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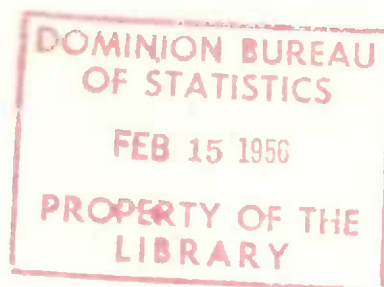
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CANADA

# THE COMPRESSED GASES INDUSTRY

## 1954



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## 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
- XIII - Transportation Equipment
- 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 COMPRESSED GASES INDUSTRY

1954

Manufacturing plants in Canada engaged chiefly in making industrial gases reported factory shipments in 1954 at \$15,873,288 compared with \$15,712,330 in 1953, an increase of 1.0 per cent.

There were 46 factories in operation in this industry during 1954, 14 being located in Ontario, 13 in Quebec, 6 in Alberta, 3 in British Columbia, 3 in Manitoba, 3 in Nova Scotia, 2 in Saskatchewan and 1 each in New Brunswick and Newfoundland. The number of employees in the industry in 1954 was 1,305, including 578 supervisory and office personnel and 727 production workers. Salaries for the year amounted to \$1,899,043 and wages totalled \$2,456,097.

The chief products were oxygen, acetylene and carbon dioxide, for sale mainly in cylinders or in some instances delivered by pipeline to adjacent consuming plants. The output of oxygen increased 3.5 per cent to 928 million cubic feet and acetylene declined 3.2 per cent to 150 million cubic feet. Carbon dioxide, aqua ammonia, anhydrous ammonia, nitrogen, hydrogen, nitrous oxide and argon were other products of this industry. The output figures for the latter items are not published separately since there were only one or two producers in each case.

No mention is made in this report of liquid chlorine, liquid sulphur dioxide, synthetic ammonia, or of hydrogen and nitrogen for the manufacture of synthetic ammonia. These items were produced in works that also made other kinds of chemicals, and the statistics concerning the output of same have been included in the heavy chemical industry which is reviewed in a separate bulletin. A similar disposition has been accorded liquefied petroleum gases produced in the petroleum refining industry or as by-products in the recovery of absorption gasoline. Finally, reference should be made to firms which make hydrogen for use in the hydrogenation of fats. These firms which, in addition, produce some oxygen as a by-product, were reclassified from this group to the slaughtering and meat packing industry in 1952.

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 Compressed Gases Industry by Significant Years, 1929-1954

Year	Establishments	Employees	Earnings	Cost of fuel and electricity at plant	Cost at plant of materials used	Value added by manufacture <sup>1</sup>	Gross selling value of products <sup>1</sup>
	No.	No.	\$	\$	\$	\$	\$
1929 .....	28	542	770,424	155,685	785,377	3,026,354	3,967,416
1933 .....	31	428	613,278	117,382	371,204	2,001,629	2,490,215
1937 .....	27	606	919,773	140,221	527,410	3,261,611	3,929,242
1939 .....	31	672	1,037,718	156,372	501,108	3,352,349	4,009,829
1943 .....	38	1,080	1,848,753	344,136	1,380,575	7,487,515	9,212,226
1946 .....	42	1,064	1,961,493	314,524	1,258,423	6,735,081	8,308,028
1949 .....	48	1,223	3,230,904	431,855	1,979,160	9,680,161	12,091,176
1950 .....	50	1,240	3,239,598	493,054	1,873,977	10,370,288	12,737,319
1951 .....	51	1,247	3,681,376	582,097	2,408,694	12,387,572	15,378,363
1952 .....							
1953							
Newfoundland .....	1	101	320,864	53,184	148,939	1,147,077	1,349,200
Nova Scotia .....	3						
New Brunswick .....	1						
Quebec .....	13	279	934,557	124,545	581,634	3,633,466	4,339,645
Ontario .....	14	521	1,754,575	209,882	830,620	4,700,284	5,740,786
Manitoba .....	3	122	363,841	28,971	241,850	1,283,895	1,554,716
Saskatchewan .....	2						
Alberta .....	5	104	342,486	39,472	230,298	974,207	1,243,977
British Columbia .....	3	99	330,521	34,579	207,105	1,242,322	1,484,006
Canada .....	45	1,226	4,046,844	490,633	2,240,446	12,981,251	15,712,330
1954							
Newfoundland .....	1	105	337,823	52,413	215,193	1,024,034	1,291,879
Nova Scotia .....	3						
New Brunswick .....	1						
Quebec .....	13	290	966,356	136,542	689,811	3,822,363	4,646,953
Ontario .....	14	573	1,959,616	214,990	961,386	4,670,814	5,841,623
Manitoba .....	3	125	392,788	29,946	260,711	1,092,818	1,380,909
Saskatchewan .....	2						
Alberta .....	6	113	368,186	39,868	264,902	970,925	1,274,075
British Columbia .....	3	99	330,371	39,386	230,599	1,165,822	1,437,849
Canada .....	46	1,305	4,355,140	513,145	2,622,602	12,746,776	15,873,288

