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DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
CENSUS OF INDUSTRY
MINING, METALLURGICAL AND CHEMICAL BRANCH
OTTAWA - CANADA

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ANNUAL INDUSTRY REPORT — CHEMICALS AND ALLIED PRODUCTS GROUP

THE COMPRESSED GASES INDUSTRY, 1939

Production from the manufacturing plants in Canada which were occupied chiefly in making industrial gases was valued at $4,009,829 in 1939 compared with $3,753,600 in 1938, an increase of 6.8 per cent.

Thirty-one factories were in operation in 1939, distributed as follows - 14 in Ontario, 6 in Quebec, 3 in Manitoba, 3 in Nova Scotia, 2 in Alberta, 2 in British Columbia, and 1 in Saskatchewan. These establishments employed capital amounting to $5,501,069 of which $3,106,944 was the value of land, buildings and equipment, $420,045 was the value placed on inventories, and $1,974,080 was the amount of working capital at the end of the year.

The average number of employees in this industry in 1939 was 672; this figure includes 359 salaried employees and 313 wage-earners. Salaries for the year amounted to $639,422 and wages totalled $398,296.

The chief products were oxygen, acetylene and carbon dioxide (in cylinders). The output of oxygen increased 8.1 per cent to 189,030,687 cubic feet; acetylene increased 7.1 per cent to 48,616,265 cubic feet, and carbon dioxide (in cylinders) increased 7.3 per cent to 7,682,090 pounds. The output of hydrogen rose 44.4 per cent to 50,497,656 cubic feet. Aqua ammonia, anhydrous ammonia, solid carbon dioxide, nitrogen and nitrous oxide were other products of this industry.

The Compressed Gases Industry, as reviewed in this bulletin, includes only those factories which make industrial gases as their main products. In addition, liquid chlorine and synthetic ammonia are manufactured in the Windsor plant of Canadian Industries Limited but as data pertaining to these departments cannot be shown separately from the general operations, this establishment has been classified to the Acids, Alkalies and Salts Industry. Synthetic ammonia (and the hydrogen and nitrogen for its manufacture) is made also at Trail, B.C., by the Consolidated Mining and Smelting Company of Canada, Limited, but as all of the output is used in making ammonia fertilizers, the statistics relating thereto are included in the Fertilizers Industry. Similarly, acetylene is made by Shawinigan Chemicals Limited at Shawinigan Falls for use in their own works in making acetic acid, etc., and nitrogen is produced as an intermediate by the North American Cyanamid Company at Niagara Falls, for use in the manufacture of calcium cyanamide. Pintsch oil gas for lighting railway coaches is made at several divisional points but these plants have always been classified to other industries.

Table 1 - PRINCIPAL STATISTICS FOR THE COMPRESSED GASES INDUSTRY, 1929 - 1939

Year	Number 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 ...	28	4,995,560	542	770,424	155,685	785,377	3,967,416
1930 ...	30	5,020,875	472	737,240	153,796	504,975	3,557,486
1931 ...	30	4,597,170	420	654,364	134,433	429,048	2,818,306
1932 ...	31	4,326,599	422	617,901	121,873	380,795	2,504,550
1933 ...	31	4,024,437	428	613,278	117,382	371,204	2,490,215
1934 ...	28	3,734,447	446	646,981	116,887	378,111	2,803,840
1935 ...	28	4,316,244	510	741,631	137,134	433,045	3,077,765
1936 ...	28	4,565,549	568	823,714	141,395	490,041	3,360,220
1937 ...	27	4,605,170	606	919,773	140,221	527,410	3,929,242
1938 ...	30	4,938,766	654	1,018,694	147,922	506,003	3,753,600
1939 ...	31	5,501,069	672	1,037,718	156,372	501,108	4,009,829
% change 1939 from 1938 ...	...	+ 11.4	+2.8	+ 1.9	+ 5.7	- .9	+ 6.9

NOTE - Profits or losses cannot be computed from the above figures as data are not available for general expenses such as interest, depreciation, rent, taxes, insurance, advertising, etc.

