

State of Maryland  
Department of Natural Resources  
MARYLAND GEOLOGICAL SURVEY  
Kenneth N. Weaver, Director

# THE MINERAL INDUSTRY OF MARYLAND IN 1984

by

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BUREAU OF MINES MINERALS YEARBOOK

# The Mineral Industry of Maryland



UNITED STATES DEPARTMENT OF THE INTERIOR



**UNITED STATES DEPARTMENT OF THE INTERIOR • Donald Paul Hodel, Secretary**

**BUREAU OF MINES • Robert C. Horton, Director**

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# The Mineral Industry of Maryland

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Maryland Geological Survey for collecting information on all nonfuel minerals.

By William A. Bonin<sup>1</sup>

In 1984, Maryland's nonfuel mineral production, which also included very large shipments of cement, was valued at \$241.7 million. This \$42.3 million increase was 21% over that of 1983, the former record high. The leading commodities in terms of value were cement, crushed stone, construction sand and gravel, common clay and shale, dimension stone, industrial sand, ball clay, and peat.

Water-granulated blast furnace slag was processed for slag cement, and air-cooled

iron slag and steel slag was used for construction aggregate and as road base and fill material. Gypsum and vermiculite shipments were received for further processing, and some quicklime and hydrated lime was manufactured for industrial and agricultural use.

Alumina and iron ore concentrate were shipped into the State for the production of metals. Titanium dioxide pigments were also manufactured.

Table 1.—Nonfuel mineral production in Maryland<sup>1</sup>

Mineral	1983		1984	
	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays <sup>2</sup> ----- thousand short tons--	484	\$1,747	347	\$1,484
Gem stones-----	NA	2	NA	2
Lime----- thousand short tons--	7	383	7	419
Peat----- do-----	4	W	5	W
Sand and gravel (construction)----- do-----	<sup>e</sup> 10,600	<sup>e</sup> 37,800	14,234	46,671
Stone:				
Crushed----- do-----	19,284	80,429	<sup>e</sup> 22,100	<sup>e</sup> 94,000
Dimension----- do-----	12	682	<sup>e</sup> 17	<sup>e</sup> 864
Combined value of cement, clays (ball clay), sand and gravel (industrial, 1984), and values indicated by symbol W-----	XX	78,366	XX	98,261
Total-----	XX	199,409	XX	241,701

<sup>e</sup>Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure. XX Not applicable.

<sup>1</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>2</sup>Excludes ball clay; included with "Combined value" figure.

Table 2.—Value of nonfuel mineral production in Maryland, by county<sup>1</sup>  
(Thousands)

County	1982	1983	Minerals produced in 1983 in order of value
Allegany	( <sup>2</sup> )	W	Stone (crushed).
Anne Arundel	\$7,485	( <sup>3</sup> )	
Baltimore <sup>4</sup>	W	W	Stone (crushed), clays, stone (dimension).
Carroll	W	W	Cement, stone (crushed), clays.
Cecil	W	W	Stone (crushed).
Charles	4,816	( <sup>3</sup> )	
Dorchester	W	( <sup>3</sup> )	
Frederick	W	W	Cement, stone (crushed), clays, lime.
Garrett	W	\$1,163	Stone (crushed), peat, stone (dimension).
Harford	509	W	Stone (crushed).
Howard	( <sup>2</sup> )	W	Stone (dimension).
Kent	23	—	
Montgomery	( <sup>2</sup> )	W	
Prince Georges	7,559	201	Clays.
Queen Annes	( <sup>2</sup> )	W	Stone (crushed).
St. Marys	376	( <sup>3</sup> )	
Washington	W	W	Cement, stone (crushed), clays.
Wicomico	W	( <sup>3</sup> )	
Worcester	1,168	( <sup>3</sup> )	
Undistributed <sup>5</sup>	75,081	160,245	
Sand and gravel (construction)	XX	<sup>6</sup> 37,800	
Stone:			
Crushed	<sup>6</sup> 73,500	XX	
Dimension	<sup>r</sup> <sup>e</sup> 470	XX	
Total	<sup>r</sup> <sup>6</sup> 170,991	199,409	

<sup>e</sup>Estimated. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Undistributed."  
XX Not applicable.

