GYPSUM

By Ronald F. Balazik

The United States continued to be the world leader in gypsum output and demand in 1996. Increased housing construction spurred domestic demand for gypsum building products during the year. The ownership of U.S. production facilities continued the consolidation trend of recent years as new companies entered the industry and others withdrew. For example, Georgia Pacific Corp. concluded its purchase of all gypsum mines and wallboard plants owned by the Canadian company, Domtar Inc. Also in 1996, three domestic producers planned to construct gypsum wallboard plants that would use only byproduct gypsum as feed material.

Data on the domestic gypsum industry are derived by the U.S. Geological Survey (USGS) from monthly, quarterly, and annual surveys of gypsum operations and from data provided by the Gypsum Association. The 1996 USGS survey, which canvassed more than 100 gypsum operations, had a response rate of 94%, accounting for virtually all domestic production. The output of producers that did not respond to the survey was estimated from annual canvasses of previous years and from other sources.

Production

The United States in 1996 continued to be the world's leading gypsum producer, accounting for 18% of global output. Domestic production of crude gypsum rose 5% during the year to 17.5 million metric tons, valued at \$124 million. (*See table 1.*)

Crude gypsum was mined domestically by 30 companies at 61 mines in 20 States. The top producing States, in descending order, were Oklahoma, Texas, Iowa, Michigan, Nevada, California, and Indiana. These States, with 36 mines, produced more than one million tons each and together accounted for 73% of total domestic output. *(See table 2.)*

Leading producers were U.S. Gypsum Co., 11 mines; Georgia-Pacific Corp., 9 mines; National Gypsum Co., 7 mines; and Harrison Gypsum Inc., 3 mines. These companies produced almost two-thirds of total U.S. crude gypsum. The 10 largest gypsum mines in the United States accounted for 39% of domestic output in 1996. These mines, owned by five companies, had an average output of 670,000 tons.

Gypsum was "calcined" (that is, partially dehydrated by heating) at 67 plants operated by 10 companies in 28 States during 1996, principally to produce feedstock for wallboard and plaster plants. The quantity and value of calcined output increased significantly relative to production in the preceding year. Leading States were (in descending order) Iowa, California, Texas, Florida, Oklahoma, and New York. These States, with 25 plants, accounted for 43% of national output. (See table 3.)

Companies with the most calcining plants were U.S. Gypsum Co., 20; National Gypsum, 18; Georgia-Pacific, 17; and Celotex Corp., 4. These companies produced more than 80% of national output. The largest 10 calcining plants in the United States accounted for more than one-third of domestic production in 1996. These plants, owned by five companies, had an average output of almost 700,000 tons.

In addition to mined gypsum, byproduct gypsum is generated by various industrial processes and by flue gas desulfurisation (FGD) at many coal-burning electric powerplants. Byproduct gypsum is used principally for wallboard manufacturing, agriculture, roadbase, and fill material. In response to USGS surveys, 10 companies operating 14 plants in 11 States reported sales of 2.4 million tons of byproduct gypsum in 1996. Byproduct gypsum sales by the companies have been increasing in recent years. In addition to these companies, about 60 domestic coal-fired electric utilities generated 21.5 million tons of FGD gypsum during 1996, 15% more than in 1995. Only 1.5 million tons of the FGD material generated in 1996 was used, primarily for wallboard production (American Coal Ash Association, 1997).

During 1996, 13 U.S. companies manufactured gypsum wallboard products at 75 plants. Total production capacity at the plants increased slightly during the year to 26.1 billion square feet (2.42 billion square meters). Wallboard shipments totaled 24 billion square feet (2.19 billion square meters), or 91% of production capacity.

Three domestic gypsum producers plan to build new wallboard plants designed to use FGD gypsum from electric utilities. The plants will be constructed in Bridgeport, AL, Clarksville, TN, and Shippingsport, PA. All of the plants are scheduled to be operational by the year 2000 (Drake, 1997; The McIlvaine Co., 1997).

Consumption

A 9% growth in housing starts during 1996 (Bureau of the Census, 1997) stimulated gypsum consumption during the year. Apparent U.S. consumption of gypsum (defined as mine output plus net imports, industry stock changes, and byproduct use) reached at least 26.5 million tons during the year; consumption may have been greater if unreported byproduct gypsum was utilized. Domestic sources (mining plus 3.9 million tons of byproduct gypsum) met 81% of domestic consumption requirements; remaining needs were satisfied with imports.

