

New York State 2005 Mineral Fact Sheets

**New York State
Department of Environmental Conservation
Division of Mineral Resources
625 Broadway
Albany, New York 12233-6500**

www.dec.state.ny.us



George E. Pataki, Governor

Denise M. Sheehan, Commissioner

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**Remember if it Can't be Grown
It has to be Mined !**

Products of New York Mines

New York State law does not require mine operators to report how much their facilities produce. However, every year the U.S. Geological Survey (USGS) collects information on a voluntary basis for over 100 mined commodities nationwide. Selected USGS information on state rank, production quantity and production values for New York products are included on the following pages for 2004 (2005 not yet available). These figures should be regarded as minimums since the surveys are incomplete and USGS regularly revises statistics as more information becomes available. However, the statistics are still useful for showing rough levels of production and year-to-year trends.

In 2004 New York retained its recently achieved first place rank for industrial garnet production as well as its long-standing position as the only wollastonite producing state in the country. New York likewise remained fourth in talc production, but dropped to eleventh place nationwide in cement production.

As far as economic importance within the State, in 2004 crushed stone remained New York's leading non-fuel mineral, and salt move up to second place, followed by cement (portland and masonry), construction sand and gravel, and wollastonite. These five commodities typically account for 98% of the State's nonfuel mineral value which USGS ranked at \$1.11 billion in 2004.



In world production*, the State of New York ranks 3rd in wollastonite, behind countries China and India.



In U.S. production*, New York ranks:

- 1st in wollastonite and garnet,
- 3rd in salt, and
- 4th in talc.



New Yorkers use 50 pounds of minerals per person per day.

* Production rank based on volume



Sand and gravel mines are New York’s most common type of mine with 1,869 active mines spread across the State. Suffolk, Dutchess and Rensselaer Counties are New York’s leading producers of sand and gravel due to their proximity to large markets and the occurrence of high quality glacial deposits. Sand and gravel is New York’s fourth most economically important nonfuel mineral

In 2004 New York’s production of construction grade sand and gravel increased roughly 10% to 33,100,000 metric tons. The value rose slightly to \$189 million, an increase of 10% from the previous year. The vast majority of this material was used for road and building construction and maintenance. Figures for 2005 are not yet available from USGS.

Table 1 - Sand and Gravel Mines Over 125 Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Callanan Industries	Rensselaer	North Greenbush	412
Country Side Sand & Gravel,	Cattaraugus	Dayton	375
Hanson Aggregates NY, Inc.	Oswego	Sandy Creek	273
Hanson Aggregates NY, Inc.	Livingston	Caledonia	200
Frey Concrete, Inc.	Genesee	Alexander	188
Hanson Aggregates NY, Inc.	Herkimer	Warren	186
Barney & Dickenson, Inc.	Broome	Vestal	184
Valley Sand & Gravel, Inc.	Livingston	Caledonia	175
Champion Sand & Gravel, Inc.	Jefferson	Champion	170
Coram Materials, Corp.	Suffolk	Brookhaven	160
Hanson Aggregates NY, Inc.	Herkimer	Russia	160
F S Lopke Contracting, Inc.	Tioga	Tioga	158
Knight Settlement S & G, LLC	Steuben	Bath	156
Lafarge North America, Inc.	Cattaraugus	Freedom	149
Hanson Aggregates NY, Inc.	Ontario	Phelps	149
Gernatt Asphalt Products, Inc.	Erie	Sardinia	148

Table 1 - Sand and Gravel Mines Over 125 Permitted Acres, 2005 (Continued)

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Buffalo Crushed Stone	Cattaraugus	Farmersville	146
JML Quarries, Inc.	Sullivan	Mamakating	136
Graymont Materials NY, Inc.	Clinton	Schuyler Falls	135
Hanson Aggregates NY, Inc.	Steuben	Bath	134
Troy Sand & Gravel Co. Inc.	Rensselaer	Sand Lake	128
Hanson Aggregates NY, Inc.	Ontario	Victor	127

