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ANNUAL INDUSTRY BULLETIN - CHEMICALS AND ALLIED PRODUCTS GROUP

THE ACIDS, ALKALIES AND SALTS INDUSTRY, 1938

Twenty-four plants in Canada made heavy chemicals as their chief products in 1938 and were classified to the acids, alkalies and salts industry. Production amounted to $20,476,578 or 8.6 per cent less than in 1937. The investment in these works totalled $32,254,723 and the number of employees was 2,991.

Three new works were added to this industry in 1938, the Aluminum Company of Canada Ltd. making aluminium fluoride at Arvida, Que., the W. C. Hardesty of Canada Ltd. making stearic and fatty acids at Toronto, Ont., and the Newdex Products of Canada Ltd. making metallic naphthenates at Toronto, Ont.

The list of chemicals made by the factories in this group is quite a long one and includes the following: sulphuric acid, hydrochloric acid, nitric acid, glacial acetic acid, phosphoric acid, stearic acid, calcium carbide, calcium cyanamide, calcium chloride, caustic soda, soda ash, nitre cake, salt cake, Glauber's salt, sodium cyanide, disodium and trisodium phosphate, sodium silicate, sodium chlorate, sodium hypochlorite, liquid chlorine, phosphorus, acid calcium phosphate, synthetic ammonia, sulphur dichloride, sulphur monochloride, aluminium fluoride, metallic naphthenates, ferric chloride, hydrogen peroxide, butyl acetate, ethyl acetate, paraldehyde, croton aldehyde, vinyl acetate, pentasol acetate, acetone, acetic anhydride, vinyl acetate resins, acetylene carbon black, zinc oxide, liquid sulphur dioxide, perchlorethylene, trichlorethylene, and elemental sulphur. Production statistics are not published for these items separately as, except for sulphuric acid, each was made by only one or two concerns.

The output of sulphuric acid dropped to 268,339 tons (66° Be) in 1938 from 282,716 tons in 1937. Seven plants were operated by four companies, as follows: The Consolidated Mining and Smelting Company of Canada, Limited, at Trail, B.C.; Canadian Industries Limited at Copper Cliff, Ont., Hamilton, Ont., and New Westminster, B.C.; Nichols Chemical Company Limited at Sulphide, Ont., and Barnet, B.C.; and the Dominion Steel and Coal Corporation Limited at Sydney, N.S. The first two of these works, at Trail and at Copper Cliff, operated entirely on sulphur-bearing smelter gases. Most of the Trail output was used in the company's own fertilizer works and part of the Copper Cliff production was used to make nitre cake for use in the nickel-copper smelter of the International Nickel Company. Only 95 tons of sulphuric acid were imported during 1938 and 1,260 tons were exported.

Imports of acids of all kinds were valued at $1,694,454 in 1938. Stearic acid, citric acid, tartaric acid and boracic acid were among the more important items. Exports of acids were appraised at $1,353,770.

Imports of inorganic chemicals totalled $10,451,125 in 1938 including, among the more important items, sodium cyanide, sodium nitrate, zinc oxide, sulphate of alumina, liquid chlorine, calcium chloride, sodium bicarbonate, copper sulphate, tin bichloride, borax, caustic soda, sodium bichromate, sodium phosphate, litharge, sodium silicate and muriate of potash. Exports of inorganic chemicals amounted to $9,993,322, mostly calcium cyanamide, ammonium sulphate, sodium compounds, and cobalt salts.

