

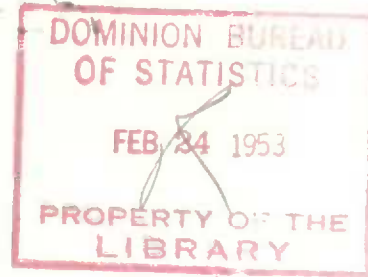
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DOMINION BUREAU OF STATISTICS—DEPARTMENT OF TRADE AND COMMERCE

CANADA



THE ACIDS, ALKALIES AND SALTS INDUSTRY  
1951

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### NOTICE

The annual reports prepared by the Industry and Merchandising Division of the Bureau of Statistics are divided into 4 volumes, as follows: **Volume I**—The Primary Industries, including mining, forestry and fisheries; **Volume II**—Manufacturing; **Volume III**—Construction; **Volume IV**—Merchandising and Services. The volumes are made up of parts, and the parts in turn are subdivided according to the industries 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, by Provinces
  - Section 1. Principal Statistics of Major Industrial Groups and Leading Industries, 50¢.
  - Section 2. Principal Statistics of Individual Industries, 75¢.
  - Section 3. Principal Statistics by 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 XVI, 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 Fertilizer Manufacturing 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

1951

Twenty-nine plants in Canada, classified under the Acids, Alkalies and Salts Industry, were engaged chiefly in the production of chemicals in 1951. Production reported by this group was valued at \$117,822,758, an increase of 34.7 per cent over the total for the previous year. Sixteen of these plants were located in Ontario, 10 in Quebec, 2 in British Columbia and 1 in Nova Scotia. These concerns gave employment to 7,371 people who were paid \$24,579,398 in salaries and wages. Materials used in manufacturing processes cost \$39,238,794 and expenditures for fuel and electricity amounted to \$11,127,663.

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 820,867 tons (100% acid) in 1951 over the 756,110 tons in 1950. Nine plants were operated by six 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; and the North American Cyanamid, Limited (Welland Works) at Niagara Falls, Ontario. 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 155,000 tons in 1951, while the output of caustic soda amounted to 180,000 tons. In 1951 there were nine caustic soda-chlorine plants in Canada. The Canadian Industries 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 Dominion Alkali & Chemical Company Limited, Beauharnois, Quebec; the Aluminum Company of Canada Limited, Arvida, Quebec; the Canadian International Paper Company, Temiskaming, Ontario; the Howard Smith Paper Mills Limited, Cornwall, Ontario; and the KVP Company Limited, Espanola, Ontario. The last three concerns are paper mills which make these chemicals for their own use.

TABLE 1. Principal Statistics of the Acids, Alkalies and Salts Industry, 1947-1951

Year	Number of plants	Number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works	Net <sup>1</sup> value of production
			\$	\$	\$	\$	\$
1947.....	31	5,541	12,928,796	7,053,019	19,059,360	59,318,463	33,206,084
1948.....	29	5,889	15,348,441	7,752,690	22,551,999	70,600,246	40,295,557
1949.....	28	5,861	16,504,908	7,355,353	27,392,521	74,411,796	39,663,922
1950.....	28	6,020	18,039,492	8,639,420	30,327,614	87,494,365	48,527,331
1951.....	29	7,371	24,579,398	11,127,663	39,238,794	117,822,758	67,456,301
Percent change: 1951 from 1950.....	—	+ 22.4	+ 36.3	+ 28.8	+ 29.4	+ 34.7	+ 39.0

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.

1. Gross value less cost of materials, fuel and electricity.

TABLE 2. Principal Statistics, by Provinces, 1950 and 1951

Province	Number of plants	Number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
			\$	\$	\$	\$
1950						
Nova Scotia .....	1	2,662	8,204,402	3,103,408	12,927,005	36,886,608
Quebec .....	9					
Ontario .....	16					
British Columbia .....	2	3,358	9,835,090	5,536,012	17,400,609	50,607,757
<b>Canada .....</b>	<b>28</b>					
1951						
Nova Scotia .....	1	3,269	11,165,358	4,238,035	17,987,898	49,257,353
Quebec .....	10					
Ontario .....	16					
British Columbia .....	2	4,102	13,414,040	6,889,628	21,250,896	68,565,405
<b>Canada .....</b>	<b>29</b>					

