

Industrial Gases

Summary

2000

Issued October 2001

MQ325C(00)-5

Current
Industrial
Reports

Information about the scope of the survey, methodology, explanation of terms and historical notes for this survey may be found in the introduction of the 1998 Manufacturing Profiles, issued December 2000.

Current data are released electronically on Internet for all individual surveys as they become available. Use: <http://www.census.gov/econ/www/manumenu.html>. Individual reports can be accessed by choosing "Current Industrial Reports (CIR's)," clicking on "Report Number Index;" from the "Industrial Products by Numeric Index," choose the survey of interest. Follow the menu to view the PDF file or to download the worksheet file (WK format) to your personal computer.

These data are also available through the U.S. Department of Commerce and STAT-USA Electronic Bulletin Board by subscription. To access, dial 202-482-3870 and follow the prompts to register. Also, you may call 202-482-1986 or 1-800-STAT-USA, for further information. The Internet address is: www.stat-usa.gov/.

SPECIAL NOTE: The manufacturer's production of principal gases during 1999 is reported in a summary format for the first time. 1998 data

were derived from the annual MA325C information that was published for the last time in April 2000.

SUMMARY OF FINDINGS

For 2000, acetylene gas was 4,507 million cubic feet, a decrease of 2 percent from the 4,617 million cubic feet in 1999. Carbon dioxide liquid was 7,796 thousand short tons in 2000, a 3-percent increase from the 7,564 thousand short tons in 1999. Argon gas increased by 5 percent to 20,696 million cubic feet in 2000, from the 19,657 million cubic feet in 1999. Hydrogen gas shipments for 2000 were 480,840 million cubic feet, a 6-percent increase from the 454,020 million cubic feet for 1999. Nitrogen gas shipments for 2000 were 932,612 million cubic feet, a 9-percent increase from the 858,167 million cubic feet in 1999.

NOTE. Data are now published on the new North American Industry Classification System (NAICS) basis and therefore are not always comparable to the old Standard Industrial Classification (SIC) code. For further information on NAICS, see www.census.gov/epcd/www/naics.html.

Address inquiries concerning these data to Consumer Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call John Linehan, 301-457-4742.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-457-4673.

U S C E N S U S B U R E A U

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U.S. Department of Commerce
Economics and Statistics Administration
U.S. Census Bureau



Table 1. Summary of Production of Principal Gases: 2000 and 1999
[Million cubic feet, except as noted]

Quarter and year	Carbon dioxide [short tons]						Hydrogen, high and low purity	Nitrogen, high and low purity	Oxygen, high and low purity
	Acety- lene (3251201)	Total (3251204)	Gas (3251204011)	Liquid (3251204021)	Solid (3251204031)	Argon high purity (325120D021)	(100 percent) (325120D pt.)	(100 percent) (3251207)	(100 percent) (325120A)
2000									
Total.....	4,507	14,834,408	(S)	7,796,238	(S)	20,696	480,840	932,612	(D)
Fourth quarter.....	1,122	3,534,592	(S)	1,868,076	(S)	4,956	126,356	230,725	(D)
Third quarter.....	1,072	3,917,853	(S)	2,076,583	(S)	5,081	121,884	229,583	164,589
Second quarter.....	1,122	3,741,243	(S)	1,965,625	(S)	5,181	119,093	235,434	174,538
First quarter.....	1,191	3,640,720	(S)	1,885,954	(S)	5,478	113,507	236,870	173,377
1999 1/									
Total.....	4,617	13,118,187	(S)	7,563,978	(S)	19,657	454,020	858,167	685,357
Fourth quarter.....	1,200	3,463,283	(S)	1,976,520	(S)	5,067	119,359	224,845	157,884
Third quarter.....	1,073	3,242,172	(S)	1,914,934	(S)	4,915	116,708	215,653	155,500
Second quarter.....	1,144	3,297,726	(S)	1,877,389	(S)	4,845	112,383	207,374	192,346
First quarter.....	1,200	3,115,006	(S)	1,795,135	(S)	4,830	105,570	210,295	179,627

D Withheld to avoid disclosing data for individual companies. S Does not meet publication standards.