<sup>1</sup>No production of nonfuel mineral commodities was reported for counties not listed.

<sup>2</sup>Stone, either crushed or dimension, was produced; data not available by county. Total State values are shown separately under "Stone."

<sup>3</sup>Construction sand and gravel was produced; data not available by county. Total State value is shown separately under "Sand and gravel (construction)."

<sup>4</sup>Includes Baltimore City.

<sup>5</sup>Includes gem stones that cannot be assigned to specific counties and values indicated by symbol W.

<sup>6</sup>Data do not add to total shown because of independent rounding.

Table 3.—Indicators of Maryland business activity

	1982 <sup>r</sup>	1983	1984 <sup>p</sup>	
Employment and labor force, annual average:				
Population	thousands	4,270	4,299	4,349
Total civilian labor force	do	2,164	2,203	2,244
Unemployment	do	183	152	121
Employment (nonagricultural):				
Mining total <sup>1</sup>	do	2.0	1.9	1.6
Nonmetallic minerals except fuels <sup>2</sup>	do	.8	.7	NA
Coal mining <sup>2</sup>	do	1.2	1.0	NA
Manufacturing total	do	215.3	214.1	218.1
Primary metal industries	do	24.8	21.0	18.9
Stone, clay, and glass products	do	7.5	7.1	7.1
Chemicals and allied products	do	13.2	13.1	12.5
Petroleum and coal products	do	.8	.8	.9
Construction	do	89.3	101.4	114.5
Transportation and public utilities	do	88.0	87.1	90.1
Wholesale and retail trade	do	406.9	427.8	449.2
Finance, insurance, real estate	do	94.6	98.8	103.8
Services	do	386.5	413.4	440.5
Government and government enterprises	do	393.2	379.6	383.9
Total	do	1,675.8	1,724.1	1,801.7
Personal income:				
Total	millions	\$52,521	\$57,083	\$62,906
Per capita	do	\$12,299	\$13,279	\$14,464
Hours and earnings:				
Total average weekly hours, production workers	do	39.2	40.0	41.0
Total average hourly earnings, production workers	do	\$8.78	\$9.02	\$9.45

See footnotes at end of table.





**Legislation and Government Programs.**—The Maryland Geological Survey (MGS) conducted applied research in hydrogeology and hydrology, environmental geology and mineral resources, coastal and estuarine geology, and archeology. MGS expenditures of \$1.9 million in fiscal year 1984 were about equal to 1983 funding levels. Mineral resources aspects of the MGS programs included publication of two quadrangle geologic maps, an impact study of underground coal mining on surface and ground water, evaluations of mineral resource-mined land inventory, and geologic framework studies of Chesapeake Bay and the inner Continental Shelf. MGS also hosted the 20th Forum on the Geology of Industrial Minerals.

The U.S. Bureau of Mines conducted minerals and materials research at its Avondale Research Center in Prince Georges County. Major areas of mineral research include the fields of flotation, corrosion, electrodeposition, secondary metallurgy, characterization of metals and minerals, particulate mineralogy, and process evaluation. Its work was equally divided between

basic and applied research.

**Foreign Oceanborne Commerce.**—The Port of Baltimore continued to maintain its position, second only to New York, as the most important container and general cargo port on the East Coast. Additionally, the downward trend of mineral commodities in overall foreign trade was reversed.

Export trade in coal, which in 1983 recorded its worst year, was 7.2 million short tons in 1984—a 5% increase over that of 1983. Coke exports (including asphalt, petroleum coke, and pitch) reached 61,000 tons, up 30% from that of 1983. Export trade in fertilizer and fertilizer materials was 2,000 tons in 1984, 60% over that of 1983.