Gypsum output is categorized as either calcined or

uncalcined. About 19 million tons of gypsum was calcined for use in wallboard and plaster products during 1996, accounting for 71% of total gypsum use in the United States. Uncalcined gypsum, used for portland cement production, agriculture, and filler material, accounted for virtually all the remaining consumption. (*See table 4.*)

Most of the calcined gypsum consumed in wallboard manufacturing during 1996 (86%) was used to produce regular 1/2-inch wallboard and fire-resistant type X wallboard. Mobile-home board, water/moisture-resistant board, lath, veneer base, and sheathing composed most of the balance. (*See table 5.*) The leading sales areas for these gypsum wallboard products were (in descending order) the South Atlantic, the Eastern North-Central, the Western South-Central, and the Pacific regions of the United States.

More than two-thirds of the uncalcined gypsum consumed in the United States during 1996 was used in portland cement production, while the remainder was used primarily for agricultural purposes. Gypsum is added to cement to retard the setting time; gypsum composes about 2% to 5% of cement output (Dutton, 1997). Finely ground gypsum rock is used in agriculture to neutralize alkaline soils, to improve the permeability, and to provide sulfur and catalytic support for maximum fertilizer benefits. Small amounts of pure gypsum also are employed in a wide range of industrial uses, including glassmaking, papermaking, and pharmaceutical applications.

Stocks

At yearend 1996, stocks of crude gypsum at mines and calcining plants totaled 4.5 million tons. Reported stocks had been 2.1 million tons at the beginning of the year.

Prices

The average values per ton (f.o.b. mine or plant) reported by producers for 1996 decreased slightly to \$7.10 for crude gypsum and increased 17% to \$20.27 for calcined gypsum. The average per-ton values of gypsum for plaster, wallboard, and uncalcined products were \$148, \$102, and \$12, respectively. Delivered prices for uncalcined gypsum to agricultural markets and cement plants reportedly ranged from \$13 to \$40 per ton, depending on transport mode and distance shipped (Glasscock, 1996).

Yearend prices for comparable gypsum wallboard products in 20 U.S. cities varied considerably. Regular 1/2-inch wallboard prices ranged from \$93 per 1,000 square feet (928 square meters) in Cincinnati to \$210 in Minneapolis. The average yearend price for the 20 cities was \$155 per 1,000 square feet, about \$4 more than at the beginning of the year (Stussman, 1996).

Foreign Trade

The United States is a world leader in the international trade of gypsum and gypsum products; in 1996, crude gypsum was imported from 12 countries and gypsum wallboard was exported to 62 countries. Only a small amount of crude gypsum is exported by the United States. (*See tables 6 and 7.*)

Net imports of crude gypsum, which decreased slightly during the year, accounted for almost one-third of apparent consumption. Much of this import dependance can be attributed to the lack of adequate gypsum resources near large East Coast markets. Canada and Mexico, the major U.S. sources of crude gypsum imports, primarily supplied wallboard plants in coastal markets; most imports from Canada went to East Coast plants, while Mexican sources chiefly served the West Coast. Foreign subsidiaries of some domestic gypsum companies produced much of the gypsum that was imported for the wallboard plants. Smaller gypsum imports were used for portland cement production as well.

Wallboard exports totaling about 92 million square feet (8.5 million square meters) and valued at \$23 million were shipped to Asia, Europe, and Latin America. Wallboard imports were about 860 million square feet (80 million square meters), valued at \$89 million. The imports were from four countries, but virtually all came from Canada and Mexico.

World Review

More than 90 countries produce gypsum throughout the world. (*See table 8.*) Global production of gypsum is estimated to have reached about 100 million tons in 1996. This estimate may be low because in some countries output that is used by the gypsum producers themselves to make other products is not reported. Moreover, production from small deposits in developing countries is intermittent and frequently unreported.

As a low-value, high-bulk commodity drawn from deposits widely distributed throughout the world, gypsum tends to be consumed within the many countries that mine it. It is estimated that less than 20% of world gypsum production enters international trade. Nevertheless, a few countries are significant exporters. Canada and Mexico, for example, export much of their output to large, nearby markets in the United States.

