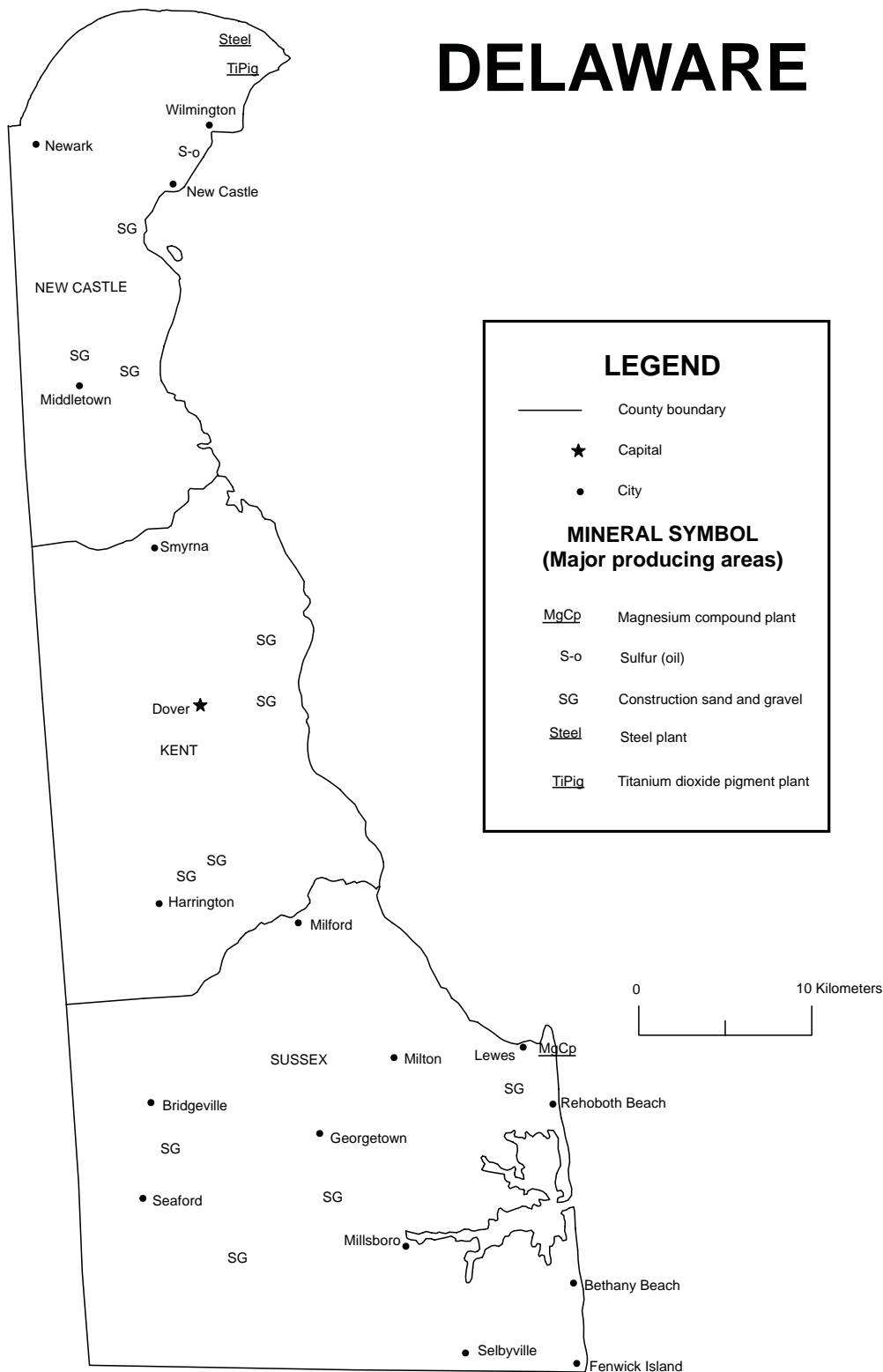




2005 Minerals Yearbook

DELAWARE

DELAWARE



Source: Delaware Geological Survey/U.S. Geological Survey (2005)

THE MINERAL INDUSTRY OF DELAWARE

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Delaware Geological Survey for collecting information on all nonfuel minerals.

In 2005, Delaware's nonfuel raw mineral production was valued¹ at \$20 million, based upon annual U.S. Geological Survey (USGS) data. This was a decrease of 8.7% from 2004, which followed a more than 22% increase from 2003 to 2004. Because production data for magnesium compounds and crushed stone (2005) were withheld (company proprietary data), the State's actual annual total values are significantly higher than those listed in table 1.

In 2005, Delaware's leading nonfuel mineral continued to be construction sand and gravel, although production, as reported to the USGS, decreased by 11% with a decrease in value of \$1.9 million (table 1). With a more than 10% increase in production, the value of magnesium compounds was up slightly.