Table 2 - PRINCIPAL STATISTICS, BY PROVINCES, 1938 and 1939

Province	Number 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
		$		$	$	$	$
1938							
Quebec	6	1,325,676	139	213,278	33,583	115,151	991,691
Ontario	13	2,183,415	317	527,289	73,561	230,662	1,556,067
Manitoba	3	431,376	52	80,882	9,199	41,339	334,932
Nova Scotia	3	379,200	49	72,333	13,944	40,290	282,523
Saskatchewan ...	1)						
Alberta	2)	619,099	97	124,912	17,635	78,561	588,387
British Columbia	2)						
CANADA	30	4,938,766	654	1,018,694	147,922	506,003	3,753,600
1939							
Quebec	6	1,439,694	145	219,912	35,381	117,184	1,048,703
Ontario	14	2,437,111	328	533,010	76,438	215,516	1,673,545
Manitoba	3	419,224	56	85,164	10,194	44,571	360,714
Nova Scotia	3	415,988	48	71,252	15,652	42,071	306,740
Saskatchewan ...	1)						
Alberta	2)	789,052	95	128,380	18,707	81,766	620,127
British Columbia	2)						
CANADA	31	5,501,069	672	1,037,718	156,372	501,108	4,009,829

Table 3 - CAPITAL EMPLOYED, 1938 and 1939

Province	Present value of land, buildings, machinery tools and other equipment	Inventory value of materials on hand, stocks in process, fuel, finished products and miscellaneous supplies on hand	Operating capital (cash, bills and accounts receivable, prepaid expenses, etc.)	TOTAL CAPITAL EMPLOYED
	$	$	$	$
1938				
Nova Scotia ...	256,000	17,244	105,956	379,200
Quebec	865,268	79,084	381,324	1,325,676
Ontario	1,186,652	201,408	795,355	2,183,415
Manitoba	224,907	29,542	176,927	431,376
Other provinces	429,439	39,110	150,550	619,099
CANADA	2,962,266	366,388	1,610,112	4,938,766
1939				
Quebec	908,469	101,325	429,900	1,439,694
Ontario	1,248,866	195,440	992,805	2,437,111
Manitoba	227,478	39,482	152,264	419,224
Other provinces	722,131	83,798	399,111	1,205,040
CANADA	3,106,944	420,045	1,974,080	5,501,069

Table 4 - EMPLOYEES, SALARIES AND WAGES, 1938 and 1939

Province	Average number of employees					Salaries	Wages	TOTAL SALARIES and WAGES
	On salaries		On wages					
	Male	Female	Male	Female	TOTAL			
						$	$	$
1938								
Nova Scotia	14	9	26	...	49	36,577	35,756	72,333
Quebec	46	21	72	...	139	115,956	97,322	213,278
Ontario	146	45	125	1	317	355,545	171,744	527,289
Manitoba	20	7	25	...	52	47,945	32,937	80,882
Other provinces ..	33	16	48	...	97	77,145	47,767	124,912
CANADA	259	98	296	1	654	633,168	385,526	1,018,694
1939								
Quebec	48	24	73	...	145	123,777	96,135	219,912
Ontario	145	47	135	1	328	348,184	184,826	533,010
Manitoba	21	7	28	...	56	50,997	34,167	85,164
Other provinces ..	44	23	75	1	143	116,464	83,168	199,632
CANADA	258	101	311	2	672	639,422	398,296	1,037,718

Table 5 - WAGE-EARNERS, BY MONTHS, 1938 and 1939 (On the last work day of each month)

Month	1938 Male	1938 Female	1938 TOTAL	1939 Male	1939 Female	1939 TOTAL
January	282	...	282	302	1	303
February	290	1	291	300	1	301
March	289	1	290	303	1	304
April	296	1	297	310	1	311
May	299	1	300	308	1	309
June	315	1	316	311	1	312
July	317	1	318	334	1	335
August	318	1	319	322	1	323
September	299	1	300	322	1	323
October	287	1	288	312	2	314
November	289	1	290	306	2	308
December	291	1	292	312	1	313
AVERAGE	297	1	298	312	1	313

