

Fertilizer Materials



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SUMMARY OF FINDINGS

United States production of sulfuric acid in 1990 totaled 44,043.7 thousand short tons (100 percent H_2SO_4), approximately 2 percent above the 1989 figure of 43,301.2 thousand short tons. Value of shipments (including interplant transfers) in 1990 amounted to \$570.3 million, as compared to the 1989 value of \$638.1 million.

Value of shipments of synthetic ammonia, nitric acid, and ammonium compounds increased 8 percent to \$2,688.9 million in 1990 from the 1989 level of \$2,493.9 million. Shipments of urea increased 2 percent to \$636.7 million in 1990, and shipment of phosphoric acid decreased nearly 9 percent to \$1,188.4 million.

Production of superphosphate and other phosphatic fertilizer materials for 1990 increased 12 percent to 9,341.3 thousand short tons (100 percent P_2O_5). Value of shipments amounted to \$2,526.1 million in 1990, as compared to the 1989 value of \$2,449.3 million.

The statistics in this report are based on surveys of producers of sulfuric acid and fertilizer materials. The figures represent total production and shipments by U.S. manufacturers of fertilizer materials. Estimates are included for companies whose reports were not received in time for tabulation.

A description of the survey methodology and related information appears on page 11.

Table 1. SHIPMENTS AND PRODUCTION OF PRINCIPAL FERTILIZER MATERIALS: 1986 TO 1990
(Quantity in thousands of short tons; value in millions of dollars)

Product code	Product description	Year	Total production	Total shipments, including interplant transfers	
				Quantity	Value (f.o.b. plant)
28731 31	Ammonia, synthetics anhydrous ¹	1990	16,795.4	10,340.3	1,069.8
		1989	16,467.0	19,599.4	1,009.7
		1988	16,821.4	9,630.4	1,010.6
		1987	16,097.8	9,749.3	959.4
		1986	14,487.5	8,789.3	899.7
		28731 50	Ammonium nitrate, original solution ²	1990	7,080.8	(X)	(X)
1989	7,871.0			(X)	(X)
1988	7,503.8			(X)	(X)
1987	6,546.7			(X)	(X)
1986	6,091.1			(X)	(X)
28731 57	Ammonium sulfate ³			1990	2,539.7	2,531.9	141.2
		1989	2,383.8	2,282.2	142.1
		1988	2,332.8	2,306.6	140.5
		1987	2,189.1	1,986.4	108.6
		1986	2,080.1	2,141.2	115.2
		28732 --	Urea (100%)	1990	8,120.4	5,316.7	636.7
1989	8,003.7			5,230.7	624.6
1988	7,914.1			5,079.7	620.2
1987	7,433.3			5,019.2	469.4
1986	6,264.0			3,894.1	390.0
28731 12	Nitric acid (100%)			1990	8,000.0	728.5	83.9
		1989	8,348.6	743.1	84.6
		1988	7,990.9	695.8	76.2
		1987	7,225.1	600.2	69.1
		1986	6,736.3	513.9	61.2
		28741 81 28741 85	Phosphoric acid (100% P_2O_5)	1990	12,034.5	4,165.5	1,188.4
1989	11,736.4			4,306.9	1,300.3
1988	11,658.9			4,212.3	1,291.4
1987	10,599.1			4,314.7	1,145.3
1986	9,577.7			3,786.4	1,075.8
28193 --	Sulfuric acid, gross (100%)			1990	44,043.7	11,748.1	570.3
		1989	43,301.2	11,841.5	638.1
		1988	42,579.5	11,573.7	618.6
		1987	39,256.4	11,266.1	561.6
		1986	35,993.4	10,884.4	538.3
		28742 --	Superphosphates and other phosphatic fertilizer materials (100% P_2O_5)	1990	9,341.3	9,418.2	2,526.1
1989	8,362.0			8,247.0	2,449.3
1988	7,967.9			7,812.7	2,552.8
1987	7,125.5			7,148.4	2,090.6
1986	6,108.3			6,126.2	1,760.4

¹Revised by 5 percent or more from previously published figures. (X) Not applicable.

²Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

³Represents total amount of original solution produced, including amounts used for fertilizer, explosives, and other uses and amounts consumed in manufacturing other products such as nitrogen solutions (product code 28731 55).

Address inquiries concerning these figures to U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233, or call John P. Miller, (301), 763-7807.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Table 2. PRODUCTION AND SHIPMENTS OF FERTILIZER MATERIALS: 1990 AND 1989

(Quantity in thousands of short tons; value in millions of dollars)

Product code	Chemical and basis	1990			1989		
		Total production	Total shipments including inter-plant transfers		Total production	Total shipments including inter-plant transfers	
			Quantity	Value		Quantity	Value
28193 --	Sulfuric acid, gross (new and fortified).....	44,043.7	11,748.1	570.3	43,301.2	11,841.5	638.1
28193 11	Oleum under 40 percent.....	1,155.8	746.0	52.0	1,502.3	928.9	67.0
28193 15	Oleum 40 percent.....	(D)	(D)	(D)	(D)	(D)	(D)
28193 17	Oleum over 40 percent.....	(D)	(D)	(D)	(D)	(D)	(D)
28193 31	Other than oleum ¹	42,450.7	10,720.6	497.5	41,547.5	10,671.2	551.0
28193 51	Sulfuric acid produced through decomposition of alkylation acid and other spent acids, including sulfuric acid sludge.....	2,949.2	(X)	(X)	2,683.9	(X)	(X)
	Ammonia:						
28731 --	Synthetic ammonia, nitric acid, and ammonium compounds..	(X)	(X)	2,688.9	(X)	(X)	2,493.9
28731 11	Nitric acid (100% HNO ₃).....	2,800.0	728.5	83.9	2,348.6	743.1	84.6
	Ammonia, synthetic anhydrous (100% NH ₃) ³	16,795.4	10,340.3	1,069.8	16,467.0	9,599.4	1,009.7
28731 30	Fertilizer use.....	15,310.9	9,396.6	954.0	14,926.4	8,749.0	897.5
28731 32	Other uses.....	1,484.5	943.7	115.8	1,540.6	850.4	112.2
	Ammonium nitrate:						
28731 50	Original solution (100% NH ₄ NO ₃) ⁴	7,080.8	(X)	(X)	7,871.0	(X)	(X)
	Fertilizer use (100% NH ₄ NO ₃):						
	Solution.....	3,512.6	(D)	(D)	3,686.5	(D)	(D)
28731 52	Solution produced for sale.....	213.4	213.6	19.7	265.1	215.8	21.5
28731 54	Solution produced for consumption.....	3,299.2	(D)	(D)	3,421.4	(D)	(D)
28731 51	Solid.....	2,194.4	2,208.4	252.0	2,264.9	2,161.9	257.9
28731 53	Explosives and other uses (solution and solid).....	2,045.0	1,987.7	257.6	1,956.4	1,892.4	240.4
28731 55	Nitrogen solutions (100% N) (including mixtures containing urea).....	2,977.3	2,878.7	574.7	2,880.1	2,721.1	624.8
28731 65	Solutions containing ammonia ⁵	288.0	207.5	32.0	167.3	146.3	34.2
28731 66	Ammonium nitrate/urea solutions.....	2,612.0	2,671.2	542.7	2,712.8	2,574.8	590.6
28731 73	Ammonium nitrate/calcium nitrate solutions.....	(5)	(5)	(5)	(5)	(5)	(5)
28731 67	All other two component products.....	(5)	(5)	(5)	(5)	(5)	(5)
	Ammonium sulfate, synthetic and byproduct other than coke oven byproduct (100% (NH ₄) ₂ SO ₄) ³	2,539.7	2,531.9	141.2	2,383.8	2,282.2	142.1
28731 56	Synthetic.....	(D)	(D)	17.7	(D)	(D)	17.3
28731 58	Byproduct, other than coke oven.....	(D)	(D)	123.5	(D)	(D)	124.8
28731 69	Other ammonium compounds (including ammonium chloride, gray and white).....	(X)	(X)	(D)	(X)	(X)	(D)
28732 --	Urea (100%).....	8,120.4	5,316.7	636.7	8,003.7	5,230.7	624.6
	For fertilizer use:						
28732 16	Solutions produced as intermediate in nitrogen solutions.....	2,743.8	45.4	6.4	2,679.0	46.3	6.6
28732 18	Solid.....	4,532.9	4,454.2	526.2	4,386.2	4,300.7	505.5
	Other uses:						
28732 21	Feed (solid and solution).....	310.6	332.5	45.5	418.7	390.7	53.9
28732 22	All other (solid and solution).....	533.1	484.6	58.6	519.8	493.0	58.6
28741 --	Phosphoric acid (100% P ₂ O ₅).....	12,034.5	4,165.5	1,188.4	11,736.4	4,306.9	1,300.3
28741 81	Thermal.....	559.6	218.4	137.1	576.2	230.7	147.6
28741 85	Wet.....	11,474.9	3,947.1	1,051.3	11,160.2	4,076.2	1,152.7
	By use:						
28741 86	Fertilizer.....	10,890.5	(D)	(D)	10,621.7	(D)	(D)
28741 87	Feed and other.....	584.4	(D)	(D)	538.5	(D)	(D)
	By grade:						
28741 88	Ortho (less than 65% P ₂ O ₅).....	10,000.3	2,628.9	638.4	8,994.7	2,610.7	653.7
28741 89	Super (65% or more P ₂ O ₅).....	1,474.6	1,318.2	412.9	2,165.5	1,465.5	499.0
28742 --	Superphosphates and other phosphatic fertilizer materials (100% P ₂ O ₅).....	9,341.3	9,418.2	2,526.1	8,362.0	8,247.0	2,449.3
28742 15	Normal and enriched superphosphates (100% P ₂ O ₅).....	53.4	14.4	3.7	64.3	17.1	4.4
28742 41	Concentrated superphosphates (100% P ₂ O ₅).....	924.7	925.8	202.3	824.9	842.0	196.4
28742 51	Monoammonium phosphates (100% P ₂ O ₅).....	1,228.4	1,271.9	364.6	1,051.8	1,035.3	343.1
28742 52	Diammonium phosphates (100% P ₂ O ₅).....	6,957.4	7,030.5	1,901.2	6,292.5	6,237.2	1,854.2
28742 55	Other ammonium phosphates and other phosphatic fertilizer materials (100% P ₂ O ₅).....	177.4	175.6	54.3	128.5	115.4	51.2