Industrialized nations such as the United States use gypsum primarily for wallboard products. However, in developing countries (particularly those of Asia) most gypsum is utilized by cement plants.

Estimated world production capacity for gypsum wallboard in 1996 was approximately 54 billion square feet (5 billion square meters) at about 240 plants worldwide (Mields, 1996). Most of this capacity was in the United States (45%), Western Europe (20%), and Asia (20%). Plans for the construction of new wallboard plants in several countries; for example, China, Germany, and the United States) were announced in 1996 (McCaffrey, 1996; Tradeship Publications, 1997).

Outlook

Market demand for gypsum in the United States is projected to increase approximately 2% per year in the remaining 1990's (Weiss, 1997). Domestic gypsum prices are expected to remain stable during the forecast period. World demand will be driven primarily by the construction industry, particularly in the United States where more than 90% of the gypsum currently consumed is used for gypsum wallboard products, building plasters, and the manufacture of portland cement. In developing nations, the rate of gypsum use for wallboard will grow as new wallboard plant capacity is added.

The utilization of byproduct gypsum generated by industrial processes and the desulfurization of electric powerplant emissions will accelerate as new wallboard plants that use byproduct feedstock are opened. However, more favorable economic circumstances that support byproduct gypsum as a replacement for natural gypsum (for example, rising ore costs) are necessary to encourage further substitution.

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TABLE 1 SALIENT GYPSUM STATISTICS 1/

(Thousand metric tons and thousand dollars)

	1992	1993	1994	1995	1996
United States:					
Active mines and plants 2/	109	112	108	115	111
Crude:					
Mined	14,800	15,800	17,200	16,600	17,500
Value	\$101,000	\$107,000	\$115,000	\$121,000	\$124,000
Imports for consumption	7,180	7,390	8,470	8,160	8,050
Byproduct gypsum sales	630	846	950	1,220	2,420
Calcined:					
Produced	15,100	15,200	16,700	16,700	18,800
Value	\$250,000	\$272,000	\$288,000	\$290,000 r/	\$381,000
Products sold (value)	\$1,350,000 3/	\$1,780,000 3/	\$2,630,000 3/	\$2,120,000	\$2,380,000
Exports (value)	\$97,000	\$77,600	\$73,400	\$75,100	\$81,400
Imports for consumption (value)	\$96,000	\$111,000	\$141,000	\$166,000	\$196,000
World: Production	98,800 r/	97,100 r/	96,200 r/	96,500 r/	99,700 e/

e/ Estimated. r/ Revised.

1/ Data are rounded to three significant digits.

2/ Each mine, calcining plant, or combination mine and plant is counted as one establishment; includes plants that sold byproduct gypsum. 3/ Does not include value of plasters sold.

TABLE 2 CRUDE GYPSUM MINED IN THE UNITED STATES, BY STATE OR REGION 1/

		1995			1996		
		Quantity			Quantity		
	Active	(thousand	Value	Active	(thousand	Value	
	mines	metric tons)	(thousands)	mines	metric tons)	(thousands)	
Arizona and New Mexico	5	880	\$6,332	6	1,200	\$8,875	
Arkansas, Kansas, Louisiana	5	1,490	11,400	5	1,580	12,400	
California, Nevada, Utah	12	3,000	16,600	13	3,310	20,700	
Colorado, South Dakota, Wyoming	5	756	5,380	7	883	6,720	
Indiana, New York, Ohio, Virginia	5	2,000	19,300	5	1,950	19,200	
Iowa	6	2,240	13,800	6	2,090	12,800	
Michigan	5	1,510	14,900	5	1,590	14,400	
Oklahoma	8	2,380	17,000	7	2,690	16,500	
Texas	6	1,880	16,200	6	2,240	12,100	
Total	57	16,600	121,000	60	17,500	124,000	

