Ltd. Sarnia	Ethylene glycol; diethylene glycol; triethylene glycol; ethylene dichloride; styrene; chlorine (liquid); sodium hydroxide (caustic soda); carbon tetrachloride; trichlorethylene; perchlorethylene; hydrochloric (muriatic) acid; ammonia, anhydrous, 100%; ethylene oxide.
Dupont Co. of Canada Ltd. Maitland	Adipic acid; hexamethylenediamine.
W. C. Hardesty Co. of Canada Ltd. New Toronto	Hydrogenated stearic acid; vegetable fatty acids; animal fatty acids; glycerine; oleic acid; dicapryl phthalate; castor fatty acids.
Howards & Sons (Canada) Ltd. Cornwall	Dimethylcyclohexyl phthalate; dicyclohexyl phthalate; methylcyclohexanol.
Kemball, Bishop, & Co. (Canada) Ltd. Cornwall	Citric acid.
Naugatuck Chemicals Division of Dominion Rubber Co. Ltd. Elmira	Aniline, rubber accelerators and specialties; D.D.T.; 2, 4-D; sodium sulphamethazine; nitrobenzol; ammonia, anhydrous, 100%; synthetic resin (alkyd polyester type); weed killer.
National Silicates Ltd. New Toronto	Sodium silicate; sodium metasilicate.
The Nichols Chemical Co. Ltd. Sulphide.	Hydrochloric (muriatic) acid; nitric acid; sulphuric acid; ammonia (aqua); pyrites cinder; aluminum chloride.

List of Firms in the Acids, Alkalies and Salts Industry, 1954 - Concluded

Name and location of plant	Principal chemicals made
Ontario - concluded:	
S. Nord Chemical Company Limited Petrolia	Benzene; toluene; xylene; aromatic naphthas.
North American Cyanamid Ltd. Niagara Falls	Calcium cyanamide; sodium cyanide; lime, unhydrated.
Nuodex Products of Canada, Ltd. Leaside	Lead naphthenate; cobalt naphthenate; manganese naphthenate; zinc naphthenate; copper naphthenate; calcium naphthenate; iron naphthenate; lead octoate; cobalt octoate; calcium octoate; cobalt tallate.
North American Cyanamid Ltd., (Welland works) Niagara Falls	Ammonia (anhydrous); dicyandiamide; guanidine nitrate; sulphuric acid; urea-formaldehyde adhesives; nitric acid; picrite; thiourea.
Watford Chemical Co. (Canada) Ltd. Toronto	Glyceryl monostearate.
Alberta:	
Canadian Chemical Company Limited Edmonton	Acetone; acetic acid; iso-butyl alcohol; propylene glycol; formaldehyde; methyl alcohol; pentaerythritol; n-propyl acetate; n-propyl alcohol.
Western Chemicals Limited Duvernay	Chlorine (liquid); sodium hydroxide (caustic soda).
British Columbia:	
Consolidated Mining and Smelting Co. of Canada, Ltd. Tadnanac	Hydrofluosilicic acid; sulphuric acid.
The Nichols Chemical Co. Ltd. Burnet	Sulphuric acid; pyrites cinder.
Northwest Territories:	
Eldorado Mining & Refining Ltd. Port Radium	Sulphuric acid.

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