(D) Data withheld to avoid disclosing figures for individual companies. ^rRevised by 5 percent or more from previously published figures. (X) Not applicable.

¹Figures for "Other than oleum" include "Chamber process acid."

²Includes unspecified amounts of nitric acid produced but not withdrawn from the system.

³Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

⁴Represents total amount of original solution produced, including amounts used for fertilizer, explosives, and other uses and amounts consumed in manufacturing other products such as nitrogen solutions (product code 28731 55).

⁵"Ammonium nitrate/calcium nitrate solutions" (product code 28731 73) and "All other two components" (product code 28731 67) are combined with "Solutions containing ammonia" (product code 28731 65) to avoid disclosing figures for individual companies.

Table 3. QUANTITIES OF SELECTED FERTILIZER MATERIALS PRODUCED AND CONSUMED IN SAME PLANT: 1990 AND 1989

(Thousands of short tons)

Product code	Product description	Basis	Consumed in producing plant	
			1990	1989
28193 --	Sulfuric acid, gross (new and fortified).....	100% H ₂ SO ₄	33,258.1	32,194.2
28731 11	Nitric acid.....	100% HNO ₃	7,446.7	7,706.6
28731 30 28731 32	Ammonia (synthetic) anhydrous ¹	100% NH ₃	6,810.6	6,995.7
28731 50	Ammonium nitrate: Original solution.....	100% NH ₄ NO ₃	(D)	(D)
28731 52	Fertilizer use solution ².....	.....do.....	3,024.2	3,262.5
28731 54	Explosives and other uses (solution and solid).....	.....do.....	115.9	69.6
28731 53				
28731 57	Ammonium sulfate ¹	100% (NH ₄) ₂ SO ₄ ..	(D)	(D)
28732 16 28732 18	Urea: Fertilizer use, solution and solid.....	100% urea.....	2,856.0	2,768.5
28741 81	Phosphoric acid.....	100% P ₂ O ₅	7,888.5	7,485.8
28741 85	Thermal.....	.....do.....	369.5	375.8
	Wet.....	.....do.....	7,519.0	7,110.0
28742 --	Superphosphates and other fertilizer materials.....	.....do.....	(D)	(D)

(D) Data withheld to avoid disclosing figures for individual companies. ^r Revised by 5 percent or more from previously published figures.

¹Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.
²Excludes amount converted to solid nitrate.

Table 4. SUMMARY OF SELECTED FERTILIZER MATERIALS--INTERPLANT TRANSFERS: 1990 AND 1989

(Quantity in thousands of short tons; value in millions of dollars)

Product code	Product description	Basis	Year	Interplant transfers	
				Quantity	Value (f.o.b. plant)
28193 --	Sulfuric acid, gross (new and fortified).....	100% H ₂ SO ₄	1990	1,207.4	57.0
			1989	1,237.5	60.9
28193 11	Oleum under 40 percent.....	.....do.....	1990	36.0	2.5
			1989	42.8	2.8
28193 31	Other than oleum ¹.....	.....do.....	1990	1,161.4	53.8
			1989	1,186.1	57.5
28731 31	Ammonia, synthetic anhydrous ²	100% NH ₃	1990	2,157.4	214.0
			1989	2,145.4	203.7
28731 30	Fertilizer use.....	.....do.....	1990	1,536.9	139.3
			1989	1,521.8	135.3
28731 32	Other uses.....	.....do.....	1990	620.5	74.7
			1989	623.6	68.4
28731 50	Ammonium nitrate, original solution.....	100% NH ₄ NO ₃	1990	(D)	(D)
			1989	(D)	(D)
28731 57	Ammonium sulfate ²	100% (NH ₄) ₂ SO ₄ ..	1990	(D)	(D)
			1989	(D)	(D)
28731 12	Nitric acid.....	100% HNO ₃	1990	(D)	(D)
			1989	(D)	(D)
28732 --	Urea.....	100% urea.....	1990	(D)	(D)
28741 81 28741 85	Phosphoric acid.....	100% P ₂ O ₅	1990	(D)	(D)
			1989	(D)	(D)
28742 --	Superphosphates and other phosphatic fertilizer materials....	.....do.....	1990	(D)	(D)
			1989	(D)	(D)

(D) Data withheld to avoid disclosing figures for individual companies.

¹Figures for "Other than oleum" include chamber process acid.
²Excludes data for byproduct ammonia liquor and ammonium sulfate published by the Department of Energy.