Table 2 - Largest Sand and Gravel Mine Operators, Total Permitted Acres, 2005

<u>Company</u>	<u>Counties</u>	<u>Acres</u>
Hanson Aggregates NY, Inc.	Cattaraugus, Chemung, Herkimer, Livingston, Monroe, Montgomery, Oneida, Ontario, Oswego, Steuben, Schuyler, Wayne	1,846
Lafarge North America, Inc.	Cattaraugus, Erie, Genesee, Wyoming	588
Buffalo Crushed Stone, Inc.	Allegeny, Cattaraugus, Genesee	556
Callanan Industries, Inc.	Albany, Rensselaer	541
Graymont Materials NY, Inc.	Clinton, Essex, Franklin, Hamilton, St. Lawrence	497
Gernatt Asphalt Products, Inc.	Erie, Cattaraugus, Chautauqua	487
Dalrymple Gravel & Contracting	Steuben, Chemung	466
F S Lopke Contracting, Inc.	Tioga, Broome	465
Cranesville Aggregate Co., Inc.	Columbia, Fulton, Jefferson, Saratoga, Schenectady	412
Country Side S & G, Inc.	Cattaraugus, Chautauqua	399
Elam Sand & Gravel Corp.	Livingston, Ontario, Steuben, Wayne	302

**New York
Limestone &
Dolostone**

Limestone and dolostone make up the second biggest category of New York mines with 98 scattered across the State. These mines produce roughly 90% of the stone sold in New York State. They collectively encompass 11,796 permitted acres with nearly half of that acreage in the DEC Region 4 (Mid-Hudson) and DEC Region 8 (west-central New York) areas.

New York’s most important products from these mines are crushed stone and cement which are used predominantly in building and road construction and maintenance. Based on value, crushed stone is usually New York’s leading nonfuel mineral, followed by cement.

The most recently available USGS figures show New York typically produces over 50 million metric tons of stone worth roughly \$350 million. While limestone and dolostone represent the vast majority of the State’s crushed stone production, New York also produces crushed granite, marble, traprock, sandstone and quartzite.

Previous USGS figures show that New York typically produces around 3 million metric tons of cement worth over \$225 million. Cement production is concentrated in the upper Hudson Valley area where a relatively pure limestone is quarried from the Coeymans formation.

Table 3 - Limestone and Dolostone Mines Over 250 Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Hanson Aggregates NY, Inc.	Onondaga	Dewitt	839
Lafarge N. American Cement	Albany	Coeymans	759
Tilcon NY, Inc.	Dutchess	Poughkeepsie	682
Buffalo Crushed Stone, Inc.	Erie	Lancaster	600
St. Lawrence Cement Co.	Greene	Catskill	318
Hanson Aggregates NY, Inc.	Livingston	Lima	289
St. Lawrence Cement Co.	Columbia	Greenport	281
Hanson Aggregates NY, Inc.	Onondaga	Skaneateles	270
Glens Falls Lehigh Cement Co.	Greene	Catskill	267
Buffalo Crushed Stone, Inc.	Genesee	Alabama	264
Hanson Aggregates NY, Inc.	Oneida	Marshall	264
Hanson Aggregates NY, Inc.	Jefferson	Pamelia	263

Table 4 - Largest Limestone & Dolostone Mine Operators, Total Acres*, 2005

<u>Company</u>	<u>Counties</u>	<u>Acres</u>
Hanson Aggregates NY, Inc.	Genesee, Herkimer, Jefferson, Livingston, Oneida, Onondaga, Ontario, St. Lawrence, Orleans, Cayuga, Montgomery, Wayne	3,322
Buffalo Crushed Stone, Inc.	Erie, Genesee	1,006
Tilcon NY, Inc.	Dutchess, Rockland, Ulster	838
Callanan Industries, Inc.**	Monroe, Montgomery, Madison, Ulster	807
Lafarge N. American Cement	Albany	759
Dolomite Products Co., Inc.	Genesee, Monroe, Ontario, Wayne	705
St. Lawrence Cement***	Columbia, Greene	599
Barrett Paving Materials, Inc.	Herkimer, Jefferson, Onedia, St. Lawrence	546
Redland Quarries NY, Inc.	Niagara	489
Glens Falls Lehigh Cement Co.	Greene, Saratoga	416
Cobleskill Stone Products, Inc.	Schoharie	300

* Acres Under Permit

** Includes Callanan dba Iroquois Rock Products

*** Includes St Lawrence Cement, LLC and Co.



The Jamesville Quarry is a very large quarry in Onondaga County. When it opened in 1878, the rock was mined by hand and loaded into horse-drawn wagons. By 1909 the new owner, Allied Chemical, was extracting raw materials using steam or electric shovels; the material was loaded onto railroad cars. Nowadays, Hanson's modern mining equipment at the quarry can produce stone at a rate up to 1,700 tons per hour.

