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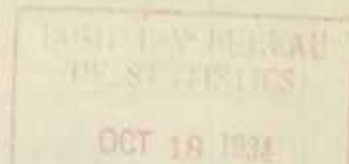
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DEPARTMENT OF TRADE AND COMMERCE
DOMINION BUREAU OF STATISTICS
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OTTAWA - CANADA



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CHEMICALS AND ALLIED PRODUCTSTHE COMPRESSED GASES INDUSTRY, 1933.

Production from the compressed gases industry in 1933 was valued at \$2,490,215 compared with \$2,504,550 in 1932 and \$2,818,306 in 1931.

Thirty-one factories were included in this group in 1933, the same as in 1932; 14 were in Ontario, 7 in Quebec, 3 in Manitoba, 2 in Nova Scotia, 2 in Alberta, 2 in British Columbia and 1 in Saskatchewan. These works employed 428 persons to whom \$613,278 were paid in salaries and wages. The 14 plants in Ontario employed 186 workers and made industrial gases worth \$1,096,144 and the 7 works in Quebec gave work to 105 persons and had an output valued at \$606,019.

The main products were oxygen, carbon dioxide, acetylene and hydrogen. Production of acetylene declined 4 per cent in quantity to 32,387,312 cubic feet; carbon dioxide dropped 11 per cent to 5,410,993 pounds; oxygen increased slightly to 93,511,573 cubic feet and hydrogen advanced 5 per cent to 31,175,453 cubic feet. Solid carbon dioxide ('dry ice'), aqua ammonia, anhydrous ammonia, nitrogen and nitrous oxide were also made by these firms.

This industry includes only those firms which made industrial gases as their main products. In addition, liquid chlorine and synthetic ammonia were manufactured in the Sandwich plant of Canadian Industries Limited but data pertaining to these departments were not shown separately from the general plant operations and so have been included in the acids, alkalies and salts industry. Synthetic ammonia was also made at Trail, B.C., by the Consolidated Mining and Smelting Company of Canada but as all of the output was used in making ammonia fertilizers the statistics relating thereto have been included in the fertilizers industry. Similarly, acetylene was made by Shawinigan Chemicals Limited at Shawinigan Falls for use in their own works in making acetic acid, etc., and nitrogen was produced as an intermediate by the American Cyanamid Company at Niagara Falls for use in the manufacture of calcium cyanamide. Pintsch gas for lighting railway coaches was made at several divisional points but these plants have always been classified to the artificial gas industry and again have been included in that group. Sulphur dioxide was made at Hamilton, Ont., by Canadian Industries Limited, but this output has been included in the report for the general chemical plant at that point.

Table 1 - PRINCIPAL STATISTICS OF THE COMPRESSED GASES INDUSTRY IN CANADA, 1929-1933.

Years	No. of plants	Capital employed	Average number of em- ployees	Salaries and wages	Cost of materials at works	Selling value of products at works	Value added by manu- facturing
		\$		\$	\$	\$	\$
1929	28	4,995,560	542	770,424	785,377	3,967,416	3,182,039
1930	30	5,020,875	472	737,240	504,975	3,557,486	3,052,511
1931	30	4,597,170	420	654,364	429,048	2,818,306	2,389,258
1932	31	4,326,599	422	617,901	380,795	2,504,550	2,123,755
1933 -							
Quebec	7	782,157	105	132,042	94,963	606,019	511,056
Ontario	14	2,478,905	186	291,966	146,202	1,096,144	949,942
Manitoba	3	219,671	43	61,020	33,253	231,554	198,301
Nova Scotia	2)						
Saskatchewan ...	1)	543,704	94	128,250	96,786	556,498	459,712
Alberta	2)						
British Columbia	2)						
CANADA	31	4,024,437	428	613,278	371,204	2,490,215	2,119,011

Table 2 - SIZE OF ESTABLISHMENTS, 1933.