Import trade in minerals and materials included alumina, clay, ferroalloys, fertilizer and fertilizer materials, gypsum, iron and manganese ores, miscellaneous ores and concentrates (including chrome ore), and petroleum and petroleum materials. All posted large gains in tonnage as import trade in these commodities reached 9.3 million tons, 51% over that of 1983.

## REVIEW BY NONFUEL MINERAL COMMODITIES

### NONMETALS

**Cement.**—Lehigh Portland Cement Co., a subsidiary of the West German company Heidelberger Zement AG, at Union Bridge, and Lone Star Cement Inc., at Hagerstown, produced portland and masonry cements. At Lime Kiln, Coplay Cement Co., a subsidiary of France's Société des Ciments Français, produced only portland cement. Shipments and value of both portland and masonry cement increased 14% and 25%, respectively, over that of 1983.

Also, Atlantic Cement Co. Inc., a wholly owned subsidiary of Newmont Mining Corp., produced slag cement at its plant at Sparrows Point. The company had processing facilities adjacent to the "L" blast furnace of Bethlehem Steel at Sparrows Point. Molten slag was tapped from the furnace and entered a blow box, where the hot slag falling into cold water was fractured and granulated. The slag, which at this point has a moisture content of about 6%, was conveyed to intermediate silos and later trucked to stockpiles near the processing facility from which it was conveyed by belt loader to the processing plant and dried in a fluid bed dryer. The slag was then finely ground in a ballmill and stored in two

20,000-short-ton-capacity inverted silos. The slag cement, called Newcem, was shipped by truck and barge to East Coast terminals from Massachusetts to South Carolina. Company-owned, oceangoing barges, having capacities of 17,000 tons, were used for transport. The \$77 million plant, which began operation in mid-1982, had an annual capacity of 800,000 tons. The facility, which was run by 9 people per shift, operated 24 hours per day and 7 days per week with a total work force of 61 people.

The Union Bridge plant of Lehigh Portland was shut down for 24 days after the walkout of 160 union workers. The strike began on May 24 when the company rejected a proposed contract patterned after another union agreement with Lone Star Industries Inc., a cement company not related to Lehigh Portland. Late in the year, Coplay Cement, which also operates a cement plant in Nazareth, PA, acquired the Kentucky-based Louisville Cement Co. Louisville Cement operated plants at Speed and Logansport, IN.

**Clays.**—Common clay and shale was mined for the production of lightweight aggregate and the manufacture of bricks and portland cement. The quantity and value of the State's production deas-

ed 28% and 15%, respectively, from that of 1983. Whereas, total U.S. production of common clay and shale for construction materials increased for the second consecutive year, reversing the downward trend that had persisted from 1978 to 1980. Total domestic production and value increased 8% and 12%, respectively, over that of 1983.

Ball clay was mined for the manufacture of wall and floor tiles, ceramics, and sanitary ware. Production remained unchanged from that of 1983, while value increased 10%. Maryland was one of only seven States that produced ball clay.

**Gypsum (Calcined).**—Crude gypsum imported from Canada was calcined by National Gypsum Co. and United States Gypsum Co. at plants in Baltimore for manufacturing wallboard. Production and value increased 8% and 12%, respectively, over that of 1983.

The SCM Pigments Div. of SCM Corp. in Baltimore was one of seven domestic companies in 1984 that sold a total of 780,000 short tons of byproduct gypsum, valued at \$6.5 million, principally for agricultural use and also for wallboard manufacturing. Some byproduct gypsum, obtained from SCM, was mixed with natural gypsum and commercially used in the manufacture of wallboard at the Baltimore plant of U.S. Gypsum.

**Lime.**—At its Woodsboro plant in Frederick County, S. W. Barrick & Sons Inc. produced industrial and agricultural lime, as well as crushed limestone. Production at 7,000 short tons remained unchanged from that of 1983, but value increased by 9% to \$419,000. Of total production, 4,000 tons was hydrated, and 3,000 tons was quicklime.