TABLE 3. Materials Used in the Acids, Alkalies and Salts Industry, 1950 and 1951

Material	Unit of measure	1950		1951	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Acetone .....	lb.	619,314	65,332	644,468	73,364
Acetylene .....	M cu. ft.	33,416	244,702	43,331	305,588
Acid:					
Acetic, 99½% .....	lb.	4,329	642	51,183	5,816
Hydrochloric (muriatic) .....	"	6,058,154	101,193	4,131,694	78,468
Nitric, 42° Be .....	"	2,228,490	104,078	3,135,524	159,836
Sulphuric, 100% .....	"	15,829,627	203,173	16,147,376	224,620
Aluminum sulphate .....	"	13,402	336	—	—
Ammonia liquor .....	lb. NH <sub>3</sub>	1,333,920	86,985	1,520,749	101,735
Ammonia, anhydrous .....	lb.	13,117,991	605,877	5,149,239	246,657
Benzol .....	"	2,133,304	94,079	2,985,970	159,694
Calcium chloride .....	"	418,745	8,057	465,414	10,302
Chlorine, liquid .....	"	12,670,565	254,838	28,672,698	631,907
Coal (except for fuel):					
Anthracite .....	ton	12,033	160,328	25,511	385,284
Bituminous .....	"	150	2,095	150	2,173
Coke (except for fuel):					
Petroleum .....	ton	37,706	645,079	27,076	552,806
Other .....	"	156,335	2,748,054	185,576	3,440,383
Electrodes (purchased) .....	—	—	901,706	—	1,201,740
Fluorspar .....	ton	29,620	743,077	33,266	904,734
Graphite .....	lb.	535,276	105,778	663,236	143,708
Limestone .....	ton	884,180	1,603,166	1,014,432	1,918,524
Lime, hydrated .....	"	49,697	85,682	51,578	101,504
Lime, quick .....	"	27,188	348,465	24,859	345,936
Mercury .....	lb.	88,094	79,027	104,483	119,333
Potassium hydroxide (caustic potash) .....	"	10,903	1,303	—	—
Pyrites .....	ton	71,713	514,558	70,859	551,800
Quartz, quartzite and silica sand .....	"	33,112	187,977	44,494	268,573
Sodium carbonate (soda ash) .....	lb.	54,725,430	934,193	85,675,704	1,543,823
Sodium chloride, dry, and brine (salt content) .....	ton	581,023	2,724,240	648,356	2,604,175
Sodium bichromate .....	lb.	87,379	9,748	153,849	15,992
Sodium hydroxide (caustic soda) .....	"	6,302,479	225,341	7,800,537	305,822
Sodium nitrate .....	"	885,713	29,855	868,761	30,573
Sodium silicate (water glass) .....	"	12,401,808	226,390	12,075,011	253,333
Sodium sulphide .....	"	310,761	11,154	215,098	10,999
Sulphur (brimstone) .....	ton	80,008	2,131,079	97,172	2,804,514
Containers of all kinds and packing materials .....	—	—	2,144,850	—	2,863,871
Steel sheets for making containers .....	ton	3,703	479,119	5,027	807,077
Lumber .....	M bd. ft.	308	18,761	262	18,948
All other materials and supplies .....	—	—	11,497,297	—	16,045,182
<b>Total .....</b>	<b>—</b>	<b>—</b>	<b>30,327,614</b>	<b>—</b>	<b>39,238,794</b>

## 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 pharmaceutical 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 1951 was around \$234,889,000 compared with \$184,648,000 in 1950.