	No. of plants	Capital employed	Average number of em- ployees	Selling value of products at works
		\$		\$
(a) <u>PRODUCTION</u>				
Under \$25,000	6	467,981	31	87,777
\$25,001 - \$50,000	8	717,051	54	282,431
\$50,001 - \$100,000	3	117,111	30	217,354
\$100,001 - \$212,000	14	2,722,294	313	1,902,653
TOTAL	31	4,024,437	428	2,490,215
(b) <u>EMPLOYEES</u> - Number				
1 or 2	3	130,767	5	59,319
3 - 10	17	1,202,354	115	1,052,895
11 - 20	5	530,858	82	593,355
21 - 72	6	2,160,458	226	784,646
TOTAL	31	4,024,437	428	2,490,215
(c) <u>CAPITAL EMPLOYED</u>				
Under \$25,000	7	121,004	43	590,796
\$25,001 - \$50,000	3	115,430	23	160,972
\$50,001 - \$100,000	10	716,254	150	817,824
\$100,001 - \$200,000	8	1,012,862	88	477,801
Over \$200,000	3	2,058,887	124	442,822
TOTAL	31	4,024,437	428	2,490,215

Table 3 - CAPITAL EMPLOYED, 1932 and 1933.

Provinces	Present value of lands, build- ings, machin- ery, tools and other equip- ment	Inventory value of materials on hand, stocks in process, fuel and miscellaneous supplies on hand	Inventory value of finished products on hand	Operating capital (cash, bills and accounts receivable, pre- paid, expenses, etc.)	TOTAL CAPITAL EMPLOYED
	\$	\$	\$	\$	\$
<u>1932</u>					
Quebec	620,187	4,898	67,207	98,492	790,784
Ontario	754,636	110,731	126,730	1,718,739	2,710,836
Manitoba	166,210	16,059	14,381	30,741	227,391
Other provinces .	460,515	21,335	28,577	87,161	597,588
CANADA	2,001,548	153,023	236,895	1,935,133	4,326,599
<u>1933</u>					
Quebec	647,625	8,540	58,992	67,000	782,157
Ontario	686,169	115,819	105,699	1,571,218	2,478,905
Manitoba	161,826	5,671	22,902	29,272	219,671
Other provinces .	404,879	26,659	21,985	90,181	543,704
CANADA	1,900,493	156,689	209,578	1,757,671	4,024,437

Table 4 - EMPLOYEES, SALARIES AND WAGES, 1932 and 1933.

Provinces	Average number of employees					Salaries	Wages	Total salaries and wages
	On salaries		On wages		Total Employees			
	Male	Female	Male	Female				
						\$	\$	\$
<u>1932</u>								
Quebec	32	9	53	3	97	73,622	60,656	134,278
Ontario	75	29	79	3	186	187,443	99,931	287,374
Manitoba	16	4	24	...	44	33,917	28,193	62,110
Other provinces .	31	16	48	...	95	82,586	51,553	134,139
CANADA	154	58	204	6	422	377,568	240,333	617,901
<u>1933</u>								
Quebec	37	15	51	2	105	76,793	55,249	132,042
Ontario	76	30	80	...	186	194,607	97,359	291,966
Manitoba	15	4	24	...	43	34,926	26,094	61,020
Other provinces .	31	15	48	...	94	78,472	49,778	128,250
CANADA	159	64	203	2	428	384,798	228,480	613,278

Table 5 - WAGE-EARNERS, BY MONTHS, 1932 and 1933.

Months	1	9	3	2	1	9	3	3
	Male	Female	TOTAL		Male	Female	TOTAL	
January	215	6	221		194	2	196	
February	202	6	208		189	2	191	
March	215	6	221		187	2	189	
April	198	6	204		134	2	196	
May	211	6	217		200	2	202	
June	209	6	215		204	2	206	
July	204	6	210		202	2	204	
August	199	6	205		214	2	216	
September	197	6	203		210	2	212	
October	193	6	199		214	2	216	
November	198	6	204		204	2	206	
December	198	6	204		204	2	206	
AVERAGE	204	6	210		203	2	205	

Table 6 - FUEL AND ELECTRICITY USED, 1932 and 1933.

Kinds	Unit of measure	1 9 3 2	Cost at	1 9 3 3	Cost at
		Quantity	works \$	Quantity	works \$
Bituminous coal - Canadian ..	short ton	210	1,619	205	1,627
Imported ..	short ton	1,186	6,318	190	1,020
Anthracite coal	short ton	592	4,963	672	5,450
Coke	short ton	1,098	5,973	1,890	9,679
Gasoline	Imp. gal.	243	65	305	79
Fuel oil	Imp. gal.	8,317	450	11,190	562
Gas - Manufactured	M cu.ft.	325	315	542	492
Natural	M cu.ft.	1,622	609	1,233	452
Other fuel	xx	...	742	...	1,485
Electricity purchased	K.W.H.	10,888,302	100,819	10,586,797	96,536
TOTAL	xx	...	121,873	...	117,382

Table 7 - POWER EQUIPMENT, 1932 and 1933.