Table 5. TOTAL SHIPMENTS (INCLUDING INTERPLANT TRANSFERS) OF SULFURIC ACID, BY STATES: 1990 AND 1989

(Quantity in thousands of short tons of 100% H₂SO₄; value in millions of dollars)

State	1990		1989	
	Quantity	Value	Quantity	Value
United States.....	11,748.1	570.5	11,841.5	638.1
Arizona.....	(D)	(D)	(D)	(D)
California.....	729.3	56.8	767.2	58.4
Florida.....	519.0	21.1	608.7	29.7
Georgia.....	372.6	26.5	345.8	21.1
Illinois.....	(D)	(D)	(D)	(D)
Louisiana.....	1,853.7	112.1	1,849.1	121.6
New Jersey.....	(D)	(D)	357.3	23.7
Ohio.....	362.8	26.7	356.4	26.1
Texas.....	1,393.3	55.4	1,808.2	114.3
Virginia.....	(D)	(D)	(D)	(D)
Washington.....	(D)	(D)	(D)	(D)
Other states.....	4,119.0	179.1	13,920.6	187.2

(D) Data withheld to avoid disclosing figures for individual companies.

¹1989 revision to category "Other states" is partly due to disclosing a breakout for Georgia.

Table 6. PRODUCTION OF NEW SULFURIC ACID, BY STATES: 1990 AND 1989

(Thousands of short tons of 100% H₂SO₄)

State	1990 ¹	1989 ¹
United States.....	41,004.3	40,477.4
Arizona.....	1,792.6	1,594.5
California.....	634.3	578.3
Florida.....	20,557.7	19,250.9
Georgia.....	549.1	535.6
Illinois.....	(D)	(D)
Louisiana.....	5,340.4	5,578.2
Missouri.....	(D)	(D)
New Jersey.....	(D)	412.9
New Mexico.....	(D)	(D)
Ohio.....	359.0	369.6
Oklahoma and Texas.....	1,773.4	1,944.3
Virginia.....	(D)	(D)
Washington.....	(D)	(D)
Other states.....	7,522.4	² 8,201.5

(D) Data withheld to avoid disclosing figures for individual companies.

¹Includes data for Government-owned, privately-operated plants.²1989 revision to category "Other states" is partly due to disclosing a breakout for Georgia.

Table 7. PRIMARY PRODUCTION OF FERTILIZER MATERIALS, BY MONTHS: 1990 AND 1989

(Thousands of short tons)

Product code	Product description	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December	
	Ammonia, synthetic anhydrous (100% NH ₃):															
	Production.....	1990	16,795.4	1,440.1	1,375.7	1,509.0	1,417.1	1,441.7	1,343.0	1,400.8	1,397.2	1,336.9	1,419.3	1,429.4	1,285.2	
		1989	16,467.0	1,496.4	1,314.7	1,462.7	1,439.9	1,472.8	1,402.0	1,350.5	1,240.9	1,264.4	1,360.3	1,370.1	1,292.3	
	Stocks on hand, end of month.....	1990	(NA)	1,347.7	1,614.8	1,737.6	1,106.7	1,114.0	855.2	911.1	852.0	1,003.4	1,082.1	947.3	1,069.0	
		1989	(NA)	1,613.6	1,838.5	1,893.5	1,190.0	1,185.0	1,019.1	1,011.5	985.9	1,021.8	1,078.3	964.1	1,138.5	
28731 30	Fertilizer use:															
	Production.....	1990	15,310.9	1,300.4	1,224.6	1,384.5	1,301.7	1,328.2	1,231.5	1,282.5	1,271.2	1,232.6	1,285.5	1,316.5	1,151.7	
		1989	14,926.4	1,351.4	1,233.0	1,336.5	1,306.5	1,332.6	1,267.9	1,223.9	1,116.4	1,138.6	1,226.0	1,240.4	1,153.2	
	Stocks on hand, end of month.....	1990	(NA)	1,288.7	1,545.9	1,673.2	1,055.0	1,065.0	800.3	854.3	792.5	943.5	1,011.9	881.4	1,010.9	
		1989	(NA)	1,554.6	1,793.5	1,829.2	1,130.7	1,121.8	963.7	964.1	939.7	967.6	1,029.6	905.4	1,073.6	
28731 32	Other uses:															
	Production.....	1990	1,484.5	139.7	151.1	124.5	115.4	113.5	111.5	118.3	126.0	104.3	133.8	112.9	133.5	
		1989	1,540.6	145.0	81.7	126.2	133.4	140.2	134.1	134.1	126.6	124.5	125.8	134.3	129.7	139.1
	Stocks on hand, end of month.....	1990	(NA)	59.0	68.9	64.4	51.7	a49.0	54.9	56.8	a59.5	a59.9	a70.2	a65.9	a58.0	
		1989	(NA)	58.9	44.9	64.2	59.3	63.2	55.4	47.4	46.2	54.3	48.8	58.7	64.9	
28731 50	Ammonium nitrate (100% NH ₄ NO ₃):															
	Original solution: ¹															
	Production.....	1990	7,080.8	668.1	600.4	690.7	636.3	612.4	562.6	486.9	490.1	529.6	560.6	596.4	646.7	
		1989	7,871.0	714.8	637.1	701.7	699.9	711.3	652.9	624.6	595.5	587.1	662.7	630.5	652.9	
	Stocks on hand, end of month.....	1990	(NA)	164.6	146.3	122.7	110.3	a125.3	113.3	a121.3	120.6	133.0	a125.6	a139.7	138.7	
	1989	(NA)	126.7	129.3	94.9	a88.9	a105.1	a99.1	a136.1	160.2	161.1	a151.9	a180.1	182.7		
28731 52	Fertilizer use:															
	Solution produced for sale as such for direct application:															
	Production.....	1990	213.4	12.8	16.0	15.5	21.8	22.7	22.3	17.8	17.3	18.7	19.7	16.9	11.9	
		1989	265.1	24.2	21.0	21.5	21.6	26.5	26.4	23.9	20.9	15.9	24.0	20.3	18.9	
	Stocks on hand, end of month.....	1990	(NA)	(D)	(D)	(D)	4.2	3.7	3.5	4.7	(D)	(D)	(D)	(D)	3.8	
	1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)		
28731 54	Solution produced for consumption in the manufacture of nitrogen solutions or other fertilizer materials:															
	Production.....	1990	3,299.2	r317.7	r269.3	r290.6	r272.1	r292.8	r272.1	r244.3	r244.9	r273.5	r275.0	r274.5	r272.4	
		1989	3,421.4	r307.4	r285.3	r306.1	r286.0	r294.2	r291.8	r298.9	r256.9	r274.2	r295.4	r274.9	r250.3	
	Stocks on hand, end of month.....	1990	(NA)	123.5	112.1	94.0	70.6	66.9	49.0	32.4	33.3	41.6	46.9	54.3	67.9	
		1989	(NA)	55.7	73.6	65.9	65.1	65.6	51.9	65.8	52.8	92.6	95.9	95.2	105.5	
28731 51	Solid:															
	Production.....	1990	2,194.4	228.0	214.8	238.3	186.2	184.1	161.0	127.4	122.2	140.4	189.6	194.2	208.2	
		1989	2,264.9	222.0	212.6	236.4	230.7	210.3	186.7	145.0	132.1	140.6	161.3	178.9	208.3	
	Stocks on hand, end of month.....	1990	(NA)	a141.5	155.2	143.7	119.5	119.0	113.5	119.6	100.7	a94.0	a88.7	a115.1	140.9	
		1989	(NA)	a140.8	168.5	(S)	(S)	(S)	(S)	(S)	(S)	a209.2	a216.4	a144.4	119.1	
28731 53	Explosives and other uses (solutions and solids): ²															
	Production.....	1990	2,045.0	177.6	157.0	198.7	212.4	148.1	153.0	152.6	162.3	159.1	155.5	182.1	186.6	
		1989	1,956.4	173.3	141.5	163.5	156.5	188.6	138.9	137.6	163.1	167.6	190.1	163.6	172.1	
	Stocks on hand, end of month.....	1990	(NA)	(S)	(S)	(S)	a61.7	a53.3	a66.0	(S)	(S)	(S)	(S)	(S)	92.0	
		1989	(NA)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(S)	a57.6	
28731 56	Ammonium sulfate (100% NH ₄) ₂ SO ₄):															
	Production.....	1990	2,539.7	207.1	214.8	219.1	236.0	239.5	196.9	215.0	221.1	212.3	197.5	200.0	180.4	
28731 58		1989	2,383.8	203.2	190.6	201.3	209.5	208.8	202.2	200.4	198.1	193.8	196.5	202.4	177.0	
	Stocks on hand, end of month.....	1990	(NA)	204.9	246.1	245.4	224.1	252.3	247.5	264.6	276.6	317.2	263.7	239.0	249.1	
	1989	(NA)	226.7	213.9	179.1	112.6	120.2	161.2	208.0	202.0	230.7	217.4	255.0	253.7		