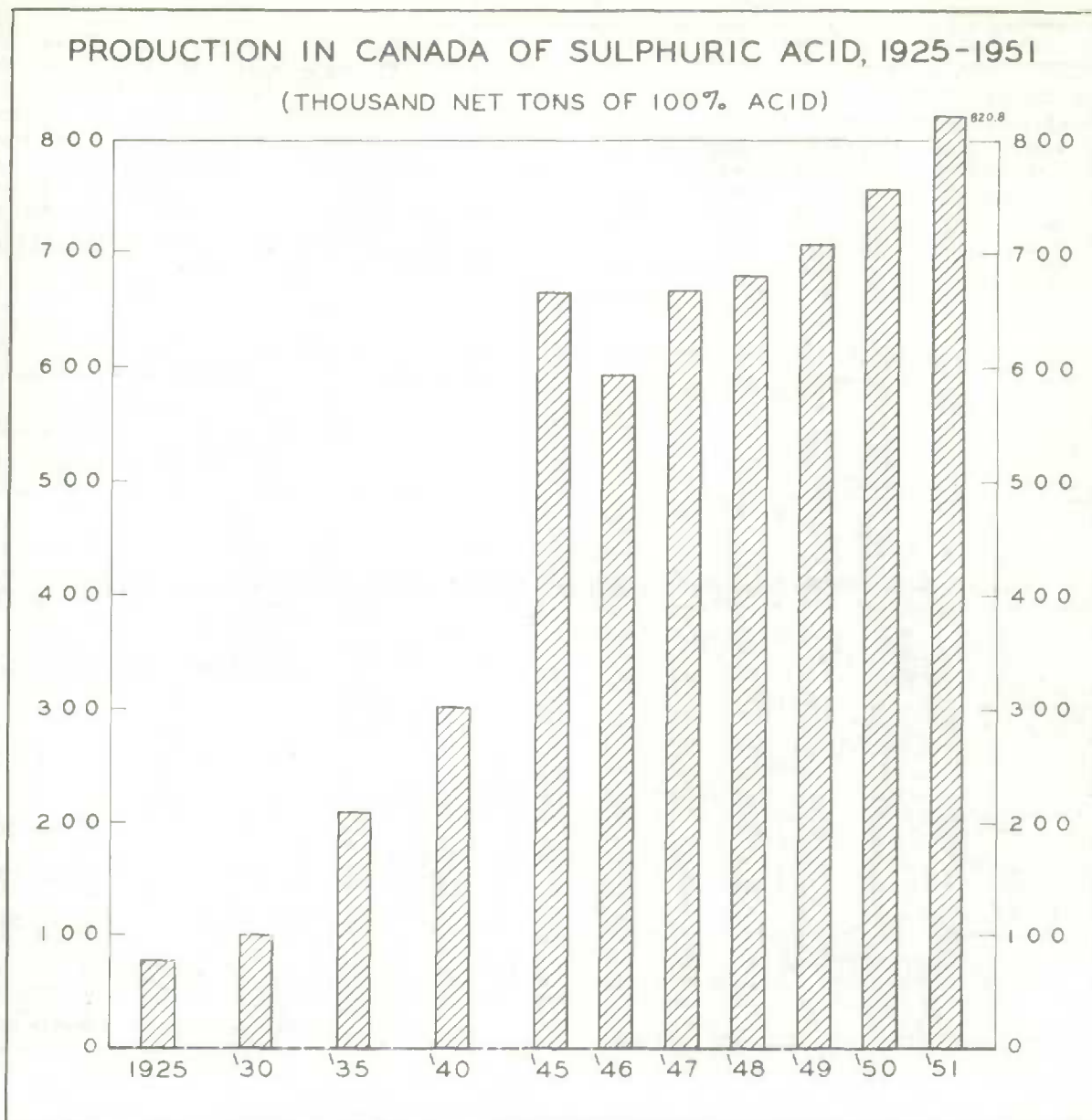
TABLE 4. Total Production of Chemicals, 1950 and 1951

	Selling value at works	
	1950	1951
	\$	\$
<i>Acids</i> , including acetic, muriatic, nitric, sulphuric, phosphoric, stearic, etc. ....	11,584,000	15,550,000
<i>Calcium compounds</i> , including carbide, chloride, phosphide, cyanamide, cyanide, acid phosphate, grey acetate, arsenate, chloride of lime, etc. ....	12,409,000	14,462,000
<i>Sodium compounds</i> , 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) ....	22,503,000	32,356,000
<i>Organic chemicals</i> , 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) ....	38,723,000	51,723,000
<i>Compressed and liquefied gases</i> , etc., including acetylene, carbon dioxide, oxygen, nitrous oxide, liquid sulphur dioxide, liquid chlorine, anhydrous and aqua ammonia, liquefied petroleum gases, etc. ....	19,148,000	25,003,000
<i>Fertilizer chemicals</i> , including ammonium sulphate, ammonium nitrate (fertilizer grade), ammonium phosphate, and superphosphate ....	42,202,000	44,933,000
<i>Synthetic resins</i> , including casein type, vinyls, polystyrene, phenol-formaldehyde, urea-formaldehyde, alkyds, sodium carboxymethylcellulose, etc. ....	19,068,000	23,097,000
<i>Other chemicals</i> , 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. ....	19,011,000	27,765,000
<b>Total</b> .....	<b>184,648,000</b>	<b>234,889,000</b>

TABLE 5. Production, Imports, Exports and Apparent Consumption of Sulphuric Acid, 1925-1951

Year	Production	Imports	Exports	Apparent consumption <sup>1</sup>
	(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