**Peat.**—Garrett County Processing & Packaging Corp. mined reed-sedge and humus peat near the town of Accident in the western corner of the State. About 85% of the processed material was sold in bulk for

agricultural application. The remainder was packaged and sold as a soil conditioner under the trade name Free State Peat. Production increased by 25% to 4,500 short tons, and value increased 14%.

**Sand and Gravel.**—*Construction.*—Construction sand and gravel production is surveyed by the U.S. Bureau of Mines for even-numbered years only; therefore, this chapter contains only estimates for 1983. Data for odd-numbered years are based on annual company estimates made before yearend.

A total of 14.2 million short tons of construction sand and gravel valued at \$46.7 million, f.o.b. plant or mine, was produced in Maryland in 1984, an increase of 34% and 23%, respectively, over that of 1983. Production, as reported by the State's producers to the U.S. Bureau of Mines, was the material that was actually sold or used. Stockpiled production was not reported until it was sold or consumed.

In 1984, production was reported from 83 operations that included 41 with stationary and/or portable processing plants, 38 operations with no plants or not specified, and 4 dredging operations.

*Industrial.*—Harford Sands Inc., Joppa, produced industrial sands at its Magnolia operation in Harford County. Products included abrasive, filter, foundry, and specialty sands. Specialty sand was used in sand traps on golf courses, foundry sand was used for cores and molds for casting common metals, filter sand was used in treating water supplies, and abrasive sand was used for sandblasting.

**Slag—Iron and Steel.**—Two companies at processing facilities on the property of Bethlehem Steel at Sparrows Point produced water-granulated, air-cooled, and expanded iron slag. Another company, also at Sparrows Point, processed steel slag.

Table 4.—Maryland: Construction sand and gravel sold or used in 1984, by major use category

Use	Quantity (thousand short tons)	Value (thou- sands)	Value per ton
Asphaltic concrete	1,734	\$5,845	\$3.37
Concrete aggregate	4,446	13,942	3.14
Concrete products	959	2,879	3.00
Fill	1,696	4,761	2.81
Plaster and gunite sands	36	115	3.19
Road base and coverings	2,100	4,590	2.19
Snow and ice control	10	40	4.00
Other	3,252	14,498	4.46
Total <sup>1</sup> or average	14,234	46,671	3.28

<sup>1</sup>Data may not add to totals shown because of independent rounding.

Atlantic Cement produced a finely ground, water-granulated iron slag product called Newcem, a slag cement that is mixed in a 50-50 blend by weight with portland cement. The resultant concrete has a greater compressive strength, but has a longer curing time than concrete made with standard portland cement.

At its 5,000-short-ton-per-day plant, Maryland Slag Co. processed air-cooled and expanded iron slag into 15 different products. The company is presently operating under a contract with Bethlehem Steel to remove iron slag from Bethlehem Steel's "H," "J," and "K" blast furnaces, but since these furnaces were shut down, Maryland Slag has been recovering the iron slag that was previously dumped into the pits of the three furnaces. Atlantic Cement, which had exclusive rights to the slag from Bethlehem Steel's "L" furnace, has subcontracted with Maryland Slag to take slag from that furnace's four overflow pits. The air-cooled slag was crushed into various sizes for use for road base material and as a substitute for natural aggregate. For some applications, the advantage of crushed slag over natural aggregate was lower density—80 pounds per cubic foot in comparison to 140 pounds per cubic foot. The expanded slag was crushed and sold as lightweight concrete aggregate for use in manufacturing building blocks.