Table 1 - PRINCIPAL STATISTICS OF THE ACIDS, ALKALIES AND SALTS INDUSTRY, 1929-1938

Years	No. of plants	Capital employed	Average 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
		$		$	$	$	$
1929	15	49,417,431	2,897	4,338,686	2,921,129	6,301,121	28,021,972
1930	17	52,314,567	2,409	3,502,834	2,490,790	4,712,471	20,111,602
1931	14	44,994,828	1,694	2,426,880	2,167,585	2,407,682	10,952,497
1932	14	44,067,194	1,679	2,211,467	2,103,675	2,283,076	11,357,649
1933	15	44,239,418	1,891	2,315,425	1,407,378	2,463,958	12,713,045
1934	16	45,033,355	2,289	2,841,853	1,872,137	3,674,265	16,494,139
1935	18	33,381,688	2,627	3,490,897	2,158,692	4,606,713	19,012,615
1936	20	32,596,308	2,966	3,988,310	2,316,389	4,680,299	18,959,512
1937	21	35,094,008	3,863	4,896,618	2,810,364	6,008,977	22,410,168
1938 -							
Quebec	6	8,759,733	1,046	1,369,940	563,672	1,286,714	3,935,822
Ontario	14	22,708,825	1,718	2,864,002	1,750,883	3,528,796	14,707,708
Nova Scotia	1)						
British Columbia	3)	786,165	227	337,637	35,264	407,933	1,833,048
CANADA	24	32,254,723	2,991	4,571,579	2,349,819	5,223,443	20,476,578
Percent change 1938 from 1937.	..	- 8.1	-22.6	- 6.7	- 16.4	- 13.1	- 8.6

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 - CAPITAL EMPLOYED, 1930 - 1938

Years	Present value of lands, buildings, machinery, tools and other equipment	Inventory value of materials on hand, stocks in process, finished products, fuel and other supplies	Operating capital (cash, bills and accounts receivable, etc.)	TOTAL CAPITAL EMPLOYED
	$	$	$	$
1930	38,064,081	5,054,885	9,195,601	52,314,567
1931	31,608,809	3,385,719	10,000,300	44,994,828
1932	30,746,174	3,803,349	9,517,671	44,067,194
1933	29,840,246	3,470,243	10,928,929	44,239,418
1934	29,775,661	4,206,998	11,050,696	45,033,355
1935	25,907,178	4,172,459	3,302,051	33,381,688
1936	24,971,587	4,174,038	3,450,683	32,596,308
1937	25,845,956	5,200,279	4,047,773	35,094,008

Table 2 - CAPITAL EMPLOYED, 1930 - 1938 (Concluded)

Years	Present value of lands, buildings, machinery, tools and other equipment	Inventory value of materials on hand, stocks in process, finished products, fuel and other supplies	Operating capital (cash, bills and accounts receivable, etc.)	TOTAL CAPITAL EMPLOYED
	$	$	$	$
1938 -				
Quebec	6,068,621	1,471,367	1,219,745	8,759,733
Ontario	15,699,744	3,517,123	3,491,958	22,708,825
Other provinces	744,582	33,483	8,100	785,165
CANADA	22,512,947	5,021,973	4,719,803	32,254,723

Table 3 - EMPLOYEES, SALARIES AND WAGES, 1930-1938

Years	Average number of employees					Salaries	Wages	TOTAL SALARIES and WAGES
	On salaries		On wages					
	Male	Female	Male	Female	TOTAL			
						$	$	$
1930	351	37	2,017	4	2,409	888,220	2,614,614	3,502,834
1931	341	26	1,324	3	1,694	771,271	1,655,609	2,426,880
1932	312	33	1,329	5	1,679	746,726	1,464,741	2,211,467
1933	327	39	1,521	4	1,891	780,267	1,535,158	2,315,425
1934	403	49	1,832	5	2,289	845,253	1,996,600	2,841,853
1935	584	110	1,925	8	2,627	1,227,893	2,263,004	3,490,897
1936	603	112	2,242	9	2,966	1,297,038	2,691,272	3,988,310
1937	603	114	2,634	8	3,359	1,467,125	3,426,293	4,893,418
1938 -								
Quebec	151	20	872	3	1,046	454,172	915,768	1,369,940
Ontario	397	78	1,236	7	1,718	1,057,277	1,806,725	2,864,002
Other provinces	28	2	197	..	227	72,489	265,148	337,637
CANADA	576	100	2,305	10	2,991	1,583,938	2,987,641	4,571,579

Table 4 - WAGE-EARNERS, BY MONTHS, 1937 and 1938 (On the last work day of each month)