1. No allowance made for changes in inventories.



**TABLE 6. Production and Imports of Chlorine and Caustic Soda, 1949-1951**

Year	Chlorine	Caustic soda
	(tons)	
<b>(a) Production:</b>		
1949 .....	96,000	111,000
1950 .....	131,000	148,000
1951 .....	155,000	180,000
<b>(b) Imports:</b>		
1949 .....	10,363	21,724
1950 .....	5,498	27,464
1951 .....	12,916	45,069

TABLE 7. Consumption of Sulphuric Acid, by Industries, 1949 - 1951

Industry	1949	1950	1951
Fertilizers .....	488.400	503.900	510.100
Heavy chemicals .....	57.600	60.000	84.500
Explosives .....	19.400	25.300	31.900
Non-ferrous metal smelting and refining .....	12.900 <sup>1</sup>	12.900 <sup>1</sup>	12.900 <sup>1</sup>
Textiles .....	15.000	22.100	24.100
Coke and gas .....	34.500	34.900	32.000
Petroleum refining .....	15.400	15.700	12.700
Leather tanning .....	2.000	2.000	1.700
Iron and steel .....	25.800	26.100	30.700
Electrical apparatus .....	4.600	5.700	5.300
Plastics .....	6.000	7.800	8.900
Soaps .....	4.800	6.400	7.700
Adhesives .....	600	700	700
Miscellaneous chemicals .....	2,300	2,200	2,300
Sugar refining .....	300	300	100
Pulp and paper .....	2,300	2,400	3,400
Vegetable oils .....	100	100	100
<b>Total accounted for .....</b>	<b>692,000</b>	<b>728,500</b>	<b>769,100</b>

1. Estimated.

TABLE 8. Available Data on Consumption of Chlorine, by Industries, 1949-1951

Industry	1949	1950	1951
Pulp and paper .....	64.210	73.900	88.100
Heavy chemicals .....	36.800	42.600	56.700
Soaps .....	3.100	3.300	3.400
Municipal waterworks .....	1.300	1.400	1.400
Mining .....	1.100 <sup>1</sup>	1.100 <sup>1</sup>	1.100 <sup>1</sup>
Starch and glucose .....	120	120	150
Dyeing and finishing of textiles .....	50	30	30
Miscellaneous chemicals .....	40	40	50
Fertilizers .....	100	90	100
Synthetic textiles .....	50	50	50
Primary plastics .....	90	120	140
<b>Total accounted for .....</b>	<b>106,960</b>	<b>122,750</b>	<b>151,220</b>

1. Estimated.

TABLE 9. Available Data on Consumption of Caustic Soda, by Industries, 1949-1951

Industry	1949	1950	1951
Pulp and paper .....	46.700	60.800	75.700
Soaps, washing compounds and cleaning preparations .....	19.200	21.000	19.500
Heavy chemicals .....	20.000	37.800	34.000
Synthetic textiles and silk industry .....	9.700	14.350	15.500
Petroleum refining .....	4.200	5.000	5.200
Primary plastics .....	4.100	5.500	6.100
Miscellaneous chemicals .....	2.200	2,190	2.700
Miscellaneous foods .....	1.240	1,270	1.500
Mining .....	1.300 <sup>1</sup>	1.300 <sup>1</sup>	1.300 <sup>1</sup>
Coke and gas .....	500	650	800
Medicinals and pharmaceuticals .....	180	740	1.300
Non-ferrous metal refining .....	260 <sup>1</sup>	260 <sup>1</sup>	260 <sup>1</sup>
Starch and glucose .....	260	280	320
Dyeing and finishing of textiles .....	60	40	60
Toilet preparations .....	210	240	210
Compressed gases .....	180	190	210
Fertilizers .....	190	100	150
Vegetables .....	90	100	90
Sugar refining .....	50	70	50
Miscellaneous non-metallics .....	50	40	—
Adhesives .....	310	550	530
<b>Total accounted for .....</b>	<b>110,980</b>	<b>152,470</b>	<b>165,480</b>