Processing for air-cooled iron slag began with the dumping of the molten material by ladle cars into one of three 1/2-mile-long slag pits. Each ladle car held two 20-ton ladles. The pit was filled in thin successive layers to allow for cooling. The solidified slag was processed after about a 6-week cooling period. Expanded iron slag was processed similarly except that water was sprayed into the hot slag creating steam, which fractured the slag. The fractured material was then excavated from the pit with bulldozers and dumped into a crusher. Free iron was separated from the slag in the pit using bulldozers and a 50-ton crane with a 50-inch circular magnet. Additional iron was removed from the crushed slag during processing using belt magnets. The reclaimed iron was sold as scrap to Bethlehem Steel.

In 1984, C. J. Langenfelder & Sons Inc. started operations under a contract with Bethlehem Steel to process steel slag from the basic oxygen and open-hearth furnaces. Maryland Slag acted as sales agent for the company and subleased part of the stockpile area to it.

The molten steel slag was carried from the furnaces in rubber-tired ladle carriers, dumped into a pit, and later excavated with bulldozers while still about 700° F. It was then crushed from 2-foot blocks to about a 4-inch size. The crushed slag was trucked to stockpiles where it was cured for at least 1 year to leach out the calcium and to allow for expansion. Cured steel slag was used as road base material.

Shipments and value of all iron blast furnace slag increased 12% and 42%, respectively, from 1983 levels, while total domestic sales and value increased 24% and 32%, respectively.

Nationally, the average unit price, f.o.b. plant, for all iron blast furnace slag was \$5.09 per ton. Air-cooled iron slag was \$4.33 per ton, and expanded iron slag was \$11.49 per ton. The unit value of steel slag was \$3.28 per ton. Price information from granulated slag was withheld to avoid disclosing company proprietary information.

**Stone.**—Stone production is surveyed by the U.S. Bureau of Mines for odd-numbered years only; therefore, this chapter contains only estimates for 1984. Data for even-numbered years are based on annual company estimates made before yearend.

**Crushed.**—A total of 22.1 million short tons of crushed stone valued at \$94 million, f.o.b. plant, was estimated to have been produced in 1984, an increase of 15% and 17%, respectively, over 1983 production.

The Arundel Corp., using low-interest rate industrial development bonds, began improving crushed stone quarrying operations at its Greenspring Quarry in Baltimore. The 15-year plan for the 360-acre site included sequential land use for residential development and an office park. Also, Rockville Crushed Stone Inc. proposed to open a stone quarry and processing plant on 500 of its 1,800 acres of land in the community of Boyd in Montgomery County.

Genstar Stone Products Co., the State's largest producer of crushed stone and 1 of the top 10 producers, mined white calcite by surface and underground methods from a high-purity layered marble member within its crushed stone quarry in Texas, 12 miles north of the Inner Harbor. Fillers, including ultrafines, were produced at the on-site plant and marketed throughout the Eastern United States and Canada for use in paint, plastics, paper, caulks and sealants, and adhesives.

**Dimension.**—A total of 221,000 cubic feet

of dimension stone, valued at \$864,000, f.o.b. plant, was estimated to have been produced in 1984. The 65,000-cubic-foot increase in quantity and the \$182,000 increase in value represented 42% and 27% gains, respectively, over 1983 levels.

Production included granite gneiss, quartzite, sandstone (which was sold in irregular shapes), cut stone, rough blocks, flagging, and a small amount of veneer.

**Titanium Dioxide (Pigments).**—The pigment plant of SCM in Baltimore produced titanium dioxide pigments for use in lacquers, paint, paper, plastics, and varnishes. Annual plant capacity was 66,000 short tons by the sulfate process and 46,000 tons by the chloride process.

Total domestic production and consumption reached new record high levels in 1984 because of continued economic expansion and increased demand from the homebuilding industry. There was a 5% increase in production and a 3% increase in consumption over 1983 levels. Imports rose by 11%. Notable changes were increases in consumption for paints and plastics and a sharp decrease in consumption in paper.

**Vermiculite (Exfoliated).**—The Construction Products Div. of W. R. Grace & Co. at Muirkirk in Prince Georges County exfoliated South Carolina-mined vermiculite. Most of the production was used in insulating fill and Monokote fireproofing. Sales value increased 14% from that of 1983.