New York Garnet

Since 2003 New York State has ranked first in industrial garnet-production in the United States. Since there are just a few companies that account for all U.S. industrial garnet production, USGS does not publish detailed production statistics for New York State. However, generally speaking, Barton Mines in Warren County is the largest U.S. garnet producer. NYCO Minerals probably ranks third in the country; the company produces accessory garnet with their main product, wollastonite.

Table 5 - New York Garnet Mine, Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Barton Mines Co., LLC	Warren	Johnsburg	107

Barton currently extracts garnet from its Ruby Mountain mine in the Town of Johnsburg. However the company’s nearby Gore Mountain mine, which opened in 1878 and ran until 1983, was the largest garnet mine in the world during its operation. Garnets from the company’s current Ruby Mountain site make especially high-quality abrasives. Most New York garnet is used for sandpaper. Garnet is also used in grinding and polishing glass and metal, sandblasting, water filtration and waterjet stone cutting. Garnet is a well-known gemstone, but most New York garnets have too many internal imperfections to be used in jewelry.



Garnet boulder on display at the New York State Fair in Syracuse. The boulder was donated by the Barton Garnet Mine.

New York Wollastonite

New York is the only commercial producer of wollastonite in the country and the State’s four mines, located in the Adirondacks, account for all U.S. production. Since only a relatively small quantity of wollastonite is imported into the U.S, this means New York supplies almost all of the wollastonite used in the country. On a global scale, New York is the third largest producer, accounting for about 25% of world output. A significant portion of New York’s wollastonite output is specially milled and/or surface treated to achieve specific industrial properties.

To protect proprietary data, the USGS does not publish detailed quantity and value statistics for NY wollastonite. However, USGS routinely quotes industry experts who estimate that the country’s, and therefore New York’s, production ranges between 115,000 to 127,000 tons per year. Within the State, wollastonite usually ranks as New York’s fifth most valuable nonfuel mineral.

One of wollastonite’s most unusual characteristics is its ability to cleave into needle-like (acicular) crystals. These fibrous particles make it useful both as an asbestos replacement and as reinforcement material in products ranging from plastics, ceramics and brake pads to paint, coatings and sealants. As shown below, plastics are the major use of wollastonite in the U.S.

U.S. End-Uses of Wollastonite 2005

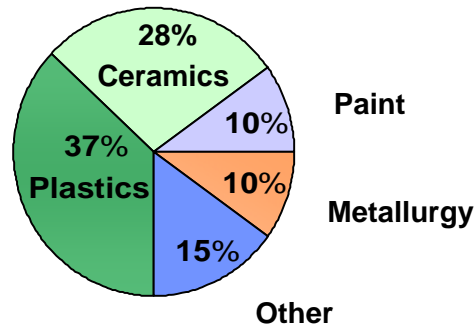


Table 6 - New York Wollastonite Mines, Permitted Acres, 2005

<u>Company & Mine</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
NYCO/ Oak Hill Mine	Essex	Lewis	127
NYCO/ Lewis Mine	Essex	Lewis	90
Gouverneur Talc/ No. 4 Mine	Lewis	Diana	49
NYCO/ Willsboro Mine	Essex	Willsboro	4

New York Salt

More than 10,000 square miles of central and western New York are underlain by the Salina formation which contains roughly 3.9 trillion metric tons of rock salt. This large salt resource has been very important throughout the State's history. Once again in 2004 New York was the third largest salt producer in the country. There are currently two active rock salt mines in New York State, Cargill's Cayuga Mine centered around Cayuga Lake in Tompkins and Seneca counties and American Rock Salt's Hampton Corners Mine in Livingston County. Salt is also produced from five solution mining facilities in Schuyler and Wyoming counties.

For 2004 the U.S. Geological Survey estimated New York's combined salt output from underground mines and solution salt mining wells at roughly 6.4 million metric tons worth \$301 million. New York's estimated brine production figures for 2004 subtracted from the total leave an estimated rock salt production of roughly 3.75 million metric tons. New York ranked third nationally in salt production from 2000 to 2004. Within the State, salt typically ranks third in the value of New York's non-fuel mineral commodities.

The Cargill Lansing mine, near Ithaca, is the larger of the State's two salt mines. It is also the deepest underground salt mine in the western hemisphere. The much smaller American Rock Salt mine in Livingston County began production in December 2000 to replace the abandoned AKZO Retsof mine near Geneseo. When the Retsof mine was in operation, it was one of the largest underground salt mine in the world.