1. Estimated.

TABLE 10. Imports of Acids and Certain Inorganic Chemicals, 1950 and 1951

Commodity	1950		1951		
	Quantity	Value	Quantity	Value	
		\$		\$	
<b>ACIDS</b>					
<b>Inorganic acids:</b>					
Acid, boracic, in packages of not less than 25 pounds .....	lb.	3,620,055	190,239	5,023,193	269,420
Acid, hydrofluosilicic .....	"	103,173	9,247	151,755	20,394
Acid, muriatic .....	"	6,451,565	73,305	1,764,724	23,455
Acid, nitric .....	"	339,788	17,484	486,066	22,077
Acid, phosphoric .....	"	599,669	35,175	615,500	37,824
Acid, sulphuric .....	"	663,017	8,288	2,323,218	26,180
Acid, arsenic .....	"	2,114,532	100,960	1,664,855	82,427
Acid, chromic .....	"	780,247	201,251	1,104,238	305,763
<b>Organic acids:</b>					
Acid, salicylic and acetysalicylic .....	"	564,148	294,274	637,283	356,449
Acid, lactic .....	"	339,719	76,919	394,571	98,381
Acid, nicotinic .....	"	8,249	29,912	7,045	27,076
Acid, oleic, or red oil .....	"	519,245	100,549	491,601	92,062
Acid, acetic and pyroligneous .....	gal.	4,655	5,085	1,999	2,617
Acid, citric .....	lb.	3,024,315	784,006	3,790,256	1,009,262
Acid, cresylic .....	"	461,585	40,380	2,049,339	225,604
Xanthates and sulpho-thiophosphoric (dithiophosphoric compounds, for concentrating ores, metals or minerals) .....	"	5,937,349	1,475,962	6,102,523	1,579,395
Acid, oxalic .....	"	860,919	118,922	881,728	144,075
Acid, stearic .....	"	1,555,268	285,770	1,189,256	256,642
Acid, tannic .....	"	403,471	87,184	476,427	87,778
Tartaric acid crystals or powder .....	"	762,565	187,828	1,190,799	479,237
Acid, ascorbic .....	"	11,883	101,389	18,590	168,168
Acid, formic .....	"	724,470	94,987	625,286	106,059
Acid, carbolic, or phenol .....	"	7,579,294	1,105,879	8,504,492	1,606,654
Acids, other, n.o.p. ....	"	2,660,904	574,883	3,296,527	862,916
<b>Total acids</b> .....	—	—	<b>5,999,878</b>	—	<b>7,889,915</b>
<b>INORGANIC CHEMICALS, n.o.p.</b>					
Alum, in bulk, ground or unground, but not calcined .....	cwt.	14,661	55,233	13,140	56,281
Chloralum or chloride of aluminum .....	"	9,698	103,934	12,869	170,842
Sulphate of iron (copperas) .....	"	19,163	27,313	21,942	30,151
Sulphate of alumina or alum cake .....	"	64,131	104,669	165,796	278,655
Ammonia, nitrate of .....	lb.	1,460,487	75,043	2,864,644	133,915
Sal ammoniac .....	"	633,501	38,223	2,227,248	123,319
Sal ammoniac skimmings .....	"	151,499	16,459	299,970	22,805
Ammonia, anhydrous .....	"	12,799,937	512,244	2,719,484	114,586
Ammonia compounds, n.o.p. ....	"	5,899,437	176,008	7,656,835	252,648
<b>Antimony, arsenic, copper, tin and zinc compounds:</b>					
Antimony salts, viz., tartar emetic, chloride and lactate (antimonine) .....	"	31,177	12,875	29,590	16,749
Arsenious oxide and arsenic sulphide .....	"	16,290	3,229	35,231	7,773
Copper, sub-acetate of, or verdigris, dry, and precipitate of .....	"	600	214	800	371
Copper, sulphate of .....	"	1,416,689	115,902	74,731	16,291
Tin, bichloride of, and tin crystals .....	"	19,871	13,886	9,599	11,582
Zinc, chloride of .....	"	448,619	42,417	409,164	51,132
Zinc, sulphate of .....	"	1,934,611	95,923	2,354,936	189,449
<b>Bismuth and lead compounds:</b>					
Bismuth salts .....	—	—	23,174	—	24,371
Lead, acetate of, not ground .....	lb.	200,349	32,034	244,647	51,478
Lead, arsenate of, .....	"	—	—	4,480	961
Lead, nitrate of, not ground .....	"	143,241	23,225	132,126	30,180
Compounds of tetraethyl lead .....	"	23,208,600	8,817,224	22,608,868	8,996,288
<b>Bromine, chlorine and iodine compounds:</b>					
Bromine .....	"	18,231	7,081	26,302	10,358
Chlorine, liquid, or chlorine gas .....	"	10,997,167	311,125	25,832,522	729,081
Iodine, crude .....	"	132,263	220,023	111,252	198,723
Iodized mineral salts, for use in the feeding of animals .....	—	—	48,301	—	30,927



TABLE 10. Imports of Acids and Certain Inorganic Chemicals, 1950 and 1951 - Concluded