Table 6 - REGULAR HOURS WORKED PER WEEK BY WAGE-EARNERS, 1939 (In one week of normal employment; overtime not included)

Regular hours worked per week	Number of wage-earners	Per cent of wage-earners	Regular hours worked per week	Number of wage-earners	Per cent of wage-earners
30 hours or less	12	3.8	51 - 54 hours	8	2.5
31 - 43 hours	12	3.8	55 hours	4	1.3
44 hours	64	20.1	56 - 64 hours	13	4.1
45 - 47 hours	1	.3	65 hours and over	28	8.7
48 hours	151	47.5	TOTAL	318	100.0
49 - 50 hours	25	7.9	Total wages paid in selected week	$ 7,942	

Table 7 - FUEL AND ELECTRICITY USED, 1938 and 1939

Kind	Unit of measure	1938 Quantity	1938 Cost at works $	1939 Quantity	1939 Cost at works $
Bituminous coal - Canadian	short ton	1,574	9,441	1,176	7,518
Imported	short ton	475	2,920	277	1,482
Anthracite coal	short ton	199	1,287	260	1,922
Coke	short ton	1,054	4,033	841	3,657
Gasoline	Imp. gal.	5,500	1,375	...	...
Fuel oil	Imp. gal.	10,150	487	9,120	438
Gas - Manufactured	M cu. ft.	683	518	704	541
Natural	M cu. ft.	2,110	710	2,184	699
Other fuel	$	...	1,692	...	3,892
Electricity purchased	K. W. H.	14,776,891	125,459	15,800,510	136,223
TOTAL	$	...	147,922	...	156,372

Table 8 - POWER EQUIPMENT, 1938 and 1939

Kind	Ordinarily in use: Number of units	Ordinarily in use: Total rated horse power	In reserve or idle: Number of units	In reserve or idle: Total rated horse power
1938				
Steam engines and steam turbines	5	628	...	...
Total primary equipment	5	628	...	...
Electric motors run by purchased power	203	6,183	11	183
TOTAL	208	6,811	11	183
Stationary boilers	7	632	...	...
1939				
Steam engines and steam turbines	6	638	...	...
Total primary equipment	6	638	...	...
Electric motors run by purchased power	212	6,514	15	219
TOTAL	218	7,152	15	219
Stationary boilers	3	517	...	...

Table 9 - MATERIALS USED, 1938 and 1939

Material	Unit of measure	1938: Quantity	1938: Cost at works	1939: Quantity	1939: Cost at works
			$		$
Acetone	pound	176,895	20,905	179,291	19,225
Calcium carbide	ton	4,847	310,879	5,150	332,319
Coke	ton	3,998	47,656	4,752	56,154
Other materials (x)	$	...	121,755	...	91,485
Cylinders purchased during the year	Number	340	4,808	...	1,925
TOTAL	$	...	506,003	...	501,108

(x) Includes ammonia liquor, ammonium nitrate, potassium carbonate, unpurified brewery gas, lime, soda ash, condensing water, etc.

Table 10 - PRODUCTS MANUFACTURED, 1938 and 1939

Product	Unit of measure	1938: Quantity	1938: Selling value at works	1939: Quantity	1939: Selling value at works
			$		$
Acetylene	cu. ft.	45,394,062	1,108,576	48,616,265	1,155,449
Carbon dioxide in cylinders	pound	7,159,327	526,335	7,682,090	566,302
Hydrogen	cu. ft.	34,970,537	63,480	50,497,656	141,172
Oxygen	cu. ft.	173,992,296	1,636,743	189,030,687	1,724,844
Other products (x)	$	...	418,466	...	422,062
TOTAL	$	...	3,753,600	...	4,009,829

(x) Includes aqua and anhydrous ammonia, nitrogen, solid carbon dioxide and nitrous oxide, for which figures cannot be shown separately as each was produced by only one or two companies in this group.