TABLE 2. Inventories<sup>1</sup>, 1954

	Raw materials and supplies	Goods in process	Finished goods of own manufacture	Total
	\$	\$	\$	\$
Opening:				
Newfoundland, Nova Scotia and New Brunswick .....	55,225	—	6,955	62,180
Quebec .....	65,359	—	23,612	88,971
Ontario .....	148,716	—	31,828	180,544
Manitoba and Saskatchewan .....	34,671	—	8,614	43,285
Alberta .....	62,418	—	11,649	74,067
British Columbia .....	72,863	—	8,611	81,474
Canada .....	439,252	—	91,269	530,521
Closing:				
Newfoundland, Nova Scotia and New Brunswick .....	54,485	—	6,716	62,201
Quebec .....	76,783	—	25,375	102,158
Ontario .....	176,945	811	37,395	215,151
Manitoba and Saskatchewan .....	52,280	—	11,180	63,460
Alberta .....	66,952	—	13,269	80,221
British Columbia .....	70,473	—	6,569	77,042
Canada .....	497,918	811	100,504	599,233

1. Book value of all manufacturing inventories held at plant and plant warehouses.

Note: 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 Compressed Gases Industry for the year under review are shown in the above table.



TABLE 3. Products of the Compressed Gases Industry, 1953 and 1954

Product	1953		1954	
	Quantity	Value of factory shipments	Quantity	Value of factory shipments
	cu. ft.	\$	cu. ft.	\$
Acetylene <sup>1</sup> .....	155,392,530	5,180,019	150,026,906	5,060,711
Oxygen <sup>1</sup> .....	897,743,238	7,418,809	927,713,308	7,165,890
Other products <sup>2</sup> .....	—	3,113,502	—	3,646,687
<b>Canada</b> .....	—	<b>15,712,330</b>	—	<b>15,873,288</b>

1. In cylinders or delivered by pipeline.

2. Includes nitrous oxide, carbon dioxide, nitrogen, argon, hydrogen, and ammonia made from gas liquor.

TABLE 4. Materials Used in the Compressed Gases Industry, 1953 and 1954

Material	Unit of measure	1953		1954	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Acetone .....	pound	528,016	73,368	489,749	65,029
Calcium carbide .....	ton	12,658	1,381,898	12,443	1,278,410
Oil (for making carbon dioxide and hydrogen) .....	Imp. gal.	1,423,047	128,217	1,446,916	133,468
Potassium hydroxide .....	lb.	188,086	15,526	68,915	7,848
Sodium hydroxide .....	"	337,100	16,889	468,022	27,681
Other materials <sup>1</sup> .....	—	—	624,548	—	1,110,166
<b>Total</b> .....	—	—	<b>2,240,446</b>	—	<b>2,622,602</b>
Cylinders purchased during the year .....	number	24,332	685,231	11,913	527,020

1. Includes ammonia liquor, ammonium nitrate, unpurified brewery gas, lime, soda ash, condensing water, etc.

TABLE 5. Production<sup>1</sup> of Acetylene and Oxygen, 1945-1954

Year	Acetylene		Oxygen <sup>2</sup>	
	Quantity	Selling value at works	Quantity	Selling value at works
	cu. ft.	\$	cu. ft.	\$
1945 .....	95,889,965	2,273,945	565,601,348	4,297,791
1946 .....	100,276,367	2,403,386	476,822,719	3,973,866
1947 .....	111,370,838	2,748,114	577,806,032	4,603,919
1948 .....	123,185,685	3,301,822	565,869,719	5,297,530
1949 .....	120,831,500	3,420,827	657,134,873	5,567,476
1950 .....	124,375,068	3,586,705	690,362,200	5,400,670
1951 .....	136,043,698	4,207,520	794,054,423	6,893,420
1952 .....	152,024,204	4,957,888	934,783,851	8,078,431
1953 .....	155,392,530	5,180,019	901,943,238	7,431,405
1954 .....	150,026,906	5,060,711	939,153,386	7,183,927

1. Includes only the production for sale, chiefly in cylinders or for delivery by pipeline to adjacent consuming plants. Does not include amounts made for own use by some chemical companies.