Commodity	1950		1951	
	Quantity	Value	Quantity	Value
		\$		\$
Calcium compounds:				
Calcium arsenate .....	lb. —	—	59,080	4,134
Calcium chloride .....	cwt. 238,495	269,609	273,281	324,995
Chloride of lime .....	cwt. 20,877	104,044	29,074	131,247
Calcium molybdate, vanadium oxide and tungsten oxide for the manufacture of steel .....	lb. 141,544	67,475	62,364	50,230
Calcium compounds, n.o.p. ....	" 3,938,489	377,579	3,837,583	425,282
Potash and potassium compounds, n.o.p.:				
Argols .....	" 600	131	100	45
Cream of tartar in crystals .....	" 452,484	93,124	216,712	66,194
Potash and pearl ash .....	" 162,722	14,067	312,352	26,550
Potash, bicarbonate of .....	" 23,680	4,005	22,080	3,683
Potash, bichromate of, crude .....	" 306,676	39,320	471,695	69,420
Potash, caustic .....	" 4,796,879	261,631	4,855,833	289,095
Potash, chlorate of, not further prepared than ground .....	" 70,609	9,521	159,999	28,299
Potash, red and yellow, prussiate of .....	" 27,323	9,078	35,975	17,807
Potash, nitrate of, or saltpetre .....	" 1,002,981	78,812	1,419,702	114,886
Potash compounds, n.o.p. ....	" 1,467,387	305,326	2,010,156	412,484
Soda and sodium compounds, n.o.p.:				
Borax, in packages of not less than 25 pounds, and fused borax known as borax-glass .....	lb. 17,844,550	561,363	18,216,181	569,420
Glauber's salt .....	" 4,512,254	62,996	6,467,309	102,930
Soda, arseniate, binarsenate and stannate of .....	" 75,020	23,223	148,609	69,278
Soda ash or barilla .....	" 47,194,782	625,557	120,186,831	1,577,142
Soda, bicarbonate of .....	" 15,725,610	278,160	16,104,420	299,793
Soda, bichromate of .....	" 4,488,348	441,140	7,028,440	778,799
Soda, bisulphate of, or nitre cake .....	" 1,814,793	46,966	1,763,946	48,332
Soda, bisulphite of .....	" 165,726	8,574	458,446	27,662
Soda, caustic, in packages .....	" 7,374,607	257,499	3,224,383	148,336
Soda, caustic, in solution .....	" 47,534,955	629,683	86,913,954	1,176,494
Soda, chlorate of .....	" 200,230	17,973	809	1,081
Sodium cyanide .....	" 6,525,204	777,272	7,745,373	945,685
Sodium glutamate .....	" 717,337	1,095,093	695,359	1,090,280
Soda, hyposulphite of .....	" 426,008	22,503	1,155,348	73,307
Soda, nitrite of .....	" 1,174,366	53,749	1,839,554	114,881
Soda, peroxide of .....	" 433,932	85,226	765,376	157,306
Soda phosphate, di-sodium .....	" 38,925	2,936	401,989	32,894
Soda phosphate, tri-sodium .....	" 180,818	15,101	1,214,500	60,205
Soda, phosphate, n.o.p. ....	" 3,654,743	353,872	3,927,215	381,227
Soda, prussiate of .....	" 670,377	71,007	384,685	53,721
Soda, sal .....	" 259,129	7,163	50,000	1,042
Soda, silicate of, in crystals or in water solution .....	" 6,389,021	151,611	11,774,352	295,598
Soda, sulphate of, crude, or salt cake .....	" 31,409,773	201,260	38,864,668	340,740
Soda, sulphide of .....	" 3,352,012	109,781	3,018,879	112,227
Soda, sulphite of .....	" 888,589	36,910	1,614,248	78,847
Soda, benzoate of .....	" 69,250	20,728	116,400	35,786
Soda, bromide of .....	" 72,961	21,531	45,560	18,487
Soda, citrate of .....	" 113,385	24,482	8,250	2,378
Soda, fluoride of .....	" 217,955	25,563	393,241	45,638
Soda, antimonate of .....	" 359,780	99,193	275,025	116,901
Sodium compounds, n.o.p. ....	" 11,710,145	1,213,026	18,100,214	1,622,754
Other inorganic chemicals:				
Acid phosphate, not medicinal .....	" 1,888,340	169,600	2,163,262	195,389
Hydrogen peroxides, solutions of .....	" 554,964	112,123	564,456	128,269
Magnesium carbonate, basic or otherwise, excepting crude rock; and magnesium carbonate, for use in the com- pounding or manufacture of rubber products .....	" 3,354,943	188,651	2,354,248	135,565
Magnesium salts or compounds, n.o.p. ....	" 1,230,020	151,301	1,909,968	231,405
Magnesium sulphate, or Epsom salts .....	" 5,585,878	100,644	6,130,377	95,005
Mercury salts .....	" —	4,366	—	12,448
Phosphorus and compounds thereof, n.o.p. ....	lb. 20,851	39,963	62,718	60,763
Radium .....	" —	322,510	—	369,864
Molybdenum oxide .....	lb. 444,185	283,159	566,334	553,222
Total inorganic chemicals, n.o.p. ....	—	21,222,894	—	25,674,368