See footnotes at end of table.

Table 7. PRIMARY PRODUCTION OF FERTILIZER MATERIALS, BY MONTHS: 1990 AND 1989--Continued

(Thousands of short tons)

Product code	Product description	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December		
28731 11	Nitric acid (100% HNO ₃):	Production.....	1990	8,000.0	716.2	677.1	746.9	696.2	705.6	640.4	568.5	575.0	636.9	648.8	672.3	716.1	
		1989	8,348.6	756.3	687.7	744.3	730.3	743.7	693.4	666.2	641.5	617.5	688.8	680.0	688.8	698.9	
	Stocks on hand, end of month.....	1990	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	
		1989	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	
28731 55	Nitrogen solutions (including mixtures containing urea) (100% N):	Production.....	1990	2,977.3	269.0	245.0	259.7	268.7	270.0	250.0	214.0	220.6	244.9	247.3	250.1	238.0	
		1989	2,880.1	259.0	239.7	254.5	257.7	265.4	241.6	201.7	225.0	247.0	225.0	247.0	216.9	227.9	
	Stocks on hand, end of month.....	1990	(NA)	489.8	510.8	444.7	397.4	287.2	229.3	237.6	208.4	231.7	208.4	213.5	251.1	313.5	
		1989	(NA)	397.9	403.1	427.6	430.1	372.8	385.1	424.5	411.1	459.7	398.7	367.0	441.6		
28731 65	Solutions containing ammonia: ³	Production.....	1990	288.0	21.5	23.4	24.9	28.6	30.2	26.2	18.0	25.7	23.8	22.9	22.6	20.2	
		1989	167.3	14.4	13.5	14.6	15.2	16.4	14.8	13.3	13.1	10.5	15.5	15.5	13.8	12.2	
	Stocks on hand, end of month.....	1990	(NA)	17.5	18.0	12.6	9.5	7.1	7.7	9.6	7.6	12.5	12.2	13.8	17.1		
		1989	(NA)	27.9	22.7	25.1	16.3	12.2	11.0	11.6	19.7	16.5	21.2	23.6	24.5		
28731 66	Solutions containing ammonium nitrate/urea:	Production.....	1990	2,612.0	241.6	215.3	228.2	232.5	231.8	216.8	191.1	188.1	214.7	218.2	221.5	212.2	
		1989	2,712.8	244.6	226.2	239.9	242.5	249.0	226.8	230.4	188.6	214.5	231.5	203.1	215.7		
	Stocks on hand, end of month.....	1990	(NA)	472.3	492.8	432.1	387.8	280.0	221.6	228.0	224.1	196.0	201.3	237.3	296.4		
		1989	(NA)	370.0	380.3	402.5	413.8	360.6	374.1	412.9	391.3	443.2	377.4	343.3	417.2		
28731 73	Solutions containing ammonium nitrate/calcium nitrate:	Production.....	1990	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
		1989	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
	Stocks on hand, end of month.....	1990	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)		
		1989	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)		
28731 67	All other two-component products:	Production.....	1990	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
		1989	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
	Stocks on hand, end of month.....	1990	(NA)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
		1989	(NA)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)		
28741 --	Phosphoric acid (100% P ₂ O ₅):	Production.....	1990	12,034.5	977.7	928.7	1,013.6	1,017.1	1,023.7	954.2	1,046.2	1,031.6	1,027.6	1,035.6	1,035.7	942.8	
		1989	11,736.5	1,022.7	949.9	1,060.5	979.7	978.7	881.2	940.4	984.9	972.0	1,027.1	995.3	944.0		
	Stocks on hand, end of month.....	1990	(NA)	220.6	248.4	239.6	204.4	218.3	224.1	225.1	210.1	263.4	242.6	214.4	230.9		
		1989	(NA)	231.4	261.4	261.2	269.3	284.0	270.5	223.7	224.7	226.2	252.2	236.5	237.7		
28741 81	Thermal:	Production.....	1990	559.6	48.9	45.0	48.6	49.9	48.2	45.6	49.3	45.8	44.5	44.5	48.2	41.1	
		1989	576.2	48.4	44.6	49.6	49.0	50.6	47.5	50.6	48.1	48.7	48.9	44.6	45.6		
	Stocks on hand, end of month.....	1990	(NA)	14.8	13.9	13.2	14.4	13.7	14.9	15.3	14.0	14.0	12.5	14.9	13.8		
		1989	(NA)	13.2	11.5	13.0	11.0	12.0	12.0	16.0	12.7	15.4	15.7	16.8	15.6		
28741 85	Wet:	Production.....	1990	11,474.9	928.8	883.7	965.0	967.2	975.5	908.6	996.9	985.8	983.1	991.1	987.5	901.7	
		1989	11,160.2	974.3	905.3	1,010.9	930.7	928.1	833.7	889.8	936.8	923.3	978.2	950.7	898.4		
	Stocks on hand, end of month.....	1990	(NA)	205.8	234.5	226.4	190.0	204.6	209.2	209.8	196.0	249.4	230.1	199.5	217.1		
		1989	(NA)	218.2	249.9	248.2	258.3	272.0	258.4	207.8	212.1	210.8	236.5	219.8	222.1		
28741 86	By use:	Fertilizer:	Production.....	1990	10,890.5	881.8	836.8	919.8	920.7	925.5	861.6	946.9	932.5	938.5	935.5	929.4	861.5
			1989	10,621.7	935.8	866.0	953.3	879.3	880.7	782.8	849.7	887.7	888.7	935.9	902.7	859.1	
	Stocks on hand, end of month.....	1990	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)		
		1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)		
28741 87	Feed and other:	Production.....	1990	584.4	47.0	46.9	45.2	46.5	50.0	47.0	50.0	53.3	44.6	55.6	58.1	40.2	
		1989	538.6	38.5	39.3	57.6	51.4	47.4	50.9	40.1	49.1	34.6	42.3	48.0	39.3		
	Stocks on hand, end of month.....	1990	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)		
		1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)		

See footnotes at end of table.