	1937			1938		
	Male	Female	TOTAL	Male	Female	TOTAL
January	2,351	8	2,359	2,369	9	2,378
February	2,405	8	2,413	2,331	10	2,341
March	2,581	8	2,589	2,362	9	2,371
April	2,625	8	2,633	2,322	8	2,330
May	2,731	8	2,739	2,336	8	2,344
June	2,800	9	2,809	2,300	8	2,308
July	2,732	14	2,746	2,284	8	2,292
August	2,810	11	2,821	2,345	9	2,354
September	2,742	8	2,750	2,318	9	2,327
October	2,767	8	2,775	2,270	9	2,279
November	2,599	8	2,607	2,221	9	2,230
December	2,472	8	2,480	2,207	9	2,216
AVERAGE	2,637	9	2,646	2,305	10	2,315

Table 5 - REGULAR HOURS WORKED PER WEEK, 1938 (Overtime not included)

Regular hours worked per week	Percent of wage-earners	Regular hours worked per week	Percent of wage-earners
30 hours or less	0.6	49 - 50 hours	...
31 - 43 hours	42.1	51 - 54 hours	0.4
44 hours	15.3	55 hours	0.1
45 - 47 hours	2.3	56 - 64 hours	0.7
48 hours	38.4	65 hours and over	...

Table 6 - FUEL AND ELECTRICITY USED, 1937 and 1938

Kinds	Unit of measure	1937 Quantity	1937 Cost at works	1938 Quantity	1938 Cost at works
			$		$
Bituminous coal - Canadian	short ton	3,066	19,044	7,212	41,792
Foreign	short ton	170,762	768,584	136,632	621,179
Anthracite coal	short ton	248	2,071	250	2,198
Coke	short ton	748	6,739	449	4,818
Gasoline	Imp. gal.	4,807	793	26,573	4,267
Fuel oil	Imp. gal.	660,204	41,091	648,398	37,219
Gas - Manufactured	M cu. ft.	61	46	63	47
Natural	M cu. ft.	1,216	635	924	494
Other fuel	xxx	...	32,012	...	25,627
Electricity purchased	K. W. H.	1,009,469,930	1,980,089	781,229,985	1,612,178
TOTAL	xxx	...	2,851,104	...	2,349,819
Electricity generated for own use	K. W. H.	88,686,369	...	82,072,322	...

Table 7 - POWER EQUIPMENT, 1937 and 1938

Kinds	1937 Number of units	1937 Total rated horse power	1938 Number of units	1938 Total rated horse power
Steam engines and steam turbines ..	35	9,885	32	9,759
Gasoline, gas and oil engines	1	150	1	150
Hydraulic turbines and water wheels	5	8,250	5	10,250
Total Primary Equipment	41	18,285	38	20,159
Electric motors operated by purchased power	2,352	55,885	2,486	56,924
TOTAL	2,393	74,170	2,524	77,083
Electric motors operated by above primary units	606	7,553	785	10,855
Stationary boilers	52	15,658	52	16,448

Table 8 - POWER EQUIPMENT SUBDIVIDED BETWEEN "ORDINARILY IN USE" and "IN RESERVE OR IDLE" 1938

Kinds	Ordinarily in use		In reserve or idle	
	Number of units	Total rated horse power	Number of units	Total rated horse power
Steam engines and steam turbines	28	9,286	4	473
Gasoline, gas and oil engines	...	...	1	150
Hydraulic turbines or water wheels	5	10,520	...	...
Total Primary Equipment	33	19,806	5	623
Electric motors operated by purchased power	2,377	51,099	109	5,825
TOTAL	2,410	70,905	114	6,448
Electric motors operated by above primary units	739	9,535	46	1,320
Stationary boilers	40	13,347	12	3,101