1/Data are from Current Industrial Report series, MQ325C(99)-5, "Industrial Gases," issued September 2000.

Table 2a. Primary Production of Specified Industrial Gases: 2000
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
TOTAL					
3251201	Acetylene.....	4,507	2,466	99,501	2,843
3251201011	Produced for compression, including cylinder and pipeline.....	916	233	27,113	(X)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	3,591	2,233	72,388	2,843
351204	Carbon dioxide [short tons].....	14,834,408	12,969,132	406,674	629,203
3251204011	Gas, including amounts produced and liquefied.....	(S)	(S)	(S)	(S)
3251204021	Liquid, including amounts produced and used to make dry ice.....	7,796,238	7,534,971	350,947	121,351
3251204031	Solid (dry ice).....	(S)	(S)	(S)	(X)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	20,696	18,534	290,957	31,312
325120D pt.	Hydrogen.....	480,840	298,216	649,632	166,414
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D041	Pipeline and onsite use 1/.....	(D)	(D)	(D)	(X)
325120D051	Consumption in same plant.....	190,648	(X)	(X)	166,414
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D071	Other shipments or uses 1/.....	290,192	298,216	649,632	(X)
3251207	Nitrogen.....	932,612	848,329	2,889,726	11,267
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(D)	(D)	(X)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/.....	614,562	606,011	391,014	(X)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(X)	(X)	(D)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
3251207051	Merchant shipment.....	257,042	229,989	2,457,678	(X)
3251207061	Consumption in same plant 3/.....	42,030	(X)	(X)	11,267
3251207071	Other shipments or uses.....	18,978	12,329	41,034	(X)
325120A	Oxygen.....	(D)	(D)	7,204,115	(D)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(X)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/.....	496,519	(D)	(D)	(X)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(X)	(X)	(D)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
325120A051	Merchant shipment.....	106,481	64,391	(D)	(X)
325120A061	Consumption in this plant 5/.....	42,598	(X)	(X)	(D)
325120A071	Other shipments or uses.....	(D)	(D)	(D)	(X)
FOURTH QUARTER					
3251201	Acetylene.....	1,122	561	22,358	(D)
3251201011	Produced for compression, including cylinder and pipeline.....	c/ 237	c/ 60	c/ 6,716	(X)