## METALS

**Aluminum.**—Alumax Inc., the fourth largest domestic aluminum producer, operated one of its three U.S. smelters in Frederick. The company's Eastalco reduction plant near Buckeystown in Frederick County has an annual rated capacity of 176,000 short tons, 29% of Alumax's domestic capacity.

As the economic recovery that began in mid-1983 continued into early 1984, Alumax continued to start up potlines at its Eastalco reduction plant, and by the end of January, production was up to 100% capacity. However, metal prices began to decline in January as U.S. and world inventories increased. To offset this trend, the Eastalco smelter, through selective pot shutdowns in October, went from operating 100% to 87% capacity, where it remained for the rest of the year as foreign sources of aluminum gained a larger share of the U.S. market and net imports rose to a record high.

In April, Kaiser Aluminum & Chemical

Corp. resumed operations at its Halethorpe heavy-press extrusion plant following ratification of a 5-year labor agreement. The plant had been closed since October 1983 after the local union of the United Steelworkers of America rejected the company's offer of reduced wage and benefit concessions. The Halethorpe facility supplied extruded aluminum materials to the aerospace, aircraft, and transportation industries. The new labor agreement allowed the reopened plant to more effectively meet competition in those markets.

**Copper.**—Operations remained curtailed at Kennecott's refinery near Baltimore. The plant had been shutdown since mid-1983. Prior to its shutdown, the refinery had been processing primary toll material and had been on a reduced work schedule since January 1983. The refinery, using the electrolytic process and mostly primary feed, had produced cathode and rod. It had an available annual capacity of 200,000 metric tons.

For the domestic industry, 1984 was a paradoxical year. Prices fell sharply to the lowest level since the 1940's in real terms. While production was stable, shipments increased and inventories declined. The average producers price for cathode of 66.85 cents per pound was the lowest average for the past 5 years, yet deliveries to customers as reported by the American Bureau of Metal Statistics were almost 12% higher than in 1983 and came close to matching the deliveries reported in 1979, the industry's previous record year. Also, compared with that of 1979, U.S. mine, smelter, and refinery production were sharply reduced, while similar data for the rest of the world indicated greater output.

In March, American Telephone & Telegraph Co. (AT&T) initiated the planned shutdown of its Baltimore copper cable and wire plant, citing increased use of fiber optics in lieu of copper in telecommunications. The phaseout of AT&T's Baltimore Works over a 12- to 18-month period was expected to affect 3,500 workers. A partial cutback in 1983 reduced the plant's work force by 1,353, including 450 layoffs and 370 transfers to other AT&T facilities.

**Iron and Steel.**—The year 1984 witnessed a revival in the U.S. steel industry as raw steel output increased by 11% over that of 1983. The revival was strong for the first 5 months of the year, as operating rates rose

as high as 80% of capacity in March, April, and May. Output held up well through June. However, in the second half of the year, production fell significantly and continually from July through December, which registered the lowest volume of the year.

Construction activity at the Sparrows Point plant of Bethlehem Steel Corp. peaked in September with about 500 tradespeople working on the \$250 million continuous slab caster that was scheduled to start up in the first quarter of 1986. A second slab caster at Burns Harbor, IN, was scheduled to go into operation in the second quarter of 1986. Along with the caster at the company's Steelton, PA, plant, the four would be able to cast about 60% to 65% of Bethlehem's semifinished steel requirements. Continuous casters were expected to improve quality, increase yield, provide significant energy savings, and increase productivity. Continuous casting produces steel with excellent surface and internal qualities, which led to improved quality of plates, rails, rods, sheets, and tinplate. The company also announced plans to spend \$60 million to upgrade plate, steel, and tin mills and a Galvalume sheet line at Sparrows Point. At midyear, two blast furnaces were continuing production and four open-hearth furnaces and two basic oxygen furnaces (BOF) were converting iron to steel. However, at yearend, the Sparrows Point plant was operating with only its "L" blast furnace and one BOF. Sluggish steel sales prompted the shutdown of furnaces. The resulting 400-worker layoff left the plant with 2,400 on indefinite layoff and about 11,000 em-

ployees on the payroll.