Table 9 MATERIALS USED IN MANUFACTURING, 1937 and 1938

Materials	Unit of measure	1937 Quantity	1937 Cost at works $	1938 Quantity	1938 Cost at works $
Acid, hydrochloric (muriatic) 20°Be	lb.	101,720	2,470	148,663	3,081
Acid, nitric, 42° Be	lb.	9,921	529	...	...
Acid, sulphuric, 66° Be	lb.	6,999,671	58,310	8,580,110	76,393
Aluminium sulphate	lb.	285,475	5,035	314,934	5,215
Ammonia liquor	lb NH_3	734,112	23,213	432,736	19,737
Ammonia, anhydrous	lb.	30,462	2,223	28,008	2,221
Calcium chloride	lb.	608,050	17,377	866,970	11,609
Chlorine, liquid	lb.	1,247,625	30,199	1,980,458	47,355
Coal, anthracite (except for fuel)	short ton	2,421	19,801	2,468	21,043
Coal, bituminous (except for fuel)	short ton	18,885	109,615	14,406	87,164
Coke, petroleum (except for fuel)	short ton	32,625	262,301	34,050	273,305
Coke, other (except for fuel)	short ton	127,065	915,563	91,712	736,726
Electrodes	xxx	...	301,378	...	242,083
Fluorspar	short ton	3,503	52,035	4,652	107,614
Limestone	short ton	489,303	654,873	397,032	523,891
Lime, hydrated	short ton	15,103	23,927	357	1,918
Lime, quick	short ton	63,243	343,540	1,017	14,769
Potassium hydroxide (caustic potash)	lb.	42,000	4,277	190,500	19,497
Pyrites	short ton	25,036	138,611	23,985	135,239
Quartz, quartzite and silica sand	short ton	13,196	58,401	12,874	52,592
Sodium carbonate (soda ash)	lb.	15,162,472	205,387	15,303,788	203,862
Sodium chloride, dry, and brine (salt content)	short ton	237,777	383,549	199,435	332,411
Sodium bichromate	lb.	22,299	1,907	20,840	1,851
Sodium hydroxide (caustic soda)	lb.	6,277,520	86,410	8,479,060	207,372
Sodium nitrate	lb.	1,377,466	27,305	938,049	17,970
Sodium silicate	lb.	9,692,416	134,315	8,540,021	121,137
Sodium sulphate (salt cake)	lb.	16,010,568	113,054	6,824,230	48,486
Sodium sulphide	lb.	100,786	2,955	63,399	1,552
Sulphur (brimstone)	short ton	21,329	403,511	12,103	246,774
Sulphur dioxide in smelter gases (for making sulphuric acid)	xxx	...	42,900	...	72,645
Zinc metal	lb.	3,584,568	175,494	2,717,080	104,442
Containers of all kinds and packing materials	xxx	...	377,780	...	356,973
Steel sheets for making containers	short ton	4,576	333,548	4,582	363,299
Lumber for making containers, etc.	M bd ft	275	7,544	289	8,519
All other materials and supplies	xxx	...	689,640	...	754,698
TOTAL	xxx	...	6,008,977	...	5,223,443

Table 10 - PRODUCTION, IMPORTS, EXPORTS and APPARENT CONSUMPTION OF SULPHURIC ACID (66° Be) 1923 - 1938

Years	Production	Imports	Exports	Apparent consumption (x)
		(short tons)		
1923	87,150	291	12,203	75,238
1924	71,991	47	7,678	64,360
1925	83,396	52	19,179	64,269
1926	108,230	53	28,137	80,146
1927	98,470	53	17,407	81,116
1928	96,227	55	13,329	82,953
1929	110,749	111	8,397	102,463
1930	107,352	150	571	106,931
1931	119,541	80	997	118,624
1932	136,846	62	712	136,196
1933	148,142	58	1,013	147,187
1934	205,325	82	953	204,454
1935	224,410	83	1,027	225,466
1936	241,075	108	1,128	240,055
1937	282,716	108	1,608	281,216
1938	268,339	95	1,260	267,174

(x) No allowance made for changes in stocks on hand.