2. Includes production reported by firms classified to the slaughtering and meat packing industry in 1952.

TABLE 6. Available Data on the Consumption of Carbon Dioxide, 1950-1954

Year	In the manufacture of carbonated beverages (soft drinks) <sup>1</sup>				In the manufacture of malt liquors	
	In cylinders		Solid		Quantity	Cost at works
	Quantity	Cost at works	Quantity	Cost at works		
	pounds	\$	pounds	\$	pounds	\$
1950 .....	10,873,710	891,352	985,046	63,497	1,624,000	129,191
1951 .....	9,953,957	855,135	810,428	55,635	1,343,697	117,408
1952 .....	11,212,871	983,966	943,419	64,275	1,061,637	113,174
1953 .....	11,843,001	1,052,125	895,359	63,362	1,018,795	103,714
1954 .....	13,404,742	1,003,780	1,862,033	144,327	742,529	88,264

1. Includes amounts used by firms classified to the Breweries Industry which made soft drinks as a minor product.

TABLE 7. Principal Statistics of the Compressed Gases Industry in Canada, Grouped According to Size of Establishments, 1953 and 1954

Establishments reporting value of factory shipments	Establishments	Employees	Earnings	Cost at plant of materials used	Selling value of factory shipments
	No.	No.	\$	\$	\$
<b>1953</b>					
Under \$10,000 .....	1	19	60,128	38,200	111,451
\$25,000 to \$49,999 .....	3				
\$100,000 to \$199,999 .....	12	142	479,379	315,923	1,775,515
\$200,000 to \$499,999 .....	17	414	1,313,649	746,167	5,197,737
\$500,000 to \$999,999 .....	11	651	2,193,688	1,140,156	8,627,627
\$1,000,000 to \$4,999,999 .....	1				
<b>Total .....</b>	<b>45</b>	<b>1,226</b>	<b>4,046,844</b>	<b>2,240,446</b>	<b>13,712,330</b>
<b>1954</b>					
\$25,000 to \$49,999 .....	3	16	51,519	47,105	115,190
\$50,000 to \$99,999 .....	3	17	59,787	77,403	235,279
\$100,000 to \$199,999 .....	14	167	587,895	363,204	2,279,276
\$200,000 to \$499,999 .....	16	484	1,596,140	826,649	5,176,009
\$500,000 to \$999,999 .....	8	621	2,059,799	1,308,241	8,067,534
\$1,000,000 to \$4,999,999 .....	2				
<b>Total .....</b>	<b>46</b>	<b>1,305</b>	<b>4,355,140</b>	<b>2,622,602</b>	<b>13,873,288</b>

TABLE 8. Employees and Their Earnings in the Compressed Gases Industry, 1953 and 1954

Province	Number of employees					Earnings		
	Supervisory and office		Production workers		Total	Supervisory and office	Production workers	Total
	Male	Female	Male	Female				
1953						\$	\$	\$
Quebec .....	49	39	190	1	279	283,233	651,324	934,557
Ontario .....	134	115	272	—	521	849,912	904,663	1,754,575
Alberta .....	28	18	58	—	104	145,910	196,576	342,486
British Columbia .....	21	16	62	—	99	112,665	217,856	330,521
Other provinces .....	57	34	132	—	223	284,180	400,525	684,705
Canada .....	289	222	714	1	1,226	1,675,900	2,370,944	4,046,844

TABLE 8. Employees and Their Earnings in the Compressed Gases Industry, 1953 and 1954 - Concluded