Continued

Table 2a. Primary Production of Specified Industrial Gases: 2000
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description		Quantity produced		Quantity shipped		Value of shipments		Quantity produced and consumed in plant
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	a/	885	a/	501	a/	15,642		(D)
351204	Carbon dioxide [short tons].....		3,534,592		2,836,427		104,224		145,565
3251204011	Gas, including amounts produced and liquefied.....		(S)		(S)		(S)		(S)
3251204021	Liquid, including amounts produced and used to make dry ice.....	b/	1,868,076	b/	1,743,070	c/	91,380	c/	24,629
3251204031	Solid (dry ice).....		(S)		(S)		(S)		(X)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	b/	4,956	b/	4,417	c/	73,430	c/	5,033
325120D pt.	Hydrogen.....		126,356		68,501		40,583		40,415
	Gas produced for:								
325120D031	Merchant shipment 1/.....		(D)		(D)		(D)		(X)
325120D041	Pipeline and onsite use 1/.....		(D)		(D)		(D)		(X)
325120D051	Consumption in same plant.....	a/	49,807		(X)		(X)	a/	40,415
	Liquid produced for:								
325120D061	Merchant shipment 1/.....		(D)		(D)		(D)		(X)
325120D071	Other shipments or uses 1/.....	c/	76,549	b/	68,501	b/	40,583		(X)
3251207	Nitrogen.....		230,725		(D)		(D)		(D)
	Gas produced by:								
3251207011	Cryogenic onsite and pipeline 2/.....		(D)		(D)		(D)		(X)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/.....	a/	150,374	a/	147,471	b/	98,270		(X)
	Captive uses for consumption in same plant (user-owned):								
3251207031	Cryogenic processes 3/.....		(D)		(X)		(X)		(D)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....		(D)		(X)		(X)		(D)
	Liquid produced for:								
3251207051	Merchant shipment.....	c/	65,231	c/	58,274	c/	652,621		(X)
3251207061	Consumption in same plant 3/.....	b/	10,493		(X)		(X)		(D)
3251207071	Other shipments or uses.....		4,627		(D)		(D)		(X)
325120A	Oxygen.....		(D)		(D)		1,071,558		3,783
	Gas produced by:								
325120A011	Cryogenic onsite and pipeline 4/.....		(D)		(D)		(D)		(X)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/.....	a/	110,903	a/	103,545		(D)		(X)
	Captive uses for consumption in same plant (user-owned):								
325120A031	Cryogenic processes 5/.....		(D)		(X)		(X)		(D)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....		(D)		(X)		(X)		(D)
	Liquid produced for:								
325120A051	Merchant shipment.....	c/	26,780	c/	17,329	c/	34,574		(X)
325120A061	Consumption in this plant 5/.....	b/	8,493		(X)		(X)	c/	3,783
325120A071	Other shipments or uses.....		(D)		(D)		(D)		(X)
THIRD QUARTER									
3251201	Acetylene.....		1,072		508		21,100		(D)
3251201011	Produced for compression, including cylinder and pipeline.....	c/	211	c/	54	b/	6,079		(X)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	a/	861	c/	454	c/	15,021		(D)
351204	Carbon dioxide [short tons].....		3,917,853		3,486,334		101,687		137,524

Continued

Table 2a. Primary Production of Specified Industrial Gases: 2000
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
3251204011	Gas, including amounts produced and liquefied.....	(S)	(S)	(S)	(S)
3251204021	Liquid, including amounts produced and used to make dry ice.....	c/ 2,076,583	c/ 1,996,836	c/ 87,881	b/ 33,745
3251204031	Solid (dry ice).....	(S)	(S)	(S)	(X)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	b/ 5,081	b/ 4,495	c/ 68,302	c/ 5,146
325120D pt.	Hydrogen.....	121,884	88,489	94,929	44,387
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D041	Pipeline and onsite use 1/.....	(D)	(D)	(D)	(X)
325120D051	Consumption in same plant.....	a/ 50,486	(X)	(X)	a/ 44,387
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D071	Other shipments or uses 1/.....	c/ 71,398	b/ 88,489	b/ 94,929	(X)
3251207	Nitrogen.....	229,583	(D)	(D)	(D)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(D)	(D)	(X)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/.....	a/ 149,099	a/ 148,128	b/ 95,441	(X)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(X)	(X)	(D)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
3251207051	Merchant shipment.....	c/ 64,868	c/ 57,298	c/ 571,130	(X)
3251207061	Consumption in same plant 3/.....	c/ 10,666	(X)	(X)	(D)
3251207071	Other shipments or uses.....	a/ 4,950	(D)	(D)	(X)
325120A	Oxygen.....	164,589	(D)	1,179,609	(D)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(X)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/.....	a/ 122,714	a/ 113,920	(D)	(X)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(X)	(X)	(D)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
325120A051	Merchant shipment.....	c/ 26,174	c/ 15,897	c/ 31,304	(X)
325120A061	Consumption in this plant 5/.....	c/ 11,133	(X)	(X)	(D)
325120A071	Other shipments or uses.....	a/ 4,568	(D)	(D)	(X)
SECOND QUARTER					
3251201	Acetylene.....	1,122	697	26,558	(D)
3251201011	Produced for compression, including cylinder and pipeline.....	c/ 220	56	6,779	(X)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	a/ 902	a/ 641	c/ 19,779	(D)
351204	Carbon dioxide [short tons].....	3,741,243	3,350,728	100,488	117,115
3251204011	Gas, including amounts produced and liquefied.....	(S)	(S)	(S)	(S)
3251204021	Liquid, including amounts produced and used to make dry ice.....	a/ 1,965,625	b/ 1,918,423	c/ 87,216	c/ 23,326
3251204031	Solid (dry ice).....	(S)	(S)	(S)	(X)