Table 11 - IMPORTS INTO CANADA OF ACIDS AND CERTAIN INORGANIC CHEMICALS, 1938

Commodities		Quantity	Value
ACIDS			$
Inorganic acids -			
Acid, boracic, in packages not less than 25 pounds	lb.	1,624,725	70,242
Acid, hydrofluosilicic	lb.	22,697	3,257
Acid, muriatic	lb.	250,925	15,968
Acid, nitric	lb.	272,233	24,314
Acid, phosphoric	lb.	319,999	15,898
Acid, sulphuric	lb.	189,959	10,944
Acid, salicylic and acetyl salicylic	lb.	148,576	68,096
Organic acids -			
Acid, acetic and pyroligneous, crude, of any strength not exceeding 30%	gal.	135	147
Acid, acetic and pyroligneous, n.o.p.	gal.	3,544	3,531
Acid, citric	lb.	900,094	213,207
Acid, cresylic, for use only in the manufacture of preparations for disinfecting, dipping and spraying	lb.	264,418	14,005
Cresylic acid and compounds of cresylic acid used in concentrating ores, n.o.p.	lb.	79,030	4,639
Xanthates and sulpho-thio-phosphoric (dithio-phosphoric) compounds for use in concentrating ores, etc.	lb.	4,102,749	638,052
Acid, oxalic	lb.	347,278	32,423
Acid, stearic, n.o.p.	lb.	1,856,920	123,489
Acid, stearic, when imported by manufacturers of candles or crayons for use only in their own factories in the manufacture of candles or crayons..	lb.	102,068	7,956
Acid, tannic	lb.	35,016	21,492
Tartaric acid, crystals	lb.	769,451	174,385
Acids, others, n.o.p.	lb.	2,722,264	252,409
Total Acids	$	...	1,694,454

Table 11 - IMPORTS INTO CANADA OF ACIDS AND CERTAIN INORGANIC CHEMICALS, 1938
(Continued)

Commodities		Quantity	Value
			$
INORGANIC CHEMICALS, N.O.P.			
Alum in bulk, ground or unground, but not calcined..	cwt.	14,410	23,852
Chloralum, or chloride of aluminium	cwt.	278	2,185
Sulphate of iron (copperas)	cwt.	10,287	9,752
Sulphate of alumina or alum cake	cwt.	591,419	638,162
Ammonia and its compounds -			
Ammonia, nitrate of	lb.	15,913,353	577,991
Sal ammoniac	lb.	1,814,841	52,717
Sal ammoniac skimmings	lb.	496,357	19,710
Ammonia, sulphate of	cwt.	118,210	156,540
Ammonia compounds, n.o.p.	lb.	3,659,276	84,563
Antimony, arsenic, copper, tin and zinc compounds -			
Antimony salts, viz. tartar emetic, chloride and lactate (antimonine)	lb.	62,016	9,376
Arsenic, sulphide of	lb.	6,094	408
Arsenious oxide	lb.	201,009	3,854
Copper, sub-acetate of, or verdigris, dry	lb.	3,505	771
Copper sulphate (blue vitriol)	lb.	4,454,073	160,032
Tin, bichloride of, and tin crystals	lb.	129,053	28,467
Zinc, sulphate of	lb.	585,362	8,977
Zinc, chloride of	lb.	1,252,081	48,720
Bismuth and lead compounds -			
Bismuth salts	xx	...	16,756
Lead, acetate of, not ground	lb.	245,949	14,493
Lead, arsenate of	lb.	496,387	41,620
Compounds of tetraethyl lead	lb.	5,486,418	2,485,032
Lead, nitrate of, not ground	lb.	285,303	16,250
Lead, red, and orange mineral	lb.	453,721	31,593
Bromine, chlorine and iodine compounds -			
Bromine	lb.	3,632	1,929
Bromides, crude, for the production of bromine	lb.	2,623	2,807
Chlorine, liquid or chlorine gas	lb.	7,721,550	165,982
Iodine, crude	lb.	78,638	67,636
Iodized mineral salts, for use exclusively in the feeding of animals	xx	...	3,716
Calcium compounds -			
Acetate of lime	lb.	...	...
Arsenate of lime	lb.	37,068	3,507
Calcium chloride, in packages of not less than 25 pounds	cwt.	3,839	4,121
Calcium chloride, in packages of less than 25 pounds	lb.	1,263	185
Calcium chloride, not in solution, for road treating purposes	cwt.	152,831	148,581
Chloride of lime and hypochlorite of lime, in packages of not less than 25 pounds	cwt.	3,451	22,566
Chloride of lime and hypochlorite of lime, in packages of less than 25 pounds	lb.	39,280	4,726
Calcium molybdate, when imported by manufacturers of steel for use exclusively in the manufacture of steel in their own works	lb.	181,377	63,131