Table 7. PRIMARY PRODUCTION OF FERTILIZER MATERIALS, BY MONTHS: 1990 AND 1989--Continued

(Thousands of short tons)															
Product code	Product description	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
28741 88	Phosphoric acid (100% P ₂ O ₅)--Continued														
	Wet--Continued														
	By grade:														
	Ortho (less than 65% P ₂ O ₅):														
	Production.....	1990	10,000.3	792.2	741.7	840.2	826.9	860.1	805.2	874.8	861.9	857.3	893.4	845.9	800.7
	1989	8,994.7	784.6	694.6	795.3	748.6	759.1	699.6	700.5	762.4	742.6	786.7	776.8	743.9	
	Stocks on hand, end of month.....	1990	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
		1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
28741 89	Super (more than 65% P ₂ O ₅):														
	Production.....	1990	1,474.6	136.6	142.0	124.8	140.3	115.4	103.4	122.1	123.9	125.8	97.7	141.6	101.0
		1989	2,165.5	189.7	210.7	215.6	182.1	169.0	134.1	189.3	174.4	180.7	191.5	173.9	154.5
		1990	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
		1989	(NA)	(S)	(S)	(D)	(D)	(S)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
28732 --	Urea (100% urea):														
	Production.....	1990	8,120.4	701.5	651.6	696.2	688.8	693.2	846.2	548.7	626.8	645.3	680.7	670.8	670.6
		1989	8,003.7	743.8	669.1	748.6	723.6	715.2	606.7	669.0	588.7	623.7	645.1	616.5	653.7
		1990	(NA)	331.7	385.7	292.0	245.7	281.3	254.1	259.2	272.8	249.1	303.1	422.1	437.3
		1989	(NA)	369.9	452.1	431.7	422.2	463.8	478.6	484.4	422.4	390.2	375.1	376.0	371.0
28732 16	For fertilizer use:														
	Solutions produced as intermediate in nitrogen solutions:														
	Production.....	1990	2,743.8	244.9	236.4	255.2	226.3	243.4	214.7	181.1	221.5	239.1	239.2	225.8	216.2
		1989	2,679.0	248.6	231.3	253.3	237.3	238.1	224.5	223.5	198.0	215.8	231.2	180.5	196.9
		1990	(NA)	0.3	0.3	0.3	0.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.9
	1989	(NA)	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4	
28732 18	Solid:														
	Production.....	1990	4,532.9	375.2	342.6	362.0	385.9	378.9	581.1	318.4	350.3	343.6	372.9	363.4	358.6
		1989	4,386.2	402.2	360.9	404.9	404.1	385.2	305.9	369.7	316.4	327.1	357.9	376.3	375.6
		1990	(NA)	307.8	356.5	275.3	224.0	250.9	234.7	240.5	256.7	217.6	270.2	382.6	397.7
		1989	(NA)	338.2	421.5	400.5	392.7	425.1	339.5	444.7	383.3	344.7	340.8	354.8	346.0
28732 21	Other uses:														
	Feed (solid and solution):														
	Production.....	1990	310.6	33.0	24.0	24.1	22.6	20.1	14.7	18.7	16.4	23.6	19.4	25.9	68.1
		1989	418.7	41.2	33.0	37.5	35.2	37.8	37.8	30.8	37.1	32.2	24.8	26.1	45.2
		1990	(NA)	4.9	6.2	4.4	6.7	(D)	(D)	5.5	6.4	9.1	5.1	6.1	5.4
	1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
28732 22	All other (solid and solution):														
	Production.....	1990	533.1	48.4	48.6	54.9	54.0	50.8	35.7	30.5	38.6	39.0	49.2	55.7	27.7
		1989	519.8	51.8	43.9	52.9	47.0	54.1	38.5	45.0	37.2	48.6	31.2	33.6	36.0
		1990	(NA)	18.6	22.7	12.0	14.7	22.6	(D)	(D)	(D)	(D)	(D)	(D)	26.3
		1989	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: The 1990 and 1989 monthly stocks on hand, end of month were originally published in the monthly Current Industrial Report Series, M28B, "Inorganic Fertilizer Materials and Related Products."

The percent of estimation of each item is indicated as follows (see "Description of Survey" in the text for a discussion of estimation of missing reports): ^a20 percent or more of this item is estimated.

(D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available. ^rRevised by 5 percent or more from previously published figures. (S) Suppressed. Data did not meet publication standards of the Bureau of the Census. (X) Not applicable.

¹Represents total amount of original solution produced, including amounts used for fertilizer, explosive, and other uses and amounts consumed in manufacturing other products, such as nitrogen solutions (product code 28731 55).

²Excludes data for government-owned, privately operated plants.

³In 1990 and 1989, figures for "Solutions containing ammonium nitrate/calcium nitrate" and "All other two-component products" are combined with "Solutions containing ammonia" to avoid disclosing figures for individual companies.

Table 8. PRODUCTION, SHIPMENTS, AND STOCKS OF SUPERPHOSPHATES AND OTHER PHOSPHATIC FERTILIZER MATERIALS, BY MONTH: 1990 AND 1989

(Thousands of short tons)