Table 2a. Primary Production of Specified Industrial Gases: 2000
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	b/ 5,181	a/ 4,560	b/ 70,127	c/ 5,146
325120D pt.	Hydrogen.....	119,093	74,922	471,641	40,409
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D041	Pipeline and onsite use 1/.....	(D)	(D)	(D)	(X)
325120D051	Consumption in same plant.....	a/ 46,722	(X)	(X)	b/ 40,409
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D071	Other shipments or uses 1/.....	c/ 72,371	b/ 74,922	b/ 471,641	(X)
3251207	Nitrogen.....	235,434	(D)	(D)	(D)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(D)	(D)	(X)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/.....	a/ 155,579	a/ 152,866	a/ 98,725	(X)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(X)	(X)	(D)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
3251207051	Merchant shipment.....	b/ 64,901	b/ 57,118	c/ 571,480	(X)
3251207061	Consumption in same plant 3/.....	b/ 10,448	(X)	(X)	(D)
3251207071	Other shipments or uses.....	4,506	(D)	(D)	(X)
325120A	Oxygen.....	174,538	(D)	1,896,684	5,317
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(X)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/.....	a/ 131,687	a/ 122,192	(D)	(X)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(X)	(X)	(D)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
325120A051	Merchant shipment.....	b/ 27,124	16,199	31,709	(X)
325120A061	Consumption in this plant 5/.....	b/ 11,427	(X)	(X)	b/ 5,317
325120A071	Other shipments or uses.....	a/ 4,300	(D)	(D)	(X)
FIRST QUARTER					
3251201	Acetylene.....	1,191	700	29,485	839
3251201011	Produced for compression, including cylinder and pipeline.....	b/ 248	63	7,539	(X)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	a/ 943	c/ 637	c/ 21,946	c/ 839
351204	Carbon dioxide [short tons].....	3,640,720	3,295,643	100,275	228,999
3251204011	Gas, including amounts produced and liquefied.....	(S)	(S)	(S)	(S)
3251204021	Liquid, including amounts produced and used to make dry ice.....	a/ 1,885,954	c/ 1,876,642	c/ 84,470	c/ 39,651
3251204031	Solid (dry ice).....	(S)	(S)	(S)	(X)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	5,478	b/ 5,062	b/ 79,098	c/ 15,987

Continued

Table 2a. Primary Production of Specified Industrial Gases: 2000
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
325120D pt.	Hydrogen.....	113,507	66,304	42,479	41,203
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D041	Pipeline and onsite use 1/.....	(D)	(D)	(D)	(X)
325120D051	Consumption in same plant..... a/	43,633	(X)	(X)	b/ 41,203
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(D)	(D)	(X)
325120D071	Other shipments or uses 1/..... a/	69,874 c/	66,304 c/	42,479	(X)
3251207	Nitrogen.....	236,870	219,279	775,052	3,388
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(D)	(D)	(X)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/.....	159,510 c/	157,546 a/	98,578	(X)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(X)	(X)	(D)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
3251207051	Merchant shipment..... a/	62,042 c/	57,299 c/	662,447	(X)
3251207061	Consumption in same plant 3/.....	10,423	(X)	(X)	b/ 3,388
3251207071	Other shipments or uses..... a/	4,895 c/	4,434 c/	14,027	(X)
325120A	Oxygen.....	173,377	(D)	1,971,159	5,483
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(X)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/.....	131,215	(D)	(D)	(X)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(X)	(X)	(D)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(X)	(X)	(D)
	Liquid produced for:				
325120A051	Merchant shipment..... a/	26,403	14,966	(D)	(X)
325120A061	Consumption in this plant 5/..... a/	11,545	(X)	(X)	b/ 5,483
325120A071	Other shipments or uses.....	4,214	(D)	(D)	(X)

D Withheld to avoid disclosing data for individual companies. pt. Part. S Does not meet publication standards. X Not applicable.