Table 11 - IMPORTS INTO CANADA OF ACIDS AND CERTAIN INORGANIC CHEMICALS, 1938 (Continued)

Commodities		Quantity	Value
			$
INORGANIC CHEMICALS, N.O.P. (Continued)			
Potash and potassium compounds, n.o.p.			
Argols	lb.	5,720	670
Cream of tartar in crystals	lb.	641,344	109,407
Potash and pearl ash, in packages of not less than 25 pounds	lb.	194,833	10,488
Potash and pearl ash, in packages of less than 25 pounds	lb.	209	103
Potash, bicarbonate of	lb.	10,488	924
Potash, bichromate of, crude	lb.	121,531	10,435
Potash, sulphate of, crude	cwt.	121,986	173,859
Potash, muriate of, crude	cwt.	967,795	1,108,897
Potash, caustic, in packages of not less than 25 pounds	lb.	780,872	47,067
Potash, caustic, in packages of less than 25 pounds	lb.	2,084	459
Potash, chlorate of, not further prepared than ground	lb.	1,133,844	48,404
Potash, red and yellow prussiate of	lb.	26,731	3,768
Saltpetre or nitrate of potash	lb.	2,310,365	73,030
Potash compounds, n.o.p.	lb.	391,521	75,158
Soda and sodium compounds, n.o.p.			
Borax, in packages of not less than 25 pounds	lb.	6,770,807	197,093
Glauber's salt	lb.	4,532,986	30,288
Soda, arseniate, biarseniate and stannate of	lb.	11,200	2,843
Soda ash or barilla	lb.	2,908,364	41,831
Soda, bicarbonate of	lb.	12,456,313	185,940
Soda, bichromate of	lb.	1,776,372	106,150
Soda, bisulphate of, or nitre cake	lb.	1,171,921	18,183
Soda, bisulphite of	lb.	498,016	16,881
Soda, caustic, when in packages of not less than 25 pounds	lb.	6,610,015	173,767
Soda, caustic, when in packages of less than 25 pounds	lb.	57,042	6,339
Soda, caustic, in solution	lb.	12,565,941	182,286
Soda, chlorate of	lb.	3,666	388
Soda, hyposulphite, when imported by tanners for use in their own factories in the tanning of leather	lb.	478,524	15,444
Soda, hyposulphite of, n.o.p.	lb.	1,750,110	42,063
Soda, nitrate of, n.o.p.	cwt.	691,369	918,701
Soda, nitrite of	lb.	289,780	7,236
Soda, peroxide of	lb.	80,952	13,157
Soda, phosphate of	lb.	2,802,699	122,064
Soda, prussiate of	lb.	235,620	22,426
Soda, sulphite of	lb.	1,371,074	33,724
Soda, sal	lb.	105,234	3,814
Soda, cyanide of	lb.	6,161,787	805,976
Soda, silicate of, in crystals or in solution	lb.	5,426,309	84,177
Soda, sulphate of, crude, known as salt cake	lb.	11,572,628	61,122
Soda, sulphide of	lb.	4,232,829	87,943
Sodium compounds, n.o.p.	lb.	6,660,871	337,304

Table 11 - IMPORTS INTO CANADA OF ACIDS AND CERTAIN INORGANIC CHEMICALS, 1938 (Concluded)

Commodities		Quantity	Value
			$
INORGANIC CHEMICALS, N.O.P. (Concluded)			
Other inorganic chemicals -			
Acid, phosphate, not medicinal	lb.	844,287	48,070
Barium, peroxide of, non-alcoholic, for use in the manufacture of peroxide of hydrogen	lb.	...	...
Hydrogen perioxide, solutions of	lb.	32,758	5,789
Magnesia (magnesium oxide)	lb.	140,326	17,108
Magnesium carbonate, when imported for use in the manufacture of rubber products	lb.	764,655	35,575
Magnesium sulphate or Epsom salts	lb.	3,606,167	33,018
Mercury salts	xx	...	5,083
Phosphorus and compounds thereof, n.o.p.	lb.	135,760	39,804
Litharge	cwt.	21,259	143,597
Radium	xx	...	22,559
Total Inorganic Chemicals, n.o.p.	$	...	10,451,125