1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 3

CALCINED GYPSUM PRODUCED IN THE UNITED STATES, BY STATE OR REGION 1/

		1995			1996		
		Quantity		Quantity			
	Active	(thousand	Value	Active	(thousand	Value	
	plants	metric tons)	(thousands)	plants	metric tons)	(thousands)	
Arizona, Colorado, New Mexico, Utah	5	1,040	\$8,400	5	1,150	\$9,340	
Arkansas, Louisiana, Oklahoma	7	1,990	24,100	7	2,240	30,900	
California	5	1,360	23,400	5	1,450	66,000	
Delaware, Maryland, North Carolina, Virginia	6	1,320	33,300	6	1,420	84,600	
Florida	3	1,180	28,000	3	1,290	30,900	
Georgia	3	506	8,860	3	638	15,700	
Illinios, Indiana, Kansas	6	1,400	23,500	6	1,270	21,700	
Iowa	5	1,470	22,400	5	1,730	20,900	
Massachusetts, New Hampshire, New Jersey	5	1,100	23,500	5	1,050	23,200	
Michigan	4	601	13,400	4	544	12,400	
Nevada	4	1,180	13,600	3	805	7,060	
New York	4	1,020	22,000	4	1,010	18,100	
Ohio	3	425	8,940	3	2,250	9,300	
Texas	5	1,290	20,100	5	1,320	18,900	
Washington and Wyoming	4	859	16,600	3	636	12,000	
Total	69	16,700	290,000	67	18,800	381,000	

1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4 GYPSUM PRODUCTS (MADE FROM DOMESTIC, IMPORTED, AND BYPRODUCT GYPSUM) SOLD OR USED IN THE UNITED STATES, BY USE 1/

(Thousand metric tons and thousand dollars)

	199	95	199	96
	Quantity	Value	Quantity	Value
Uncalcined:				
Portland cement	4,680	54,600	5,310	59,000
Agriculture and miscellaneous 2/	2,140	33,600	2,280	35,000
Total	6,810	88,200	7,600	94,000
Calcined:				
Plasters	806	89,300	653	96,500
Prefabricated products 3/	18,700	1,950,000	21,200	2,180,000
Total calcined	19,500	2,030,000	21,900	2,280,000
Grand total	26,300	2,120,000	29,500	2,380,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes byproduct gypsum.

3/ Includes weight of paper, metal, or other materials and some byproduct gypsum.

TABLE 5
PREFABRICATED GYPSUM PRODUCTS SOLD OR USED IN THE UNITED STATES 1/

		1995			1996	
	Thousand	Thousand	Value	Thousand	Thousand	Value
Product	square feet	metric tons 2/	(thousands)	square feet	metric tons 2/	(thousands)
Lath:						
3/8 inch	6,100	4	\$1,250	5,360	3	\$1,160
1/2 inch	57	(3/)	11	76	(3/)	
Other				9,510	10	2,470
Total	6,160	4	1,270	14,900	13	3,640
Veneer base	394,000	352	36,300	467,000	458	41,500
Sheathing	314,000	266	36,800	346,000	319	42,000
Regular gypsumboard:						
3/8 inch	839,000	661	63,400	868,000	785	75,600
1/2 inch	10,600,000	8,440	928,000	11,400,000	9,540	1,010,000
5/8 inch	1,510,000	1,290	80,500	1,750,000	1,750	100,000
1 inch	169,000	156	31,300	186,000	199	38,100
Other 4/	195,000	154	24,000	347,000	328	31,700
Total	13,300,000	10,700	1,130,000	14,500,000	12,600	1,250,000
Type X gypsumboard	6,080,000	5,510	486,000	5,840,000	5,790	556,000
Predecorated wallboard	84,200	75	27,300	89,600	87	30,700
5/16-inch mobile home board	1,260,000	943	139,000	1,630,000	1,200	156,000
Water-moisture-resistant board	880,000	740	75,700	703,000	640	88,100
Other	139,000	116	14,100	121,000	103	13,100
Grand total	22,500,000	18,700	1,950,000	23,700,000	21,200	2,180,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes weight of paper, metal, or other materials.

3/ Less than 1/2 unit.

4/ Includes 1/4, 7/16, and 3/4-inch gypsumboard.