1/Product codes 325120D031, 325120D041, 325120D061, and 325120D071 are combined to avoid disclosing data for individual companies.

2/Product codes 3251207011 and 3251207021 are combined to avoid disclosing data for individual companies.

3/Product codes 3251207031, 3251207041, and 3251207061 are combined to avoid disclosing data for individual companies.

4/Product codes 325120A011 and 325120A021 are combined to avoid disclosing data for individual companies.

5/Product codes 325120A031, 325120A041, and 325120A061 are combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: a/10 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Table 2b. Primary Production of Specified Industrial Gases: 1999
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
TOTAL					
3251201	Acetylene.....	4,617	(NA)	(NA)	(NA)
3251201011	Produced for compression, including cylinder and pipeline.....	633	(NA)	(NA)	(NA)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant.....	3,983	(NA)	(NA)	(NA)
351204	Carbon dioxide [short tons].....	13,118,187	(NA)	(NA)	(NA)
3251204011	Gas, including amounts produced and liquefied.....	(S)	(NA)	(NA)	(NA)
3251204021	Liquid, including amounts produced and used to make dry ice.....	7,563,978	(NA)	(NA)	(NA)
3251204031	Solid (dry ice).....	(S)	(NA)	(NA)	(NA)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant.....	19,657	(NA)	(NA)	(NA)
325120D pt.	Hydrogen.....	454,020	(NA)	(NA)	(NA)
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D041	Pipeline and onsite use 1/.....	(D)	(NA)	(NA)	(NA)
325120D051	Consumption in same plant.....	166,994	(NA)	(NA)	(NA)
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D071	Other shipments or uses 1/.....	287,025	(NA)	(NA)	(NA)
3251207	Nitrogen.....	858,167	(NA)	(NA)	(NA)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(NA)	(NA)	(NA)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/....	551,664	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(NA)	(NA)	(NA)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
3251207051	Merchant shipment.....	242,463	(NA)	(NA)	(NA)
3251207061	Consumption in same plant 3/.....	41,169	(NA)	(NA)	(NA)
3251207071	Other shipments or uses.....	22,871	(NA)	(NA)	(NA)
325120A	Oxygen.....	685,357	(NA)	(NA)	(NA)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(D)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/...	534,022	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(NA)	(NA)	(NA)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
325120A051	Merchant shipment.....	97,047	(NA)	(NA)	(NA)
325120A061	Consumption in this plant 5/.....	35,850	(NA)	(NA)	(NA)
325120A071	Other shipments or uses.....	18,438	(NA)	(NA)	(NA)
FOURTH QUARTER					
3251201	Acetylene.....	1,200	(NA)	(NA)	(NA)
3251201011	Produced for compression, including cylinder and pipeline..... c/	164	(NA)	(NA)	(NA)