*Stainless Steel.*—The Baltimore Works of Ohio-based Armco Inc. produced stainless steel, vacuum-refined alloy steel in ingots, forging billets, bar, rod, and wire, and specialty shapes. It was the company's main stainless steel plant and had the third largest market share in the industry.

Eastern Stainless Steel Co. (ESS), a division of Eastmet Corp., produced stainless steel in coils, flat bar, plates, sheet, and strip. The Baltimore-based company was the largest domestic producer of stainless plate. At yearend, in light of its weak financial performance, Eastmet was exploring, with the help of an investment banking firm, options ranging from raising capital to selling the company. Eastmet had a third quarter net loss of \$7.9 million—more than twice the loss of the previous year. The company attributed the loss to its problems in producing stainless steel plate and "a softening in the market for stainless steel products and accompanying price erosion." A defective cooling mechanism on the continuous caster was creating serious surface defects in heavy gauge plate, requiring extensive reworking to bring the steel up to commercial quality. Plate accounted for about one-half of ESS's production with most of the other one-half consisting of stainless steel sheet. During September, ESS operated at only 60% of capacity, compared with 85% in June. Also in September, the facility was shut down for a week because of poor demand.

<sup>1</sup>State Mineral Officer, Bureau of Mines, Pittsburgh, PA.

Table 5.—Principal producers

Commodity and company	Address	Type of activity	County
Aluminum: Eastalco Aluminum Co. (Alumax Inc.)	5601 Manor Woods Rd. Frederick, MD 21701	Reduction plant	Frederick.
Cement: Portland: Coplay Cement Co. (Société des Ciments Français). <sup>1</sup>	4120 Buckeystown Pike Lime Kiln, Box D Frederick, MD 21701	Quarry and plant.	Do.
Portland and masonry: Lehigh Portland Cement Co. (Heidelberger Zement AG) <sup>1</sup> <sup>2</sup>	Box L Union Bridge, MD 21791	----do-----	Carroll.
Lone Star Cement Inc. <sup>1</sup> -----	Box 650 Hagerstown, MD 21740	----do-----	Washington.
Clays: Ball clay: Cyprus Industrial Minerals Co., Cyprus Mines Corp.	9420 Pulaski Highway Baltimore, MD 21220	Pit and plant --	Baltimore.
Common clay: Baltimore Brick Co -----	9801 Rocky Ridge Rd. Rocky Ridge, MD 21778	----do-----	Frederick.
Lehigh Portland Cement Co --	Box L Union Bridge, MD 21791	Pits and plant --	Carroll and Frederick.
Victor Cushwa & Sons Inc ---	Clearspring Rd. & Route 68N Box 160 Williamsport, MD 21795	Pits-----	Washington.

See footnotes at end of table.