TABLE 6

IMPORTS FOR CONSUMPTION OF CRUDE GYPSUM, BY COUNTRY 1/

(Thousand metric tons and thousand dollars)

	199	5	1996		
Country	Quantity	Value	Quantity	Value	
Australia	33	272	3	72	
Bahamas, The	298	1,490	163	759	
Canada 2/	5,560	43,800	5,490	45,200	
China	(3/)	4			
Dominican Republic	(3/)	8	(3/)	31	
Hong Kong	(3/)	4	(3/)	2	
Italy	(3/)	2	(3/)	1	
Japan	(3/)	22	(3/)	44	
Mexico	1,890	11,600	1,860	11,700	
Philippines			(3/)	17	
Spain	379	2,730	541	4,400	
United Kingdom	(3/)	95	1	251	
Total	8,160	60,000	8,050	62,500	

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes anhydrite.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7 SUMMATION OF U.S. GYPSUM AND GYPSUM PRODUCTS TRADE DATA 1/

(Thousand metric tons and thousands dollars)

	Crude 2	/	Plasters	3/	Boards	4/	Other 5/	Total
Year	Quantity	Value	Quantity	Value	Quantity	Value	Value	value
Exports:								
1995	79	4,240	159	23,900	64	17,300	29,600	75,100
1996	136	6,120	142	25,800	80	22,800	26,700	81,400
Imports for consumption:								
1995	8,160	60,000	8	1,520	560	64,400	40,300	166,000
1996	8,050	62,500	11	2,220	748	89,300	42,400	196,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Import and export data are for "Gypsum; anhydrite," Harmonized Tariff Schedule 2520.10.0000.

3/ Import and export data are for "Plasters, " Harmonized Tariff Schedule 2520.20.0000.

4/ Import and export data are for " Boards, sheets, panels, tiles and similar articles, not ornamented: Faced or reinforced with paper or paperboard only," Harmonized Tariff Schedule 6809.11.0000.

5/ Import and export data are for "Boards, sheets, panels, tiles, and similar articles, not ornamented: other, "Harmonized Tariff Schedule 6809.19.000 and "Other articles," Harmonized Tariff Schedule 6809.90.0000.

Source: Bureau of the Census.

TABLE 8GYPSUM: WORLD PRODUCTION, BY COUNTRY 1/2/

(Thousand metric tons)

Country	1992	1993	1994	1995	1996 e/
Afghanistan e/	3	3	3	3	3
Algeria e/	150	150	150	175	175
Angola e/	57	50	50	50	50
Argentina	514	519	515 r/	532 r/	520
Australia e/	2,000	2,000	2,000	2,000	2,000
Austria 3/	792	876	1,069	873 r/	900
Azerbaijan e/	100	75	60	50	55
Bhutan	25	20 e/	45	52	40
Bolivia	6 e/	4 e/	1	2	55 4/
Bosnia and Herzegovina e/	50	30	30	30	30
Brazil 3/	888	874	789	935 r/	935
Bulgaria 3/	125	143	r/	163 r/	169 4/
Burma	31	28	38	35	38
Canada 3/	7,566	7,880	8,500	8,055 r/	8,333 p/
Chile	424	511	552	550 e/	550
China e/	11,000	10,600	6,820 r/	7,340 r/	8,000
Colombia	671	439	450	450 r/ e/	450
Croatia e/	50	50	50	97 r/	86 4/
Cuba e/	125	125	125	130	130
Cyprus	35	40	89	90 e/	90
Czech Republic 5/	XX	560 e/	591	542	550
Czechoslovakia e/ 6/	600	XX	XX	XX	XX
Dominican Republic e/	83 4/	85	83	85 r/	85
Ecuador e/	- r/	r/	r/	r/	
	1,425	1,199	1,200 e/	1,200 e/	1,200
Egypt 3/ El Salvador e/		,	· · · · · · · · · · · · · · · · · · ·		,
	5	5	5	5	5
Eritrea	XX	XX	(7/)	(7/)	(7/) 4/
Ethiopia e/ 3/ 8/	3	3	31	54	50
France 3/	5,160	5,000 e/	5,200	4,800 r/	5,000
Germany (marketable) 3/	4,353	2,678	2,264	2,500 r/	2,500
Greece 3/	452	446 r/	454	450 e/	450
Guatemala	73 r/	75 r/e/	89 r/	90 r/e/	90
Honduras e/	26	26	26	26	26
Hungary 3/	120 r/ e/	125 r/	150 r/e/	198 r/	190
ndia	1,301	1,805	1,730 r/	1,739 r/	1,700
ndonesia	400 e/	2	1	1	1
ran 9/	8,253	7,799	8,430	8,230	8,300
raq e/ 10/	380	450	450	450	450
reland	343	318	450 367 r/	406 r/	400
srael	48	48	48 e/	48 e/	48
taly	835 r/	1,200 e/	1,361 r/	1,200 e/	1,200
amaica	145	152	204	208	210
apan	4,322	3,953	3,873	5,334 r/	5,350
ordan	83	195	193	190 e/	190
Kenya e/ 3/	36	36	36	36	36
Laos e/	80 4/	80	85	85	85
Latvia	350 e/	300 e/	61	81 r/	77 4/
_ebanon e/	2	2	2	2	2
Libya e/	180	160	160	160	160
Luxembourg e/ 3/	(7/)	(7/)	(7/)	(7/)	(7/)
Aacedonia e/	30	30	25	25	25
	1	30 1	1	25	23
Aali e/					
Iauritania	3	3			
Mexico 3/	5,160	5,340	5,040	4,854 r/	5,262 4/
Aoldova	75 e/	25 e/	15	14	14
	25	25	25	25	25
	150	450	450	450	450
	450				
Morocco e/	450 (7/)	(7/)	(7/) 4/		
Morocco e/ Namibia e/				 13 e/	13
Morocco e/ Vamibia e/ Vicaragua 3/	(7/) 9	(7/) 11	11 e/	13 e/	13
Mongolia e/ Morocco e/ Namibia e/ Nicaragua 3/ Niger e/ Pakistan	(7/)	(7/)			