Table 2b. Primary Production of Specified Industrial Gases: 1999
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant..... a/	1,036	(NA)	(NA)	(NA)
351204	Carbon dioxide [short tons].....	3,463,283	(NA)	(NA)	(NA)
3251204011	Gas, including amounts produced and liquefied.....	(S)	(NA)	(NA)	(NA)
3251204021	Liquid, including amounts produced and used to make dry ice..... a/	1,976,520	(NA)	(NA)	(NA)
3251204031	Solid (dry ice).....	(S)	(NA)	(NA)	(NA)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant..... a/	5,067	(NA)	(NA)	(NA)
325120D pt.	Hydrogen.....	119,359	(NA)	(NA)	(NA)
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D041	Pipeline and onsite use 1/.....	(D)	(NA)	(NA)	(NA)
325120D051	Consumption in same plant..... a/	43,723	(NA)	(NA)	(NA)
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D071	Other shipments or uses 1/.....	75,636	(NA)	(NA)	(NA)
3251207	Nitrogen.....	224,845	(NA)	(NA)	(NA)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(NA)	(NA)	(NA)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/....	147,037	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(NA)	(NA)	(NA)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
3251207051	Merchant shipment..... a/	61,286	(NA)	(NA)	(NA)
3251207061	Consumption in same plant 3/.....	11,150	(NA)	(NA)	(NA)
3251207071	Other shipments or uses.....	5,371	(NA)	(NA)	(NA)
325120A	Oxygen.....	157,884	(NA)	(NA)	(NA)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(D)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/...	118,249	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(NA)	(NA)	(NA)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
325120A051	Merchant shipment..... a/	25,264	(NA)	(NA)	(NA)
325120A061	Consumption in this plant 5/.....	10,196	(NA)	(NA)	(NA)
325120A071	Other shipments or uses.....	4,175	(NA)	(NA)	(NA)
THIRD QUARTER					
3251201	Acetylene.....	1,073	(NA)	(NA)	(NA)
3251201011	Produced for compression, including cylinder and pipeline..... c/	140	(NA)	(NA)	(NA)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant..... a/	932	(NA)	(NA)	(NA)
351204	Carbon dioxide [short tons].....	3,242,172	(NA)	(NA)	(NA)

Table 2b. Primary Production of Specified Industrial Gases: 1999
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
3251204011	Gas, including amounts produced and liquefied.....	(S)	(NA)	(NA)	(NA)
3251204021	Liquid, including amounts produced and used to make dry ice..... a/	1,914,934	(NA)	(NA)	(NA)
3251204031	Solid (dry ice).....	(S)	(NA)	(NA)	(NA)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant..... a/	4,915	(NA)	(NA)	(NA)
325120D pt.	Hydrogen.....	116,708	(NA)	(NA)	(NA)
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D041	Pipeline and onsite use 1/.....	(D)	(NA)	(NA)	(NA)
325120D051	Consumption in same plant..... a/	47,564	(NA)	(NA)	(NA)
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D071	Other shipments or uses 1/.....	69,144	(NA)	(NA)	(NA)
3251207	Nitrogen.....	215,653	(NA)	(NA)	(NA)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(NA)	(NA)	(NA)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/....	136,987	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(NA)	(NA)	(NA)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
3251207051	Merchant shipment..... a/	60,734	(NA)	(NA)	(NA)
3251207061	Consumption in same plant 3/.....	11,100	(NA)	(NA)	(NA)
3251207071	Other shipments or uses.....	6,832	(NA)	(NA)	(NA)
325120A	Oxygen.....	155,500	(NA)	(NA)	(NA)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(D)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/...	116,472	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(NA)	(NA)	(NA)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
325120A051	Merchant shipment..... a/	23,838	(NA)	(NA)	(NA)
325120A061	Consumption in this plant 5/.....	10,279	(NA)	(NA)	(NA)
325120A071	Other shipments or uses.....	4,910	(NA)	(NA)	(NA)
SECOND QUARTER					
3251201	Acetylene.....	1,144	(NA)	(NA)	(NA)
3251201011	Produced for compression, including cylinder and pipeline..... c/	154	(NA)	(NA)	(NA)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant..... a/	990	(NA)	(NA)	(NA)
351204	Carbon dioxide [short tons].....	3,297,726	(NA)	(NA)	(NA)
3251204011	Gas, including amounts produced and liquefied.....	(S)	(NA)	(NA)	(NA)
3251204021	Liquid, including amounts produced and used to make dry ice..... a/	1,877,389	(NA)	(NA)	(NA)
3251204031	Solid (dry ice).....	(S)	(NA)	(NA)	(NA)