Province	Number of employees					Earnings		
	Supervisory and office		Production workers		Total	Supervisory and office	Production workers	Total
	Male	Female	Male	Female				
1954						\$	\$	\$
Quebec .....	54	40	195	1	290	298,868	667,488	966,356
Ontario .....	156	130	287	—	573	981,223	978,393	1,959,616
Alberta .....	37	16	60	—	113	163,459	204,727	368,186
British Columbia .....	25	15	59	—	99	120,626	209,745	330,371
Other provinces .....	69	36	125	—	230	334,867	395,744	730,611
Canada .....	341	237	726	1	1,305	1,899,043	2,456,097	4,355,140

TABLE 9. Production Workers, by Months, 1953 and 1954

Month	1953			1954		
	Male	Female	Total	Male	Female	Total
	No.	No.	No.	No.	No.	No.
January .....	676	1	677	708	1	709
February .....	682	1	683	711	1	712
March .....	690	1	691	722	1	723
April .....	697	1	698	717	1	718
May .....	705	1	706	744	1	745
June .....	739	1	740	748	1	749
July .....	764	1	765	757	1	758
August .....	757	1	758	752	1	753
September .....	732	1	733	733	1	734
October .....	720	1	721	715	1	716
November .....	711	1	712	708	1	709
December .....	707	1	708	710	1	711
Average .....	714	1	715	726	1	727

TABLE 10. Capital and Repair Expenditures in the Compressed Gases 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 .....	362	1,415	1,777	112	543	655	2,432
1951 .....	560	1,244	1,804	129	638	767	2,571
1952 .....	215	1,655	1,870	192	736	928	2,798
1953 .....	315	2,452	2,767	166	885	1,051	3,818
1954 <sup>1</sup> .....	622	1,798	2,420	147	833	980	3,400

1. Preliminary.



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TABLE 11. Production and Imports of Liquefied Petroleum Gases, 1930-1934

Year	Production	Imports
	(pounds)	
1950.....	63,000,000	155,476,000
1951.....	112,000,000	188,849,000
1952.....	184,000,000	191,701,000
1953.....	263,835,000	263,071,000
1954.....	371,160,000	265,319,376

TABLE 12. Production, Imports and Exports of Chlorine, 1930-1934

Year	Production	Imports	Exports
	(tons)		
1950.....	131,000	5,500	1
1951.....	155,000	12,900	1
1952.....	169,000	15,800	14,200
1953.....	169,000	20,400	17,900
1954.....	167,000	32,100	2,900

1. Not available separately before 1952.

List of Firms in the Compressed Gases Industry, 1934

Name of firm	Location of plant
Liquid Carbonic Canadian Corporation Limited, H.O. 2120 Cabot St., Montreal, Que.	Dartmouth, N.S.; Montreal, Que.; Quebec, Que.; Toronto, Ont.; Winnipeg, Man.; Edmonton, Alta.; Vancouver, B.C.
L'Air Liquide Society & Canadian Liquid Air Co. Limited. H.O. 1111 Beaver Hall Hill, Montreal, Que.	St. John's, Nfld.; Halifax, N.S.; Sidney, N.S.; Moncton, N.B.; Montreal, Que.; St. Joseph de Sorel, Que.; Quebec, Que.; Toronto, Ont.; London, Ont.; Hamilton, Ont.; Port Arthur, Ont.; Winnipeg, Man.; Regina, Sask.; Calgary, Alta.; Edmonton, Alta.; Vancouver, B.C.
Dominion Oxygen Company, Limited, H.O. Canada Life Building, 340 University Ave., Toronto, Ont.	Arvida, Que.; Quebec, Que.; Montreal, Que. (2); Shawinigan Falls, Que.; Sault Ste. Marie, Ont.; Toronto, Ont.; Welland, Ont.; Merritton, Ont.; St. Boniface, Man.; Saskatoon, Sask.; Clover Bar, Alta.; Vancouver, B.C.
Imperial Oxygen Limited, H.O. 8400 Decarie Blvd., Montreal, Que.	Montreal, Que. (2); Toronto, Ont.; Windsor, Ont.;
Ohio Chemical Canada Limited, 2535 St. James St. W., Montreal, Que.	Montreal, Que.; Toronto, Ont.
Alberta Oxygen & Acetylene Co. Ltd., 142nd Street at 108th Avenue, Edmonton, Alta.	Edmonton, Alta.
British Oxygen Canada Ltd.	Horner Ave., Etobicoke, Ont.
Independent Oxygen Ltd.	Lethbridge, Alta.
Peoples' Gas Supply Co., Ltd.	2-10 Mill St., Ottawa, Ont.