Kinds	1 9 3 2	1 9 3 3
	Number of units	Total rated horse power
Steam engines and steam turbines	1	40
Total Primery	1	40
Electric motors run by purchased power..	142	5,768
TOTAL	143	5,808
Total Electric Motors	142	5,768
Boilers	6	615
		5
		590

Table 8 MATERIALS USED, 1932 and 1933.

Materials	Unit of measure	1 9 3 2	Cost at	1 9 3 3	Cost at
		Quantity	works \$	Quantity	works \$
Acetone	lb.	118,275	19,486	128,628	21,060
Calcium carbide	lb.	7,150,633	251,655	6,949,118	223,748
Coke	ton	1,657	18,248	1,605	16,584
Other materials	xx	...	84,799	...	109,389
Cylinders purchased during the year	No.	200	6,607	...	423
TOTAL	xx	...	380,795	...	371,204

Table 9 - PRODUCTS MADE, 1932 and 1933.

Products	Unit of measure	1 9 3 2	1 9 3 3
		Quantity Selling value at works \$	Quantity Selling value at works \$
Acetylene	cu.ft.	33,744,251	800,248
Carbon dioxide ..	lb.	6,057,311	374,965
Hydrogen	cu.ft.	29,685,571	102,735
Oxygen	cu.ft.	92,828,715	918,639
Other products(x) ..	xx	...	307,963
TOTAL ..	xx	...	2,504,550
			...
			2,490,215

(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 company in this group.

Table 10 - PRODUCTION OF ACETYLENE, CARBON DIOXIDE, AND OXYGEN IN CANADA, 1918 to 1933.

Years	Acetylene Cubic feet	Carbon dioxide Pounds	Oxygen Cubic feet
1918	5,484,755	2,742,632	33,880,000
1919	11,684,646	3,571,681	34,768,587
1920	16,121,701	5,582,149	54,618,400
1921	15,663,702	3,567,431	53,612,271
1922	17,631,590	3,263,908	52,448,907
1923	21,729,109	3,355,628	72,637,943
1924	19,229,042	3,428,953	68,331,575
1925	24,384,431	3,650,547	68,685,153
1926	27,814,736	3,896,524	86,989,015
1927	31,195,053	4,706,519	112,757,727
1928	37,342,101	5,533,275	138,688,619
1929	46,009,766	6,818,800	166,066,394
1930	44,181,816	6,632,544	152,419,201
1931	37,048,521	5,437,464	120,326,797
1932	33,744,251	6,057,311	92,828,715
1933	32,387,312	5,410,993	93,511,573

Table 11 - PRODUCTION OF ACETYLENE, CARBON DIOXIDE, AND OXYGEN IN CANADA, BY PROVINCES, 1928 - 1933.

	Ontario	Quebec	Other Provinces	CANADA
<u>ACETYLENE -</u>				
1928 cu. ft.	14,032,110	11,203,260	12,106,731	37,342,101
1929 cu. ft.	18,463,129	12,854,099	14,692,538	46,009,766
1930 cu. ft.	18,569,197	11,463,532	14,149,087	44,181,816
1931 cu. ft.	14,680,022	9,483,373	12,885,126	37,048,521
1932 cu. ft.	12,962,120	8,141,640	12,640,491	33,744,251
1933 cu. ft.	12,004,827	7,879,957	12,502,528	32,387,312
<u>CARBON DIOXIDE -</u>				
1928 lb.	1,277,440	2,677,526	1,578,309	5,533,275
1929 lb.	1,453,180	3,687,948	1,677,672	6,818,800
1930 lb.	1,385,398	3,588,703	1,658,443	6,632,544
1931 lb.	1,538,928	2,668,100	1,230,436	5,437,464
1932 lb.	1,636,732	3,111,813	1,308,766	6,057,311
1933 lb.	1,564,607	2,819,946	1,026,440	5,410,993
<u>OXYGEN -</u>				
1928 cu. ft.	54,430,578	41,971,320	42,286,721	138,688,619
1929 cu. ft.	66,116,620	50,714,300	49,235,474	166,066,394
1930 cu. ft.	59,045,143	45,737,255	47,636,803	152,419,201
1931 cu. ft.	44,420,908	38,162,619	37,743,270	120,326,797
1932 cu. ft.	32,280,715	28,865,340	31,682,660	92,828,715
1933 cu. ft.	34,991,667	27,093,759	31,426,147	93,511,573

Table 12 - CONSUMPTION OF CARBON DIOXIDE IN THE MANUFACTURE OF CARBONATED BEVERAGES
(SOFT DRINKS), 1928-1932.