Table 2b. Primary Production of Specified Industrial Gases: 1999
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant..... a/	4,845	(NA)	(NA)	(NA)
325120D pt.	Hydrogen.....	112,383	(NA)	(NA)	(NA)
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D041	Pipeline and onsite use 1/.....	(D)	(NA)	(NA)	(NA)
325120D051	Consumption in same plant..... b/	39,541	(NA)	(NA)	(NA)
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D071	Other shipments or uses 1/.....	72,842	(NA)	(NA)	(NA)
3251207	Nitrogen.....	207,374	(NA)	(NA)	(NA)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(NA)	(NA)	(NA)
3251207021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 2/....	131,863	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(NA)	(NA)	(NA)
3251207041	Noncryogenic processes, (psa, vpsa, membranes, etc.) 3/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
3251207051	Merchant shipment..... b/	59,886	(NA)	(NA)	(NA)
3251207061	Consumption in same plant 3/.....	10,352	(NA)	(NA)	(NA)
3251207071	Other shipments or uses.....	5,274	(NA)	(NA)	(NA)
325120A	Oxygen.....	192,346	(NA)	(NA)	(NA)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(D)	(D)	(D)
325120A021	Noncryogenic processes (psa, vpsa, membranes, etc.) by gas-producing companies 4/...	155,992	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(NA)	(NA)	(NA)
325120A041	Noncryogenic processes (psa, vpsa, membranes, etc.) 5/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
325120A051	Merchant shipment..... b/	23,893	(NA)	(NA)	(NA)
325120A061	Consumption in this plant 5/.....	8,004	(NA)	(NA)	(NA)
325120A071	Other shipments or uses.....	4,456	(NA)	(NA)	(NA)
FIRST QUARTER					
3251201	Acetylene.....	1,200	(NA)	(NA)	(NA)
3251201011	Produced for compression, including cylinder and pipeline..... c/	174	(NA)	(NA)	(NA)
3251201021	Produced for pipeline shipment, excluding that shipped to be compressed, and for consumption in same plant..... a/	1,025	(NA)	(NA)	(NA)
351204	Carbon dioxide [short tons].....	3,115,006	(NA)	(NA)	(NA)
3251204011	Gas, including amounts produced and liquefied....	(S)	(NA)	(NA)	(NA)
3251204021	Liquid, including amounts produced and used to make dry ice.....	1,795,135	(NA)	(NA)	(NA)
3251204031	Solid (dry ice).....	(S)	(NA)	(NA)	(NA)
325120D021	Argon, high purity: Produced for cylinder and bulk delivery and pipeline shipments, and for consumption in same plant..... a/	4,830	(NA)	(NA)	(NA)

Continued

Table 2b. Primary Production of Specified Industrial Gases: 1999
[Quantity in million cubic feet, unless otherwise noted. Value in thousands of dollars]

Product code	Product description	Quantity produced	Quantity shipped	Value of shipments	Quantity produced and consumed in plant
325120D pt.	Hydrogen.....	105,570	(NA)	(NA)	(NA)
	Gas produced for:				
325120D031	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D041	Pipeline and onsite use 1/.....	(D)	(NA)	(NA)	(NA)
325120D051	Consumption in same plant..... a/	36,167	(NA)	(NA)	(NA)
	Liquid produced for:				
325120D061	Merchant shipment 1/.....	(D)	(NA)	(NA)	(NA)
325120D071	Other shipments or uses 1/.....	69,403	(NA)	(NA)	(NA)
3251207	Nitrogen.....	210,295	(NA)	(NA)	(NA)
	Gas produced by:				
3251207011	Cryogenic onsite and pipeline 2/.....	(D)	(NA)	(NA)	(NA)
3251207021	Noncryogenic processes (psa, vpsa, mem- branes, etc.) by gas-producing companies 2/....	135,777	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
3251207031	Cryogenic processes 3/.....	(D)	(NA)	(NA)	(NA)
3251207041	Noncryogenic processes, (psa, vpsa, mem- branes, etc.) 3/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
3251207051	Merchant shipment..... b/	60,557	(NA)	(NA)	(NA)
3251207061	Consumption in same plant 3/.....	8,566	(NA)	(NA)	(NA)
3251207071	Other shipments or uses.....	5,395	(NA)	(NA)	(NA)
325120A	Oxygen.....	179,627	(NA)	(NA)	(NA)
	Gas produced by:				
325120A011	Cryogenic onsite and pipeline 4/.....	(D)	(NA)	(NA)	(NA)
325120A021	Noncryogenic processes (psa, vpsa, mem- branes, etc.) by gas-producing companies 4/...	143,309	(NA)	(NA)	(NA)
	Captive uses for consumption in same plant (user-owned):				
325120A031	Cryogenic processes 5/.....	(D)	(NA)	(NA)	(NA)
325120A041	Noncryogenic processes (psa, vpsa, mem- branes, etc.) 5/.....	(D)	(NA)	(NA)	(NA)
	Liquid produced for:				
325120A051	Merchant shipment..... b/	24,052	(NA)	(NA)	(NA)
325120A061	Consumption in this plant 5/.....	7,370	(NA)	(NA)	(NA)
325120A071	Other shipments or uses.....	4,896	(NA)	(NA)	(NA)