Table 11 - PRODUCTION OF ACETYLENE, CARBON DIOXIDE (IN CYLINDERS), and OXYGEN, BY PROVINCES, 1932 - 1939

	Ontario	Quebec	Other provinces	CANADA
ACETYLENE -				
1932 ..... cubic feet	12,962,120	8,141,640	12,640,491	33,744,251
1933 ..... cubic feet	12,004,827	7,879,957	12,502,528	32,387,312
1934 ..... cubic feet	14,680,380	9,209,022	13,709,944	37,599,346
1935 ..... cubic feet	16,733,379	10,295,232	12,894,072	39,922,683
1936 ..... cubic feet	17,581,043	10,348,716	13,386,071	41,315,830
1937 ..... cubic feet	20,644,517	12,607,255	15,058,874	48,310,646
1938 ..... cubic feet	18,746,895	11,788,153	14,859,014	45,394,062
1939 ..... cubic feet	19,521,359	12,750,893	16,344,013	48,616,265
CARBON DIOXIDE (IN CYLINDERS) (x)				
1932 ..... pound	1,636,732	3,111,813	1,308,766	6,057,311
1933 ..... pound	1,564,607	2,819,946	1,026,440	5,410,993
1934 ..... pound	1,257,070	2,367,643	1,089,284	4,713,997
1935 ..... pound	1,414,171	2,221,970	1,213,545	4,849,687
1936 ..... pound	1,467,559	2,389,467	1,461,630	5,318,656
1937 ..... pound	1,439,302	3,115,515	1,739,454	6,294,271
1938 ..... pound	1,768,273	3,548,491	1,842,563	7,159,327
1939 ..... pound	1,824,335	3,920,206	1,937,549	7,682,090
OXYGEN -				
1932 ..... cubic feet	32,280,715	28,865,340	31,682,660	92,828,715
1933 ..... cubic feet	34,991,667	27,093,759	31,426,147	93,511,573
1934 ..... cubic feet	42,361,291	33,187,429	38,391,795	113,940,515
1935 ..... cubic feet	54,375,346	37,926,890	43,757,470	136,059,706
1936 ..... cubic feet	61,616,420	41,488,540	48,395,700	151,500,660
1937 ..... cubic feet	81,593,815	56,493,420	56,359,500	194,446,735
1938 ..... cubic feet	70,757,564	50,694,732	52,540,000	173,992,296
1939 ..... cubic feet	78,979,137	53,119,550	56,932,000	189,030,687

(x) Not including solid carbon dioxide (dry ice).

Table 12 - CONSUMPTION OF CARBON DIOXIDE IN THE MANUFACTURE OF CARBONATED BEVERAGES (SOFT DRINKS), 1928 - 1938

Year	Quantity	Cost at works	Year	Quantity	Cost at works
	Pounds	$		Pounds	$
1928	1,718,847	177,777	1935	2,496,969	209,672
1929	3,950,733	380,699	1936	3,491,510	261,282
1930	2,408,694	241,915	1937 - In cylinders	4,052,728	297,262
1931	2,396,592	217,262	Solid	811,120	31,308
1932	2,020,941	182,098	1938 - In cylinders	4,343,001	339,049
1933	1,905,884	173,782	Solid	916,319	44,475
1934	2,138,025	199,191			

Table 13 - IMPORTS INTO CANADA OF CARBON DIOXIDE AND CHLORINE, 1938 and 1939
(From the "Trade of Canada" - Calendar Years 1938 and 1939)

		Quantity	Value
			$
1 9 3 8			
Carbon dioxide or carbonic acid gas	xx	...	...
Chlorine, liquid, or chlorine gas	lb.	7,721,550	165,982
1 9 3 9			
Carbon dioxide or carbonic acid gas	xx	...	...
Chlorine, liquid, or chlorine gas	lb.	10,692,096	213,207

