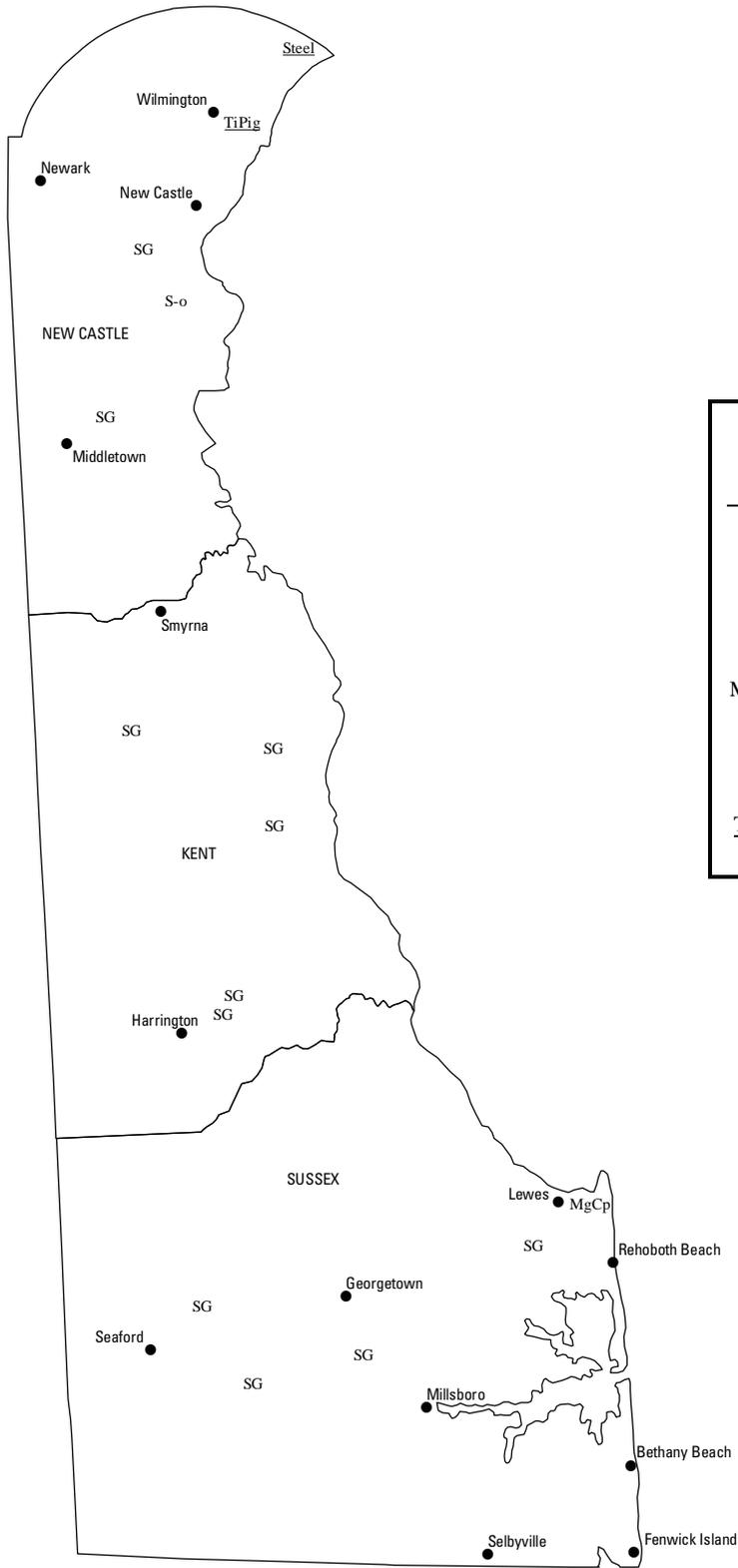




2007 Minerals Yearbook

DELAWARE [ADVANCE RELEASE]

DELAWARE



LEGEND

— County boundary

★ Capital

● City

**MINERAL SYMBOLS
(Major producing areas)**

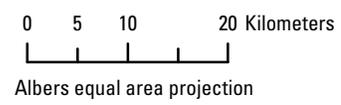
MgCp Magnesium compounds

S-o Sulfur (oil)

SG Construction sand and gravel

Steel Steel plant

TiPig Titanium dioxide pigment plant



Source: Delaware Geological Survey/ U.S. Geological Survey (2007).

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 2007, Delaware's nonfuel raw mineral production¹ was valued at \$24.7 million, based upon annual U.S. Geological Survey (USGS) data. This was an increase of 10% from that of 2006, which followed a 12% increase from 2005 to 2006. Because production data for magnesium compounds and crushed stone were withheld (company proprietary data), the State's actual annual total values are significantly higher than those listed in table 1.

In 2007, Delaware's leading nonfuel mineral continued to be construction sand and gravel with its production up by nearly 20%; the mineral commodity's production value rose less so, by slightly more than 10%, because of an overall decrease in its average annual unit value (table 1). This was followed by magnesium compounds, the value of which was a significant portion of the State's actual total value. Modest decreases took place in the production and related value of magnesium compounds production. In 2007, 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 from a Delaware quarry was reported 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 that year (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 are at least 11 major sand and gravel facilities operating in Delaware; general locations are shown on the map. 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 include (1) not being certain that all major producers report production to the USGS, (2) State and local government agencies or companies that produce from pits for their own use do not necessarily report production, (3) some operations that mine relatively small amounts of sand and gravel may not have been contacted and, therefore, do not report production, and, possibly singly affecting the data the most, (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 (Mt) (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 in offshore Delaware and placed on beaches along the Atlantic Coast and Delaware Bay.

Government Programs and Activities

The DGS remained 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.

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. The DGS had identified 16 areas offshore of Delaware (covering more than 28 square kilometers) to be excellent or good sand resource areas containing an estimated 140 Mt (80 million cubic meters) of the resource (McKenna and Ramsey, 2002, p. 7–8). Exploration and evaluation activities continued on into 2007.

The DGS continued to operate and maintain the "DGS Atlantic Outer Continental Shelf Core and Sample Repository" (Delaware Geological Survey, 2007a). Recognizing the value of having a centralized repository, Federal agencies, State agencies, and private institutions, continued to contribute samples to the facility, which 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, 2007b). The DGS is designated as the primary depository for these samples by the MMS.

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 2007 USGS mineral production data published in this chapter are those available as of June 2009. 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.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2005		2006		2007	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	1	NA	1	NA	1
Magnesium compounds	W	W	W	W	W	W
Sand and gravel, construction	2,640	20,000	2,790	22,400	3,330	24,700
Stone, crushed	W	W	W	W	W	W
Total	XX	20,000	XX	22,400	XX	24,700

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

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.

TABLE 2
DELAWARE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2007,
BY MAJOR USE CATEGORY¹

Use	Quantity	Value (thousands)	Unit value
	(thousand metric tons)		
Concrete aggregate (including concrete sand) ²	929	\$8,960	\$9.64
Fill	882	4,030	4.57
Unspecified: ³			
Reported	780	6,450	8.27
Estimated	739	5,290	7.17
Total or average	3,330	24,700	7.43

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

²Includes plaster and gunite sands.

³Reported and estimated production without a breakdown by end use.