Product code	Product description	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
28742 --	Superphosphates and other phosphatic fertilizer materials: Production (100% P ₂ O ₅).....	1990	9,341.3	765.4	693.3	821.3	797.8	771.7	721.9	793.1	793.2	793.5	840.2	820.9	729.0
		1989	8,362.0	728.7	636.4	758.9	753.7	729.0	629.8	675.3	683.3	662.9	729.0	711.5	663.5
	Shipments, including interplant transfers (100% P ₂ O ₅).....	1990	9,418.2	790.3	700.8	856.2	831.6	728.2	742.6	803.6	806.8	763.7	787.9	741.1	865.4
		1989	8,247.0	713.1	577.6	723.5	761.4	739.1	638.8	740.4	722.4	668.0	679.5	642.5	640.7
	Stocks on hand, end of month (gross weight).....	1990	(NA)	902.5	850.7	731.7	644.0	722.9	642.1	603.4	564.4	605.0	662.6	784.1	738.3
		1989	(NA)	859.8	988.8	970.0	912.8	873.9	1,011.5	961.6	826.3	769.1	852.3	942.8	941.8
28742 15	Normal and enriched superphosphates: Production (100% P ₂ O ₅).....	1990	53.4	5.2	5.2	5.9	6.9	6.2	2.8	(D)	(D)	2.7	3.5	4.0	5.2
		1989	64.3	7.8	7.9	7.9	8.7	6.7	4.5	2.5	1.5	2.2	4.3	4.5	5.8
	Shipments, including interplant transfers (100% P ₂ O ₅).....	1990	14.4	1.4	1.6	(S)	2.0	1.3	0.7	(S)	(D)	(D)	0.9	1.2	2.2
		1989	17.1	7.1	1.7	1.9	1.5	1.3	0.7	0.2	0.2	0.3	0.4	0.6	1.2
	Stocks on hand, end of month (gross weight).....	1990	(NA)	^a 28.4	^a 24.5	^a 19.1	^a 16.3	^a 18.3	^a 14.8	^a 14.6	^a 23.3	^a 34.6	^a 25.9	^a 24.6	^a 21.9
		1989	(NA)	14.2	^a 24.2	^a 21.0	^a 26.7	^a 23.6	^a 29.6	^a 39.1	^a 44.6	^a 42.8	^a 41.3	^a 40.6	^a 29.9
28742 41	Concentrated superphosphates (triple) (over 40% P ₂ O ₅): Production (100% P ₂ O ₅).....	1990	924.7	74.6	65.6	82.6	82.2	80.6	69.1	69.7	73.7	83.2	89.5	94.7	59.2
		1989	824.9	80.8	70.7	79.4	76.5	76.4	69.7	69.5	56.8	57.4	68.9	61.6	57.2
	Shipments, including interplant transfers (100% P ₂ O ₅).....	1990	925.8	80.0	59.7	81.7	84.2	68.7	65.3	69.5	82.6	77.5	94.2	79.1	83.3
		1989	842.0	78.9	65.2	86.2	87.5	74.5	59.0	51.8	62.2	68.8	84.0	57.7	66.2
	Stocks on hand, end of month (gross weight).....	1990	(NA)	65.8	73.8	68.9	57.2	76.3	78.7	74.6	49.5	55.1	37.7	63.6	81.1
		1989	(NA)	126.9	138.0	123.2	100.0	104.9	128.1	168.3	156.0	130.8	97.9	106.2	83.7
28742 51	Ammonium phosphates: Monoammonium phosphates: Production (100% P ₂ O ₅).....	1990	1,228.4	127.6	108.6	117.1	105.5	87.5	63.0	93.6	98.2	110.1	122.2	94.9	100.1
		1989	1,051.8	107.4	84.9	114.1	105.2	70.6	54.3	75.3	83.6	89.5	86.6	89.1	91.2
	Shipments, including interplant transfers (100% P ₂ O ₅).....	1990	1,271.9	120.1	104.7	141.8	116.3	89.9	52.2	97.7	111.9	115.2	120.6	90.4	111.1
		1989	1,035.3	101.4	79.7	105.2	100.7	85.6	29.6	63.7	85.6	107.6	102.0	73.0	101.2
	Stocks on hand, end of month (gross weight).....	1990	(NA)	134.8	142.5	100.9	88.4	81.9	103.1	97.7	74.8	67.1	72.5	83.4	69.8
		1989	(NA)	128.3	135.3	150.7	158.6	127.2	174.9	194.5	184.8	147.2	113.0	141.5	112.1
28742 52	Diammonium phosphates: Production (100% P ₂ O ₅).....	1990	6,957.4	541.9	500.8	598.2	577.5	582.7	580.2	615.4	609.0	584.9	606.3	612.4	548.1
		1989	6,292.5	520.6	456.5	546.5	545.0	562.3	493.9	521.1	534.0	506.6	558.1	547.9	500.0
	Shipments, including interplant transfers (100% P ₂ O ₅).....	1990	7,030.5	577.3	524.8	615.0	592.0	554.1	614.0	630.6	589.8	559.7	559.4	553.3	660.5
		1989	6,237.2	532.8	421.7	513.2	538.9	562.3	539.8	624.9	574.7	483.9	483.0	504.6	457.4
	Stocks on hand, end of month (gross weight).....	1990	(NA)	591.8	525.7	471.3	423.9	498.5	399.3	352.1	355.5	385.2	460.3	550.0	498.1
		1989	(NA)	516.4	596.6	596.1	580.0	584.3	629.8	493.0	363.8	375.6	534.2	587.6	639.3
28742 55 28742 61	Other ammonium phosphates and other phosphatic fertilizer materials: ¹ Production (100% P ₂ O ₅).....	1990	177.4	16.1	13.1	17.5	25.8	14.7	6.9	(D)	(D)	12.6	18.6	15.0	16.1
		1989	128.5	12.1	16.4	11.0	18.3	13.0	7.4	6.9	7.4	7.2	11.1	8.4	9.3
	Shipments, including interplant transfers (100% P ₂ O ₅) ¹	1990	175.6	11.5	10.0	16.4	37.0	14.2	10.4	5.2	(D)	(D)	12.7	17.2	8.3
		1989	111.5	6.5	7.4	13.7	26.6	12.4	7.8	6.9	3.7	6.0	8.3	5.4	6.8
	Stocks on hand, end of month (gross weight) ¹	1990	(NA)	81.7	84.1	71.5	58.2	48.0	46.1	64.4	61.3	62.9	66.2	62.5	67.3
		1989	(NA)	73.9	94.4	79.0	47.5	34.0	49.0	66.6	77.1	72.8	65.9	66.9	76.8

Note: The 1990 and 1989 monthly stocks on hand, end of month were originally published on the monthly, M28B "Inorganic Fertilizer Materials and Related Products", Current Industrial Report Series.

The percent of estimation of each item is indicated as follows (see "Description of Survey" in the text for a discussion of estimation of missing reports): ^a20 percent or more of this item is estimated.

(D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available. ^rRevised by 5 percent or more from previously published figures. (S) Suppressed. Data did not meet publication standards for the Bureau of the Census.

¹"Other ammonium phosphates" (28742 55) is combined with "Other phosphatic fertilizer materials" (28742 61) to avoid disclosure of figures for individual companies.

Table 9. PRODUCTION AND STOCKS OF SULFURIC ACID, BY PROCESS, BY MONTH: 1990 AND 1989

(Thousands of short tons of 100% H₂SO₄)

Month and year	Production					Spent acid used in fortification ²	Stocks (gross) at producing plants at end of period
	Sulfuric acid, gross, new and fortified			New acid ¹	Sulfuric acid produced through decomposition		
	Total	Oleum grades	Other than oleum grades				
1990							
Total.....	44,043.7	1,593.0	42,450.7	40,818.2	2,949.2	54.4	(NA)
January.....	3,633.2	139.7	3,493.5	3,393.5	234.9	4.8	805.7
February.....	3,420.7	128.4	3,292.3	(D)	(D)	(D)	764.7
March.....	3,726.9	137.8	3,589.1	(D)	(D)	(D)	702.9
April.....	3,820.5	142.3	3,678.2	(D)	(D)	(D)	688.9
May.....	3,754.5	141.3	3,613.2	(D)	(D)	(D)	668.4
June.....	3,531.0	122.7	3,408.3	3,290.0	236.3	4.7	667.8
July.....	3,794.2	123.1	3,671.1	(D)	(D)	(D)	677.4
August.....	3,772.4	130.6	6,641.8	3,506.5	261.4	4.5	663.3
September.....	3,745.0	137.9	3,607.1	3,482.8	257.9	4.3	761.0
October.....	3,652.8	116.8	3,536.0	3,408.4	239.6	4.8	705.0
November.....	3,605.1	129.6	3,475.5	3,400.9	200.5	3.7	698.9
December.....	3,587.4	142.8	3,444.6	3,338.1	245.4	3.9	740.7
1989							
Total.....	43,301.2	1,753.7	41,547.5	40,477.4	2,683.9	139.9	(NA)
January.....	3,780.6	154.9	3,625.7	3,544.8	224.0	11.8	704.2
February.....	3,487.3	150.2	3,337.1	3,280.8	196.7	9.8	754.0
March.....	3,811.1	147.2	3,663.9	3,604.9	198.0	8.2	675.4
April.....	3,649.5	152.2	3,497.3	3,429.4	207.2	12.9	750.2
May.....	3,677.7	142.4	3,535.3	3,435.0	226.4	16.3	791.5
June.....	3,282.7	127.1	3,155.6	3,046.6	220.2	15.9	748.0
July.....	3,494.8	149.1	3,345.7	3,220.3	260.9	13.6	625.1
August.....	3,682.1	140.4	3,541.7	3,425.0	247.5	9.6	657.6
September.....	3,532.5	149.9	3,382.6	3,283.8	238.1	10.6	677.6
October.....	3,706.3	145.6	3,560.7	3,470.9	225.2	10.2	722.6
November.....	3,604.5	139.2	3,465.3	3,377.0	216.5	11.0	762.2
December.....	3,592.1	155.5	3,436.6	3,358.9	223.2	10.0	829.1

Note: Detail may not add to total due to independent rounding.

(D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available.

¹Represents gross production of sulfuric acid less acid produced through decomposition and spent acid used in fortification.
²Spent acid fortified by the addition of sulfur trioxide.