D Withheld to avoid disclosing data for individual companies. NA Not available. pt. Part. S Does not meet publication standards.

1/Product codes 325120D031, 325120D041, 325120D061, and 325120D071 are combined to avoid disclosing data for individual companies.

2/Product codes 3251207011 and 3251207021 are combined to avoid disclosing data for individual companies.

3/Product codes 3251207031, 3251207041, and 3251207061 are combined to avoid disclosing data for individual companies.

4/Product codes 325120A011 and 325120A021 are combined to avoid disclosing data for individual companies.

5/Product codes 325120A031, 325120A041, and 325120A061 are combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: a/10 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Table 3. Production, Exports, Imports, and Apparent Consumption of Industrial Gases: 2000 and 1999
[Million cubic meters, unless otherwise noted]

Product code	Product description	Manu- facturers' production	Exports of domestic merchan- dise 1/	Percent exports to manufac- turers' production	Imports for consump- tion 2/	Apparent consump- tion 3/	Percent imports to apparent consumption
2000							
3251204	Carbon dioxide, gas, liquid, and solid [metric tons].....	13,466,676	127,577	0.9	15,163	13,354,262	0.1
325120D021	Argon.....	586	409	69.8	27	204	13.2
325120D031, 041, 051, 061, 071	Hydrogen.....	13,617	363	2.7	150	13,404	1.1
3251207	Nitrogen.....	26,412	126	0.5	44	26,330	0.2
325120A	Oxygen.....	18,729	153	0.8	19	18,595	0.1
1999							
3251204	Carbon dioxide, gas, liquid, and solid [metric tons].....	11,908,690	84,783	0.7	19,479	11,843,386	0.2
325120D021	Argon.....	557	372	66.8	26	211	12.3
325120D031, 041, 051, 061, 071	Hydrogen.....	12,858	354	2.8	125	12,629	1.0
3251207	Nitrogen.....	24,303	114	0.5	93	24,282	0.4
325120A	Oxygen.....	19,409	177	0.9	18	19,250	0.1

1/Source: Census Bureau report EM 545, U.S. Exports.

2/Source: Census Bureau report IM 145, U.S. Imports for Consumption.

3/Apparent consumption is derived by subtracting exports from the total of net production plus imports.

Table 4. Comparison of North American Industry Classification System-Based Product Codes with Schedule B Export Numbers, and HTSUSA Import Numbers: 2000

Product code	Product description	Export number 1/	Import number 2/
3251204	Carbon dioxide (gas, liquid, and solid) (metric tons)	2811.21.0000	2811.21.0000
325120D021	Argon, high purity.....	2804.21.2000	2804.21.2000
325120D031, 041, 051, 061, 071	Hydrogen	2804.10.0000	2804.10.0000
3251207	Nitrogen	2804.30.0000	2804.30.0000
325120A	Oxygen	2804.40.0000	2804.40.0000

1/Source: 2000 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, annotated (2000).