Table 12 - EXPORTS FROM CANADA OF ACIDS AND INORGANIC CHEMICALS, 1938

Commodities		Quantity	Value
			$
Acid, sulphuric	cwt.	25,197	17,900
Acids, other, n.o.p.	cwt.	172,462	1,335,870
Total Acids	$	197,659	1,353,770
Ammonium sulphate	cwt.	1,543,829	1,697,204
Calcium cyanamide	cwt.	2,769,545	3,143,238
Soda and sodium compounds	cwt.	825,413	4,000,307
Cobalt oxides and cobalt salts	lb.	382,408	523,218
Other inorganic chemicals, n.o.p.	xx	...	584,445
Acetate of lime	cwt.	41,208	44,910
Total Other Chemicals	$	...	9,993,322

LIST OF FIRMS INCLUDED IN THE ACIDS, ALKALIES AND SALTS INDUSTRY, 1938

Names of Companies and Location of Plants	Products reported in 1938
Dominion Steel & Coal Corporation Limited, Sydney, N.S.	Sulphuric acid
Aluminum Company of Canada Ltd. Arvida, P.Q.	Aluminium fluoride
Canadian Industries Limited, Shawinigan Falls, P.Q.	Hydrogen peroxide
Canadian Industries Limited, Shawinigan Falls, P.Q.	Trichlorethylene, perchlorethylene

LIST OF FIRMS INCLUDED IN THE ACIDS, ALKALIES AND SALTS INDUSTRY, 1938
(Continued)

Names of Companies and Location of Plants	Products reported in 1938
Electric Reduction Company of Canada, Limited, Buckingham, P.Q.	Phosphorus, phosphoric acid, ferro-phosphorus, sodium chlorate, acid calcium phosphate, di-sodium phosphate (2 hydrate and 12 hydrate), tri sodium phosphate, sodium acid pyrophosphate, and chlorate weed-killing mixture.
Shawinigan Chemicals Limited, Shawinigan Falls, P.Q. (2 plants)	Calcium carbide, acetylene carbon black, glacial acetic acid, acetic anhydride, butyl acetate, iso-butyl acetate, ethyl acetate, paraldehyde, croton aldehyde, vinyl acetate, pentasol acetate, hydrated lime, acetone, frothing agent, vinyl acetate resins.
Zinc Oxide Co. of Canada, Ltd., Montreal, P.Q.	Zinc oxide.
Brunner, Mond Canada, Limited, Amherstburg, Ont.	Sodium carbonate (soda ash), tanners' alkali (sodium carbonate and sodium hydroxide), super-alkali (sodium carbonate and sodium hydroxide), and calcium chloride.
Canadian Hanson & Van Winkle Co. Ltd., 15 Morrow Avenue, Toronto, Ont.	Plating and galvanizing salts (copper cyanide, copper carbonate, zinc cyanide, nickel salts, tin salts).
Canadian Industries Limited, Copper Cliff, Ont.	Sulphuric acid, sodium bisulphate (nitre cake).
Canadian Industries Limited, Cornwall, Ont.	Hydrochloric acid, liquid chlorine, liquid sodium hydroxide (caustic soda), sodium hypochlorite.
Canadian Industries Limited, Burlington St., Hamilton, Ont.	Hydrochloric acid, sulphuric acid, sodium sulphate (Glauber's salt), sodium sulphate (salt cake), soldering flux and liquid sulphur dioxide.
Canadian Industries Limited, Windsor, Ont.	Liquid chlorine, sodium hydroxide, (caustic soda), sodium hypochlorite, synthetic anhydrous ammonia, aqua ammonia, 26°, sulphur dichloride, sulphur monochloride, ferric chloride, lye-vat alkali, chloride of lime.
Electro Metallurgical Co. of Canada, Ltd., Welland, Ont.	Calcium carbide.
Hardesty of Canada Ltd., The W. C. 521 Front St. E., Toronto	Stearic acid and crude glycerine.
Nuodex Products of Canada Ltd. 34 Industrial St., Leaside	Metallic naphthenates.
H. S. & T. Crystal Co. Ltd., 169 Yonge St., Toronto, Ont.	Satin white, solvents.
National Silicates Limited, New Toronto, Ont.	Sodium silicate.