Table 10. PRODUCTION, EXPORTS, IMPORTS, AND APPARENT CONSUMPTION OF FERTILIZER MATERIALS: 1990 AND 1989

(Quantity in thousands of short tons; value in millions of dollars)

Product code	Product description	Production (quantity)	Exports of domestic merchandise ¹ (quantity)	Percent exports to production (quantity)	Imports for consumption ² (quantity)	Apparent consumption ³ (quantity)	Percent imports to apparent consumption (quantity)
1990							
28731 30	Ammonia, synthetic anhydrous.....	16,921.1	(D)	(D)	(D)	(D)	(D)
28731 32							
28731 50	Ammonium nitrate, original solution.....	7,076.5	41.4	0.6	448.8	7,483.9	6.0
28731 66	Nitrogen solutions, ammonium nitrate/urea solutions..	2,615.2	465.9	17.8	443.3	2,592.6	17.1
28731 56	Ammonium sulfate.....	2,539.7	1,019.0	40.1	398.4	1,919.1	20.8
28731 58							
28732 --	Urea.....	8,123.6	854.1	10.5	2,051.4	9,320.9	22.0
28741 81	Phosphoric acid.....	12,034.5	(D)	(D)	10.2	(D)	(D)
28741 85							
28742 15	Normal and enriched superphosphate ⁴	53.4	32.7	61.2	1.1	21.8	5.0
28742 41	Concentrated superphosphate ⁴	924.7	713.9	77.2	-	(NA)	(NA)
28742 52	Diammonium phosphates ⁴	6,957.4	7,756.1	111.5	12.3	-786.4	-1.6
28193 --	Sulfuric acid, gross.....	44,043.7	178.1	0.4	1,863.6	45,729.2	4.1
1989							
28731 30	Ammonia, synthetic anhydrous.....	16,467.0	(D)	(D)	(D)	(D)	(D)
28731 32							
28731 50	Ammonium nitrate, original solution.....	7,871.0	131.7	1.7	452.8	8,192.1	5.5
28731 66	Nitrogen solutions, ammonium nitrate/urea solutions..	2,712.8	256.4	9.5	656.0	3,112.4	21.1
28731 56	Ammonium sulfate.....	2,383.8	774.2	32.5	336.5	1,946.1	17.3
28731 58							
28732 --	Urea.....	8,003.7	1,055.6	13.2	2,175.3	9,123.4	23.8
28741 81	Phosphoric acid.....	11,736.4	(D)	(D)	11.4	(D)	(D)
28741 85							
28742 15	Normal and enriched superphosphate ⁴	64.3	17.1	26.6	1.6	48.8	3.3
28742 41	Concentrated superphosphate ⁴	824.9	776.5	94.1	-	(NA)	(NA)
28742 52	Diammonium phosphates ⁴	6,292.5	8,292.7	131.8	15.5	-1,984.7	-0.8
28193 --	Sulfuric acid, gross.....	43,301.2	160.6	0.4	1,383.0	44,523.6	3.1

Note: For comparison of SIC product code numbers, HTSUSA import numbers, and Schedule B export numbers, see table 11.

- Represents zero. (D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available.

¹Source: Bureau of the Census report EM 545, U.S. Exports.²Source: Bureau of the Census report IM 145, U.S. Imports for Consumption.³Apparent consumption is derived by subtracting exports from manufacturers' production plus imports. Apparent consumption does not include any adjustments for changes in inventories.⁴The "Superphosphates and other phosphatic fertilizer materials" production figures are collected and published on a 100% P₂O₅ basis, while the import and export figures are collected and published on a gross weight basis. Due to the difference on the basis, production, import and export data are not comparable.

Table 11. COMPARISON OF STANDARD INDUSTRIAL CLASSIFICATION-BASED PRODUCT CODES WITH SCHEDULE B EXPORT NUMBERS, AND HTSUSA IMPORT NUMBERS: 1990

Product code	Product description	Export number ¹	Import number ²
28731 11	Nitric acid.....	(NA)	2808.00.0010
28731 30	Ammonia, synthetic anhydrous.....	2814.10.0000	2814.10.0000
28731 32		2814.20.0000	2814.20.0000
28731 50	Ammonium nitrate, original solution.....	3102.30.0000	3102.30.0000
28731 56	Ammonium sulfate.....	3102.21.0000	3102.21.0000
28731 58			
28731 66	Nitrogen solutions, ammonium nitrate/urea solutions.....	3102.80.0000	3102.80.0000
28732 --	Urea.....	3102.10.0000	3102.10.0000
28742 15	Normal and enriched superphosphates.....	3103.10.0010	3103.10.0010
28742 41	Concentrated superphosphates.....	3103.10.0020	3103.10.0020
28742 51	Monoammonium phosphates.....	(NA)	3105.40.0010
28742 52	Diammonium phosphates.....	3105.30.0000	3105.30.0000
28741 81	Phosphoric acid.....	2809.20.0010	2809.20.0010
28741 85		2809.20.0020	2809.20.0020
		2809.20.0030	2809.20.0030
28193 --	Sulfuric acid, gross.....	2807.00.0000	2807.00.0000

(NA) Not available.

¹Source: 1990 edition, Harmonized System-Based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.²Source: Harmonized Tariff Schedule of the United States, Annotated (1990).

DESCRIPTION OF SURVEY

Scope of Survey. This survey covers establishments producing inorganic fertilizer chemicals, phosphatic fertilizer materials, and sulfuric acid, except spent sulfuric acid recovered by hydrolysis or evaporation.

Survey Methodology. The statistics in this publication were collected by mail on Bureau of the Census annual Form MA28B, Inorganic Fertilizer Materials and Related Products. The survey panel includes all known producers of inorganic fertilizer materials, phosphatic fertilizer materials, and sulfuric acid, approximately 250 establishments.

Reliability of Data. Survey error may result from several sources: (1) inability to obtain information about all cases in the survey; (2) response errors; (3) definitional difficulties; (4) differences in the interpretation of questions; (5) mistakes in recording or coding the data obtained; and (6) other errors of collection, response, coverage, and estimation for missing data. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is due to imputing data for nonrespondents, for late reporters, and for data which failed logic edits. Missing figures are imputed based on yearly movements shown by reporting firms. Imputation generally is limited to a maximum of 5 percent for any one data cell. Figures with imputation rates greater than 5 percent are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is not precisely known, but is assumed to be small. The degree of uncertainty regarding the accuracy of the published data, however, increases as the percentage of imputation increases. Figures with imputation rates above 5 percent should be used with caution.

Revisions to Previous Period Data. Statistics for previous years may be revised as the result of corrected data from respondents, including the receipt of late reports for which imputations were made as described above. Figures which have been revised by more than 5 percent from previously published figures are indicated by footnotes.

Adjustment for Price Change. All dollar figures included in this publication are in current dollars; i.e., they have not been adjusted for price change.

EXPLANATION OF TERMS

Quantity and Value of Shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable sales to unaffiliated customers; i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Production. Data shown for production represent total quantity of each product produced, including quantity consumed in the plant or sold or transferred to other plants or warehouses of the same company. Products produced under toll agreements are reported by the establishment which owns raw material from which the products are produced. The data provide a measure of total production, but do not necessarily indicate amounts entering the market since, in some cases, figures are included for material produced as an intermediate process in the production of other end products.

Consumption. Consumption data includes only quantities produced and consumed in the same plant.

Sulfuric Acid. Represents quantities produced from all sources which are available for sale except for the amounts recovered by processes other than fortification. Includes amounts produced from the oxidation of sulfur or sulfur bearing material and from the decomposition of spent acids. Excludes sulfuric acid recovered by hydrolysis and evaporation and intermediate production where sulfuric acid is not withdrawn from the system.