Table 5.—Principal producers —Continued

Commodity and company	Address	Type of activity	County
<b>Copper:</b>			
Kennecott Refining Corp. <sup>3</sup> -----	Kenbo Rd. Curtis Bay, MD 21226	Refinery -----	Anne Arundel.
<b>Gypsum:</b>			
<b>Byproduct:</b>			
SCM Corp., SCM Pigments Div. -----	3901 Glidden Rd. Baltimore, MD 21226	Plant -----	Baltimore.
<b>Calcined:</b>			
National Gypsum Co., Gold Bond Building Products. -----	2301 South Newkirk St. Baltimore, MD 21224	-----do -----	Do.
United States Gypsum Co. ---	500 Quarantine Rd. Box 3472 Baltimore, MD 21226	-----do -----	Do.
<b>Iron and steel:</b>			
Armco Inc., Stainless Steel Div. ---	3501 East Biddle St. Box 1697 Baltimore, MD 21203	Mill -----	Do.
Bethlehem Steel Corp. -----	Sparrows Point, MD 21219 -----	Mill (integrated)	Do.
Eastern Stainless Steel Co., a divi- sion of Eastmet Corp. -----	7700 Rolling Mill Rd. Dundalk, MD 21222 Box 1975 Baltimore, MD 21203	Mill -----	Do.
<b>Lime:</b>			
S. W. Barrick & Sons Inc. <sup>1</sup> -----	Woodsboro, MD 21798 -----	Quarry and plant.	Frederick.
<b>Peat:</b>			
Garrett County Processing & Packaging Corp. -----	RFD 1 Accident, MD 21520	Bog -----	Garrett.
<b>Sand and gravel:</b>			
<b>Construction:</b>			
Charles County Sand & Gravel Co. Inc. -----	Waldorf Industrial Center Box 548 Waldorf, MD 20601	Pits and plants _	Anne Arundel, Charles, St. Marys, Baltimore.
Genstar Stone Products Co. <sup>4</sup> ---	Executive Plaza 4 11350 McCormick Rd. Hunt Valley, MD 21031	-----do -----	Baltimore.
Silver Hill Sand Gravel & Con- crete Co. -----	4714 St. Barnabus Rd. SE. Temple Hills, MD 20748	-----do -----	Prince Georges.
York Building Products Co. Inc. -----	910 Old Philadelphia Rd. Aberdeen, MD 20820	-----do -----	Cecil.
<b>Industrial:</b>			
Harford Sands Inc. <sup>5</sup> -----	Box 25 40 Fort Hoyle Rd. Joppa, MD 21085	-----do -----	Harford.
<b>Slag:</b>			
<b>Iron:</b>			
Atlantic Cement Co. Inc. ----	Box 6687 Sparrows Point, MD 21219	Plant -----	Do.
Maryland Slag Co. (The Arundel Corp.) -----	Sparrows Point, MD 21219 -----	-----do -----	Do.
<b>Steel:</b>			
C. J. Langenfelder & Sons Inc. _	8427 Pulaski Highway Baltimore, MD 21221	-----do -----	Do.
<b>Stone:</b>			
<b>Crushed:</b>			
The Arundel Corp. -----	110 West Rd. Baltimore, MD 21204	Quarries and plants.	Baltimore, Frederick, Harford.
Genstar Stone Products Co. ---	Executive Plaza 4 11350 McCormick Rd. Hunt Valley, MD 21031	-----do -----	Baltimore, Carroll, Frederick, Harford.
Rockville Crushed Stone Inc. ---	Box 407 13900 Piney Meetinghouse Rd. Rockville, MD 20850	Quarry and plant.	Montgomery.
<b>Dimension:</b>			
Butler Artcraft Stone Corp. ---	1611 St. Paul St. Hampstead, MD 21074	-----do -----	Baltimore.
Piccirilli Quarries -----	795 Marriottsville Rd. Marriottsville, MD 21164	-----do -----	Howard.
Stoneyhurst Quarries -----	Box 34463 8101 River Rd. Bethesda, MD 20817	-----do -----	Montgomery.
<b>Titanium dioxide (pigments):</b>			
SCM Corp., SCM Pigments Div. ---	3901 Glidden Rd. Baltimore, MD 21226	Chemical plant _	Baltimore.
<b>Vermiculite (exfoliated):</b>			
W. R. Grace & Co., Construction Products Div. -----	12340 Conway Rd. Beltsville, MD 20705	Plant -----	Prince Georges.

<sup>1</sup>Also crushed stone.<sup>2</sup>Also common clay and shale.<sup>3</sup>Shut down since mid-1983.<sup>4</sup>Also calcite.<sup>5</sup>Also construction sand and gravel.