TABLE 11. Exports of Acids and Inorganic Chemicals, 1950 and 1951

Commodity	1950		1951	
	Quantity	Value	Quantity	Value
		\$		\$
Acid, sulphuric .....cwt.	888,345	618,340	1,140,004	920,406
Acids, n.o.p. .... " "	458,697	2,905,295	731,416	4,902,597
<b>Total acids</b> .....	<b>—</b>	<b>3,523,635</b>	<b>—</b>	<b>5,823,003</b>
Ammonium sulphate .....cwt.	4,182,127	8,972,503	2,914,472	6,456,603
Ammonium compounds, n.o.p. .... " "	13,221	40,079	17,383	45,051
Arsenic ..... " "	35,674	147,074	48,524	199,460
Acetate of lime ..... " "	3,589	7,949	1,620	4,161
Calcium compounds ..... " "	427,614	1,445,421	791,692	2,757,874
Lye ..... —	—	577	—	620
Baking powder .....cwt.	324	4,150	164	2,397
Soda and sodium compounds ..... " "	1,784,100	5,496,849	3,269,578	9,680,198
Cobalt oxide and cobalt salts .....lb.	388,203	583,939	659,486	1,172,343
<b>Total other chemicals</b> .....	<b>—</b>	<b>16,698,541</b>	<b>—</b>	<b>20,318,707</b>

TABLE 12. Employees and Earnings, by Provinces, 1950 and 1951

Province	Number of employees				Total	Earnings		Total earnings
	Administrative		Workmen			Admin-istrative	Workmen	
	Male	Female	Male	Female				
					\$	\$	\$	
<b>1950</b>								
Quebec .....	486	158	1,983	24	2,651	2,606,646	5,531,497	8,138,143
Ontario .....	646	182	2,386	23	3,237	2,673,900	6,834,793	9,508,693
Other provinces .....	4	1	127	—	132	15,143	377,513	392,656
<b>Canada</b> .....	<b>1,136</b>	<b>341</b>	<b>4,496</b>	<b>47</b>	<b>6,020</b>	<b>5,295,689</b>	<b>12,743,803</b>	<b>18,039,492</b>
<b>1951</b>								
Quebec .....	552	180	2,499	27	3,258	3,195,941	7,899,247	11,095,188
Ontario .....	879	260	2,814	28	3,981	3,936,758	9,135,101	13,071,859
Other provinces .....	4	1	127	—	132	17,432	394,919	412,351
<b>Canada</b> .....	<b>1,435</b>	<b>441</b>	<b>5,440</b>	<b>55</b>	<b>7,371</b>	<b>7,150,131</b>	<b>17,429,267</b>	<b>24,579,398</b>