Spent Acid. Sulfuric acid that has been used in manufacturing processes, such as metal treating on crude oil processing, and is reduced in strength or purity. This includes sludge acid, alkylation acid, and other spent acids.

Fortified Spent Acid. Spent acid that has been strengthened by the addition of sulfur trioxide in contact units.

Decomposed Spent Acid. Spent acid, typically alkylation and sludge acids, that has been decomposed to sulfur dioxide through thermal processes.

Normal and Enriched Superphosphates. All grades containing less than 40 percent available phosphoric oxide (P_2O_5).

Concentrated (Triple) Superphosphates. Grades containing 40 percent or more phosphoric oxide (P_2O_5).

Ammonium Phosphates. Includes a group of nitrogen-phosphorous materials monoammonium phosphates and diammonium phosphates, mixtures of the two, or combinations with ammonium nitrate or ammonium sulfate. Ammonium polyphosphate is also included.

Monoammonium Phosphates. Chemically processed nitrogen-phosphorous materials containing 50 percent or more primary nutrients and having a phosphate to nitrogen ratio of 3 to 1 or greater.

Diammonium Phosphates. Chemically processed nitrogen-phosphorous materials comprising fertilizer grades containing 18 to 21 percent nitrogen (N), and 46 to 54 percent phosphoric oxide (P_2O_5).

Other Ammonium Phosphates. Chemically processed nitrogen-phosphorous materials, solid and fluid, including mixtures of monoammonium, diammonium, and ammonium sulfate. Excludes ammonium phosphate produced in combination with potash salts to make a complete mixture.

Other Phosphatic Fertilizer Materials. Chemically processed materials such as ammonium phosphate potash mixtures, nitrophosphates, calcium metaphosphates, sodium phosphates, wet base goods made by treating phosphate rock and some organic nitrogenous material with sulfuric acid.

COMPARISON OF EXPORT, IMPORT, AND DOMESTIC OUTPUT DATA

The trade comparisons shown in this report should be considered only as approximations. Several problems prevent precise comparisons among imports, exports, and domestic output. These problems include the following:

- Export and import comparisons do not account for the origin of materials used to manufacture the finished product. Domestic output includes any goods that undergo substantial transformation into a finished product in the U.S., even if the goods are partially constructed abroad or are constructed of imported materials.
- There will be a lag between the time a producer makes or ships a product and the time it is actually exported. Similarly, there may be a lag between the time a product is imported and when it enters into U.S. distribution channels.

- The basic structure of these classification systems differ. The Standard Industrial Classification (SIC) system used for domestic output was developed independently of the Harmonized System (HS) used to classify imports and exports. The level of detail provided by the different systems varies substantially, reflecting their different objectives. For example, there are a number of imported commodities that have no comparable domestic output classification.
- Because producers' shipments of some commodities may be used as materials for incorporation into other commodities, combinations of domestic output data for such commodities may contain some duplication.
- Import and export data reflect the movement of merchandise into and out of U.S. foreign trade zones, the U.S. Virgin Islands, and the U.S. customs territory of the 50 States, the District of Columbia, and Puerto Rico. Domestic output reflects activity in the 50 States and, only if specified, in Puerto Rico.
- Import and export data generally do not distinguish between new, used or rebuilt commodities.
- The valuation of the three data sets differ. Domestic output is valued at the point of production. It includes the net sales price, f.o.b. plant, after discounts and allowances, and excludes freight charges and excise taxes. Exports are valued at the point of exportation. It includes the net sales price or value, and inland freight, insurance and other charges to the export point. Imports are valued at the first port of entry in the United States. They include the cost, insurance, freight, duty, and other charges to the import point.
- Detailed commodity information is not included for individual export or import shipments at or below a certain dollar limit. This dollar limit is \$2,500 for exports and \$1,250 for imports, except for import of textiles and textile products, gloves, footwear, and miscellaneous rubber and plastics products, where the limit is \$250.

HISTORICAL NOTE

Data on inorganic fertilizer chemicals and sulfuric acid have been collected by the Bureau of the Census since 1941. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. A list of these libraries may be obtained from the Bureau of the Census regional offices:

Office	Telephone
Atlanta, Georgia	(404) 347-2271
Boston, Massachusetts	(617) 565-7100
Charlotte, North Carolina	(704) 371-6142

Chicago, Illinois	(312) 353-6251
Dallas, Texas	(214) 767-0621
Denver, Colorado	(303) 969-6750
Detroit, Michigan	(313) 226-7742
Kansas City, Kansas	(913) 236-3728
Los Angeles, California	(213) 209-6616
New York, New York	(212) 264-3860
Philadelphia, Pennsylvania	(215) 597-4920
Seattle, Washington	(206) 728-5300

Historical data are also available on microfiche. For further information contact the Bureau of the Census, Data User Services Division, (301) 763-4100.

RELATIONSHIP BETWEEN M28B AND MA28B

Data on production of inorganic fertilizer chemicals, phosphatic fertilizer materials, and sulfuric acid are published monthly in M28B, *Inorganic Fertilizer Materials and Related Products*. Although the product descriptions are the same on the monthly and annual surveys, the statistics shown in the annual report may differ from those published in the monthly report for the following reasons:

Figures supplied by the same company may differ for the two reports even though the product descriptions and reporting basis are the same.

The monthly figures received from many firms are estimated since book records are frequently not available. These data sometimes differ significantly from reported annual data for the same establishments.

For establishments reporting on the annual survey but not on the monthly, the monthly data are estimated. The sum of these monthly estimates may vary substantially from actual data. Where these discrepancies between the monthly and annual figures occur, the monthly data are adjusted by a method which preserves the month-to-month trend while correcting the level. These revised monthly data are shown in tables 6 and 7.

RELATED REPORTS

The Bureau of the Census also publishes the following related reports:

Series	Frequency	Title
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Current Industrial Reports

MQ28A	Quarterly	<i>Inorganic Chemicals</i>
MQ28B	Quarterly	<i>Inorganic Fertilizer Materials and Related Products</i>
MQ28C	Quarterly	<i>Industrial Gases</i>
MA28A	Annually	<i>Inorganic Chemicals</i>
MQ28B	Quarterly	<i>Fertilizer Materials</i>

Series	Frequency	Title
MA28C	Annually	<i>Industrial Gases</i>
<i>Other Industry Reports</i>		
M3-1	Monthly	<i>Manufacturers' Shipments, Inventories, and Orders</i>
(AS)	Annually	Annual Survey of Manufactures (ASM)
(MC)	Quinquennially	Census of Manufactures

Foreign Trade Reports

EM 545	Monthly	<i>U.S. Exports—Schedule B—Commodity by Country</i>
FT 446	Annually	
IM 145	Monthly	<i>U.S. Imports for Consumption—HTSUSA—Commodity by Country</i>
FT 246	Annually	

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone Number
Current Industrial Report MA28B	John P. Miller	(301) 763-7837
Classification System Comparability	Francis McCormick (ESD)	(301) 763-1935
Foreign Trade	Trade Data Inquiries Staff (FTD)	(301) 763-5140
Census/ASM	Allen Foreman	(301) 763-5531
Industry and Trade Administration	Frank Maxey	(202) 377-0128
Department of Agriculture	Harry Vroomen	(202) 786-1456
To order a Current Industrial Report	Superintendent of Documents (GPO)	(202) 783-3238
To subscribe to a Census Bureau publication	Superintendent of Documents (GPO)	(202) 275-3054

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