	Quantity	Cost at works
	pounds	\$
1928	1,718,847	177,777
1929	3,950,733	380,699
1930	2,408,694	241,915
1931	2,396,592	217,262
1932	2,020,941	182,098

Table 13 - IMPORTS INTO CANADA OF CARBON DIOXIDE AND CHLORINE, 1931 - 1933.

	Quantity	Value
		\$
<u>1931</u>		
Carbon dioxide or carbonic acid gas	211
Chlorine, liquid or chlorine gas lb. 7,372,657		172,424
<u>1932</u>		
Carbon dioxide or carbonic acid gas	501
Chlorine, liquid or chlorine gas lb. 5,772,827		130,913
<u>1933</u>		
Carbon dioxide or carbonic acid gas	91
Chlorine, liquid or chlorine gas lb. 12,163,840		245,791

Table 14 - EXPORTS FROM THE UNITED STATES TO CANADA OF COMPRESSED AND LIQUIFIED GASES,
1931 and 1932.
(From Foreign Commerce and Navigation of the United States, Calendar
Years 1931 and 1932)

	1	9	3	1	1	9	3	2
	Quantity		Value		Quantity		Value	
			\$				\$	
Ammonia, anhydrous lb.	585,587		40,757		55,844		7,397	
Chlorine lb.	7,866,196		184,917		5,617,052		114,215	
Other gases lb.	938,477		143,974		748,215		103,058	

DIRECTORY(x) OF FIRMS INCLUDED IN THE COMPRESSED GASES INDUSTRY IN CANADA, 1933.

<u>Name</u>	<u>Location of Plants</u>	<u>Products Made</u>
Cheney Chemical Limited	180 Duke St., Toronto, Ont.	Pure nitrous oxide, oxygen-carbon dioxide mixtures.
L'Air Liquide Society & Canadian Liquid Air Co. Ltd.	H.O.-1111 Beaver Hall Hill, Montreal, P.Q. Plants at Halifax, Montreal, Toronto, London, Winnipeg, Regina, Calgary and Vancouver	Acetylene and oxygen.
Liquid Carbonic Canadian Corporation, Limited	H.O.-500 Dominion Square Bldg., Montreal, P.Q. Plants at Dartmouth, Montreal(2), St. Boniface, Edmonton and Vancouver.	Carbon dioxide.
Dominion Oxygen Company, Limited	H.O.-Canada Life Bldg., 340 University Ave., Toronto, Ont. Plants at Montreal and Toronto	Oxygen and nitrogen
Dominion Carbonic Company Limited	Cor. Mill and Trinity Sts., Toronto, Ont.	Carbon dioxide
Canadian Dry Ice Company, Limited	H.O.-5303 Headley St., Cote St. Paul, Montreal, P.Q. Plants at Montreal and Toronto.	Solid carbon dioxide.
Prest-O-Lite Company of Canada, Limited	H.O.-Canada Life Bldg., 340 University Ave., Toronto, Ont. Plants at Shawinigan Falls, Meritton and St. Boniface.	Acetylene.
Canadian Gas & Equipment Ltd.	H.O.-2240 St. Clair Ave. W., Toronto, Ont. Plants at Montreal and Toronto(2)	Acetylene, hydrogen, oxygen and nitrogen.
Canadian Industries Limited	H.O.- P.O.Box 1260, Montreal, P.Q. Plant at Toronto, Ont.	Aqua ammonia and anhydrous ammonia
Lever Brothers, Limited	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., Hamilton, Ont.	Hydrogen and oxygen.
Swift Canadian Company, Limited	Keele St. and St. Clair Ave., Toronto, Ont.	Hydrogen.

(x) The above plants are included under the Compressed Gases Industry. In addition to these, Canadian Industries Limited produced synthetic ammonia and liquid chlorine at Sandwich, Ont., and liquid sulphur dioxide at Hamilton, Ont., but when classified to the main products these plants come under the Acids, Alkalies and Salts Industry which is reviewed in a separate bulletin. Synthetic ammonia is also made at Trail, B.C., by the Consolidated Mining and Smelting Company but is used by that company in the manufacture of ammonia fertilizers; acetylene is made by the Shawinigan Chemicals and used in making acetic acid, etc.; and nitrogen is produced as an intermediate in the manufacture of cyanamide by the American Cyanamid Company at Niagara Falls.

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