Table 14 - EXPORTS FROM THE UNITED STATES TO CANADA OF COMPRESSED AND LIQUEFIED GASES, 1937 and 1938
(From "Foreign Commerce and Navigation of the United States Calendar Years 1937 and 1938)

		1 9 3 7		1 9 3 8	
		Quantity	Value	Quantity	Value
			$		$
Ammonia, anhydrous	pound	75,480	7,270	777,018	38,203
Chlorine	pound	6,902,035	281,856	7,954,488	192,361
Other gases	pound	687,466	110,579	572,601	77,515

DIRECTORY(x) OF FIRMS INCLUDED IN THE COMPRESSED GASES INDUSTRY IN CANADA, 1938

Names of Firms	Location of Plants	Products Made
Canada Packers Limited	St. Clair Ave. W., Toronto, Ont.	Hydrogen.
Cheney Chemicals Limited	180 Duke St., Toronto, Ont.	Nitrous oxide.
Air Liquid Society & Canadian Liquid Air Co. Ltd.	H.O.- 1111 Beaver Hall Hill, Montreal, P.Q. Plants - Halifax, Sydney Montreal, Toronto, London, Winnipeg, Regina, Calgary and Vancouver.	Acetylene, oxygen and nitrogen.
Liquid Carbonic Canadian Corporation Limited	H.O.- 2120 Cabot St., Cote St. Paul, Montreal, P.Q. Plants - Dartmouth, Montreal(2), Toronto, St. Boniface, Edmonton and Vancouver.	Carbon dioxide in cylinders and solid.
Dominion Oxygen Company, Limited	H.O.- Canada Life Bldg., 340 University Ave., Toronto, Ont. Plants - Montreal, Toronto and Sault Ste. Marie.	Oxygen and nitrogen.

DIRECTORY(x) OF FIRMS INCLUDED IN THE COMPRESSED GASES INDUSTRY IN CANADA, 1939
(Concluded)

Names of Firms	Location of Plants	Products Made
Prest-O-Lite Company of Canada, Limited	H.O.- Canada Life Bldg., 340 University Ave., Toronto, Ont. Plants - Shawinigan Falls, Merritton and St. Boniface	Acetylene.
Canadian Industries Limited	H.O.- P.O. Box 10, Montreal, P.Q. Plant - Toronto, Ont.	Aqua ammonia and anhydrous ammonia
Lever Brothers, Limited	299 Eastern Ave., Toronto, Ont.	Hydrogen and oxygen
The People's Gas Supply Co. Ltd.	2 Mill St., Ottawa, Ont.	Acetylene.
Proctor & Gamble Co. of Canada Limited	Burlington St. E., Hamilton, Ont.	Hydrogen and oxygen
Swift Canadian Company, Limited	Keele St. and St. Clair Ave., Toronto, Ont.	Hydrogen.
Wall Chemicals Limited	H.O.- 1103 Millwood Rd., Toronto, Ont. Plants - Montreal, Toronto	Hydrogen, oxygen and acetylene.

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(x) The plants listed above are included under the Compressed Gases Industry as they make industrial gases as their chief products. In addition, Canadian Industries Limited produces synthetic ammonia at Windsor, Ont., chlorine at Windsor, Ont., Cornwall, Ont. and Shawinigan Falls, Que., and liquid sulphur dioxide at Hamilton, Ont., but, when classified according to the main products, these plants come under the Acids, Alkalies and Salts Industry which is reviewed in a separate bulletin. Synthetic ammonia (and the hydrogen and nitrogen for its manufacture) is made also at Trail, B.C., by the Consolidated Mining and Smelting Company but the entire output is used by that company in the manufacture of ammonia fertilizers and a separate report is not submitted for the gas division. Similarly, acetylene is made by the Shawinigan Chemicals Limited and used in making acetic acid, etc., and nitrogen is produced by the North American Cyanamid Company at Niagara Falls as an intermediate in the manufacture of cyanamide.