LIST OF FIRMS INCLUDED IN THE ACIDS, ALKALIES AND SALTS INDUSTRY, 1938
(Concluded)

Names of Companies and Location of Plants	Products reported in 1938
The Nichols Chemical Company Limited, Sulphide, Ont.	Nitric acid, sulphuric acid, sodium bisulphate (nitre cake).
North American Cyanamid Limited, Niagara Falls, Ont.	Calcium cyanamide, cyanide, and sodium silicate.
Watts Chemical Co., 355 Weston Rd., Toronto, Ont.	Zinc oxide and zinc dust.
Canadian Industries Limited, New Westminster, B.C.	Sulphuric acid and hydrochloric acid.
Consolidated Mining & Smelting Company of Canada, Limited, Trail, B.C.	Hydrofluosilicic acid, sulphuric acid and sulphur (brimstone).
The Nichols Chemical Company Limited, Barnet, B.C.	Sulphuric acid.

A P P E N D I X

TOTAL PRODUCTION OF CHEMICALS IN CANADA

It is very difficult, if not impossible, 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 great number of different industries. Ethyl alcohol, for example, is a product of the distilled liquors industry, methyl alcohol comes under wood distillation, 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 smelters and refineries, and so on. The Bureau has made, therefore, a special compilation which gives a fairly good summary of the total output as gathered up from all industries, this being shown on the following page. 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 1938 was around $36,000,000, compared with $37,200,000 in 1937. Imports in 1938, on a similar basis amounted to $19,000,000 and exports totalled $11,300,000. Canadian factories thus accounted for about 56 per cent of the chemical requirements of this country, besides contributing to exports.

Table 13 - TOTAL PRODUCTION OF INDUSTRIAL CHEMICALS IN CANADA (Exclusive of Allied Products), 1937 and 1938

Commodity	Selling value at works	
	1937	1938
	$	$
Acids, including acetic, muriatic, nitric, sulphuric, phosphoric, and stearic	3,500,000	2,700,000
Calcium Compounds, including carbide, chloride, cyanamide, acid phosphate, grey acetate, arsenate and chloride of lime	5,900,000	4,700,000
Sodium Compounds, including hydroxide, cyanide, phosphate, silicate, hypochlorite, bisulphite, salt cake, Glauber's salt, chlorate, acid pyro-phosphate, soda ash, sal soda, bisulphate, etc. (pharmaceutical salts included elsewhere)	8,600,000	8,300,000
Organic Chemicals, including acetic anhydride, butyl acetate, iso-butyl acetate, croton aldehyde, ethyl acetate, paraldehyde, pentasol acetate, vinyl acetate, ethyl alcohol, methyl hydrate, glycerine, phenol, cresol, bensol, etc. (acetic acid and acetylene included elsewhere)	6,700,000	6,500,000
Fine Chemicals and Precious Metal Salts, including salts of bismuth, mercury, potassium, sodium, ammonium, magnesium, silver, gold, uranium and radium	1,300,000	1,300,000
Compressed and Liquefied Gases, etc., including acetylene, carbon dioxide, oxygen, nitrous oxide, liquid sulphur dioxide, liquid chlorine, anhydrous and aqua ammonia, etc.	4,600,000	4,600,000
Ammonium Sulphate and Phosphate, and Superphosphate	3,900,000	5,000,000
Other Chemicals, including white lead, zinc oxide, red lead, litharge, cobalt salts, nickel salts, ferric chloride, lead arsenate, zinc stearate, phosphorus, white arsenic, sulphur, etc.	2,700,000	2,900,000
TOTAL	37,200,000	36,000,000

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