## List of Firms in the Acids, Alkalies and Salts Industry, 1951

Name and location of plant	Principal chemicals made
Dominion Iron & Steel, Ltd., Sydney, Nova Scotia	Sulphuric acid
Aluminum Company of Canada, Ltd., Arvida, Quebec	Sulphuric acid; aluminum sulphate (alum); aluminum fluoride; flotation fluor-spar; liquid chlorine; recovered cryolite; sodium hydroxide (caustic soda); sodium fluoride; recovered sodium carbonate (soda ash); aluminum chloride
Canadian Industries Limited, Shawinigan Falls, Quebec	Perchloroethylene; trichloroethylene; chlorine (liquid and gas); anhydrous hydrogen chloride; sodium hydroxide (caustic soda); hydrogen peroxide (liquid); chloroform, methacrylate.
Defence Industries (1951) Limited, Shawinigan Falls, Quebec	Hexachlorethane.
Dominion Alkali and Chemical Co. of Canada, Beauharnois, Quebec	Chlorine (liquid); sodium hydroxide (caustic soda).
Electric Reduction Co. of Canada, Buckingham, Quebec	Phosphoric acid; acid calcium phosphate; phosphorus (amorphous and yellow); potassium chlorate; sodium acid pyrophosphate; sodium chlorate; phosphates of sodium (mono-di-triteta); weed killing mixtures, ferrophosphorus; phosphorus sesquisulphide; rock wool; sodium tripolyphosphate.
Monsanto (Canada) Limited, Ville La Salle, Quebec	Anhydrous caffeine; sodium benzoate; phenacetin.
The Nichols Chemical Co. Ltd., Valleyfield, Quebec	Sulphuric acid; aluminum sulphate; pyrites cinder; insecticides.
Shawinigan Chemicals Ltd., Shawinigan Falls, Quebec	Monochloroacetic acid; acetaldehyde; acetic anhydride; acetone; acetylene black; acetylene gas; acetic acid; butyl acetate; butyl alcohol; calcium carbide; dibutyl phthalate; ethyl acetate; pentasol acetate; vinyl acetate; vinyl acetate resins; cerium; croton aldehyde; paraldehyde; crotonic acid; polyvinyl alcohol; butyraldehyde, methyl acetone.
Durham Chemicals (Canada) Limited, Montreal, Quebec	Zinc oxide.
Zinc Oxide Co. of Canada, Ltd., Montreal, Quebec	Zinc oxide.
Brunner, Mond Canada, Ltd., Amherstburg, Ontario	Calcium chloride; sodium carbonate (soda ash).
Canadian Hanson & Van Winkle Co. Ltd., Toronto, Ontario	Electroplaters' chemicals.
Canadian Industries Limited, Hamilton, Ontario	Hydrochloric (muriatic) acid; sulphuric acid; ammonium chloride; sodium silicate; sodium sulphate (salt cake); sodium sulphite (anhydrous); sodium metabisulphite; sodium thiosulphite; zinc chloride (50% solution); soldering and galvanizing fluxes.
Canadian Industries Limited, Cornwall, Ontario	Hydrochloric (muriatic) acid; chlorine (liquid); sodium hydroxide (caustic soda); sodium hypochlorite.
Canadian Industries Limited, Copper Cliff, Ontario	Sulphuric acid.
Canadian Industries Limited, Windsor, Ontario	Chlorine (liquid); sodium hydroxide (caustic soda); ferric chloride; ammonia anhydrous, 100%; ammonia, aqua, 26° Be.
Church & Dwight Ltd., Amherstburg, Ontario	Sodium carbonate (sal soda).
Cornwall Chemicals Limited, Cornwall, Ontario	Carbon bisulphide; sodium hydrosulphide.
Dow Chemical of Canada Ltd., Sarnia, Ontario	Ethylene glycol; diethylene glycol; triethylene glycol; ethylene dichloride; chlorine (liquid); sodium hydroxide (caustic soda); dichloroethylene; ethylene oxide; carbon tetrachloride; trichloroethylene; perchloroethylene; hydrochloric (muriatic) acid.
W.C. Hardesty Co. of Canada Ltd., New Toronto, Ontario	Hydrogenated stearic acid; vegetable fatty acids; animal fatty acids; glycerine; oleic acid.
Naugatuck Chemicals, Division of Dominion Rubber Co. Ltd., Elmira, Ontario	Aniline; rubber accelerators and specialties; D.D.T.; 2,4-D; parathion, 100% sodium sulphamethazine; nitrobenzol.
National Silicates Ltd., New Toronto, Ontario	Sodium silicate; sodium metasilicate.
The Nichols Chemical Co. Ltd., Sulphide, Ontario	Hydrochloric (muriatic) acid; nitric acid; sulphuric acid; ammonia (aqua); pyrites cinder; aluminum chloride.
North American Cyanamid Ltd., Niagara Falls, Ontario	Calcium cyanamide; sodium cyanide; sodium silicate; lime unhydrated.
Nuodex Products of Canada, Ltd., Leaside, Ontario	Lead naphthenate; cobalt naphthenate; manganese naphthenate; zinc naphthenate; copper naphthenate; calcium naphthenate; iron naphthenate; lead octoate; cobalt octoate; calcium octoate.
North American Cyanamid Ltd., (Welland works) Niagara Falls, Ontario	Ammonia (anhydrous); dicyandiamide; guanidine nitrate; sulphuric acid; urea-formaldehyde adhesives; nitric acid; nitroguanidine.
Consolidated Mining and Smelting Co. of Canada, Ltd., Tadanac, British Columbia	Hydrofluosilicic acid; sulphuric acid.
The Nichols Chemical Co. Ltd., Barnet, British Columbia	Sulphuric acid; pyrites cinder.

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