TABLE 8--ContinuedGYPSUM: WORLD PRODUCTION, BY COUNTRY 1/2/

(Thousand metric tons)

Country	1992	1993	1994	1995	1996 e/
Peru e/	35	35	35	35	35
Philippines e/ 3/	25 4/	25	25	25	25
Poland 3/	843 r/	832	1,055	1,023 r/	1,100
Portugal 3/	417	459	450 e/	450 e/	450
Romania	800 e/	100	124	111 r/	72 4/
Russia e/	1,800	1,500	1,200	1,200	850
Saudi Arabia	269	327	375 e/	375 e/	375
Serbia and Montenegro	48		40	40	44 4/
Sierra Leone e/	4	4	4	(7/) r/	(7/)
Slovakia 3/ 5/	XX	75	122	131 r/	110
Slovenia e/	10	10	10	10	10
Somalia e/	2	2	2	2	2
South Africa	334	284	304	288	317 4/
Spain 3/	6,760	7,250	7,250 e/	7,500 e/	8,000
Sudan e/ 3/	10	10	10	10	5
Switzerland e/	200	200	200	200	200
Syria	234	300	302	336 r/	340
Taiwan	2	3	3	3 e/	3
Tajikistan e/	500	400	300	200	150
Tanzania 3/	27	1	8	1	1
Thailand	7,111	7,455	8,140	8,533	8,900
Tunisia e/	650	650	650	700	700
Turkey	278	493	597 r/	600 r/ e/	600
Turkmenistan e/	250	200	150	216 r/4/	170 4/
United Arab Emirates e/	95	95	95	90	90
United Kingdom e/ 3/	3,000	2,500	2,500	2,000 r/	2,000
United States 11/	14,800	15,800	17,200	16,600	17,500 4/
Uruguay e/	145	145	145	145	145
Venezuela	175	224	135	135 e/	135
Vietnam e/	30	30	30	30	30
Yemen	80	90	80 e/	80 e/	80
Zambia e/ 10/ 12/	13	13	13	13	13
Total	98,800 r/	97,100 r/	96,200 r/	96,500 r/	99,700

e/ Estimated. p/ Preliminary. r/ Revised. XX Not applicable.

1/World totals, U.S. data, and estimated data are rounded to three significant digits; may not add to totals shown.

2/ Table includes data available through July 15, 1997.

3/ Includes anhydrite.

4/ Reported figure.

5/Formerly part of Czechoslovakia; data were not reported separately until 1993.

6/ Dissolved Dec. 31, 1992.

7/ Less than 1/2 unit.

8/ Data are for years ending July 7 of that stated. Reported in cubic meters and estimated at mean weight of 1.5 tons per cubic meter. Data for 1992-93 probably do not include production for cement manufacture (normally 3%-5% of finished cement, equivalent of an additional 10,000 to 15,000 tons per year).

9/ Data are for years beginning Mar. 21 of that stated.

10/ For cement production only. Information is insufficient to formulate reliable estimates for output for other uses (plaster, mortar, etc.).

11/ Excludes byproduct gypsum.

12/ Data are for years beginning Mar. 1 of that stated.