In 2005, Delaware continued to rank fourth of five States in the quantities of magnesium compounds produced. Magnesium compounds, extracted from seawater close to the mouth of the Delaware Bay, near Lewes, Sussex County, were used to manufacture chemical and pharmaceutical products. Crushed stone (classified as limestone for statistical purposes) from various out-of-State sources was processed through the sales yards of Tilcon Delaware, Inc. in Kent, New Castle, and Sussex Counties. The last crushed stone production reported from a Delaware quarry was to the U.S. Bureau of Mines in 1968; the State's only stone producer ceased operations in New Castle County near Wilmington at the end of 1968 (Gustavson, 1971, p. 204). Gabbro (classified as granite for statistical purposes) was quarried and then crushed and sized as a concrete aggregate or as stone sand, while a small quantity was sold as riprap. During the previous several years, the State's crushed stone needs progressively had been fulfilled by purchases of stone from sources in Maryland and Pennsylvania (Gustavson, 1970, p. 196). All gemstones production was from that of hobbyists.

The narrative information that follows was provided by the Delaware Geological Survey² (DGS). According to the DGS, there were at least 11 major sand and gravel production operations in Delaware. General locations are shown on the map on the facing page and on the DGS Web site at <http://www.udel.edu/dgs/Minres/sandmap.html>. The DGS estimates that the quantities of sand and gravel produced from the State's natural resources are typically higher than those reported by the USGS (table 1). Reasons for this may include (1) not all

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 2005 USGS mineral production data published in this chapter are those available as of December 2006. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

²John H. Talley, Director and State Geologist, authored the text of the State mineral industry information provided by the Delaware Geological Survey.

major producers report production to the USGS, (2) government agencies or companies that produce from pits for their own use do not necessarily report production, (3) many operations that mine relatively small amounts of sand and gravel may not have been contacted and, therefore, do not report production, and (4) production of sand from offshore areas for beach replenishment is not included in USGS figures. For example, according to the Delaware Department of Natural Resources and Environmental Control, in 2004 and 2005, approximately 4 million metric tons (about 2.7 million cubic meters) of sand with an estimated value of \$20.3 million was dredged from the Delaware Bay and the Atlantic Ocean offshore Delaware and placed on beaches along the Atlantic Coast and Delaware Bay. During 2005, the DGS continued work to further evaluate sand resources offshore.

Government Programs and Activities

The U.S. Department of the Interior's Minerals Management Service (MMS) continued to provide support for studies to characterize offshore sand resources in both State and Federal waters for possible use for beach replenishment. Through 2005, the DGS had identified 16 areas offshore Delaware (covering more than 28 square kilometers) to be excellent or good sand resource areas containing an estimated 140 million metric tons (80 million cubic meters) of the resource (McKenna and Ramsey, 2002§³). Exploration and evaluation activities continued on into 2006.

The DGS continues to operate and maintain the "DGS Atlantic Outer Continental Shelf Core and Sample Repository." Federal agencies, other State agencies, and private institutions that recognize the value of having a centralized repository contributed samples. The repository contains samples from all 51 oil and gas exploratory wells drilled on the North, Middle, and South Atlantic Outer Continental Shelf between 1977 and 1984. Samples include cores, unwashed cuttings, vials containing samples processed for micropaleontology and palynology, micropaleontology and palynology slides, and thin sections of cores and cuttings. A description of the DGS repository and a summary of holdings are on the DGS Web site (Delaware Geological Survey, 2007a§, b§). The DGS is designated as the primary repository for these samples by the MMS.

The DGS continued to be actively involved in the mineral industry in Delaware through the identification and evaluation of sand and gravel resources as part of its geologic and hydrologic mapping programs and through service on a county committee involved in evaluating and renewing applications for extractive use operations.

³References that include a section mark (§) are found in the Internet References Cited section.

References Cited

- Gustavson, S.A., 1970, The mineral industry of Delaware, *in* Area reports—Domestic: U.S. Bureau of Mines Minerals Yearbook 1968, v. III, p. 195-197.
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- McKenna, K.K., and Ramsey, K.W., 2002, Delaware Geological Survey Report of Investigations No. 63—An evaluation of sand resources, Atlantic offshore, Delaware, accessed December 29, 2006, at URL <http://www.udel.edu/dgs/Publications/pubsonline/RI63.pdf>.

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TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN DELAWARE^{1,2}

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2003		2004		2005	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	1	NA	1	NA	1
Magnesium compounds metric tons	W	(3)	W	(3)	W	(3)
Sand and gravel, construction	2,550	17,900	2,980	21,900	2,640	20,000
Stone, crushed	--	--	--	--	W	(3)
Total	XX	17,900	XX	21,900	XX	20,000

NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable. -- Zero.

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

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Value excluded to avoid disclosing company proprietary data.

TABLE 2
DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	966	\$8,440	\$8.74
Fill	386	1,560	4.03
Other miscellaneous uses ³	32	245	7.72
Unspecified: ⁴			
Reported	533	5,000	9.37
Estimated	719	4,760	6.61
Total or average	2,640	20,000	7.58

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes plaster and gunite sands and asphaltic concrete aggregates and other bituminous mixtures.

³Includes snow and ice control.

⁴Estimated production without a breakdown by end use.