Road salt is crucial
to winter travel.

Salt has been mined in the area of Cayuga Lake since at least 1915, but Cargill did not take over the mine until the 1970s. The company extracts salt from a depth of roughly 2,000 feet under portions of the lake and surrounding lands. Cargill leases the underwater land from the NY State Office of General Services and pays a basic royalty of 2% per ton of the market unit-value of the marketable rock salt with adjustments for production in excess of 1,500,000 tons. Virtually all the salt from this particular mine is sold as road deicing salt. However, salt also has a broad array of uses in food and chemical products.

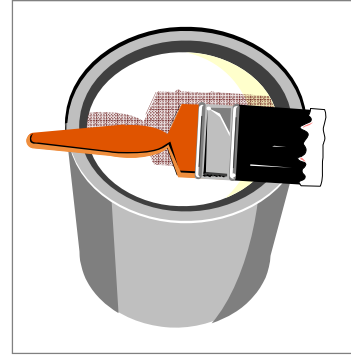


Worker installing roof bolts at Cargill's Lansing Mine. Photograph by Simon A. Wheeler, Elmira Star Gazette 2002, copyright 2004.

Table 7 - New York Underground Salt Mines, Permitted Acres, 2005		
<u>Company</u>	<u>Counties</u>	<u>Acres</u>
American Rock Salt, Inc.	Livingston	672
Cargill, Inc.	Seneca, Tompkins	9,260

New York Talc

New York typically ranks fourth in the country in talc production. Since there are so few talc producing companies in the country, the USGS does not publish detailed production information. Gouverneur Talc is New York's only talc producing company, and their overall land holdings cover roughly 2,000 acres in the northwest Adirondacks. While the company has more than one mine with a current permit, most of its production is from its #1 Mine, an open pit facility also known as the Arnold Mine. Since most talc in the U.S. is sold only after crushing and grinding, Gouverneur Talc has an active milling operation at Balmat.



Industrial talc is a mixture of talc, tremolite, anthophyllite, serpentine and dolomite. Because of the presence of these minerals, New York's industrial talc is fibrous with long, thin white needle-like crystals. Talc is used as a paint extender, a carrier for insecticide dust and in many other products where a white powdery mineral is needed. It is also used in ceramics, filler in asphalt roofing, putty and linoleum.

Table 8 - New York Talc Mines. Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Gouverneur Talc No. 1 & 2 Mine	St. Lawrence	Fowler	150
Gouverneur Talc No. 3 Mine	St. Lawrence	Edwards	5

New York Zinc

While New York has historically been a major zinc producer, there was no 2005 production from the single remaining zinc mine in the northwestern Adirondacks. The Pierrepoint mine was permanently closed in 2001 and the mine site reclaimed. Work at the Balmat mine was also suspended at the same time while the company awaited a buyer. When the 2 mines were operating they ranked in the top 10 zinc mines in the country and New York ranked third or fourth in total production.

During 2000, which was the last full year of operation, the Balmat mine was the third most productive zinc mine in the United States. This mine has a new owner and is expected to eventually resume production when the price of zinc improves.

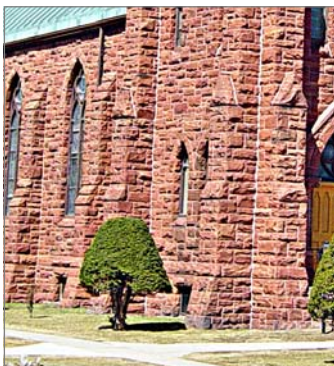
New York Sandstone

In 2005 there were 23 mines in New York producing sandstone which is widely found across the State in the form of sedimentary sandstones, graywacke, metamorphic quartzite and conglomerate. There are no quantity or value statistics available for New York sandstone production. Mines produce sandstone blocks for building, flagstone and curbing. However, most of the sandstone is crushed for aggregate and some larger blocks are sold for riprap to stabilize waterways and embankments. Pure quartz sandstone can be used to make high-quality glass, but sandstone in New York contains too much iron and alumina for this purpose.

Callanan Industries is the company with the most sandstone mines (5 in eastern New York). The highest concentrations of permitted acreage for sandstone mining is in two areas. The first is a roughly 40-mile long trend in Sullivan and Delaware Counties (total 551 permitted acres) and the second is in Orleans County (176 permitted acres).

Table 9 - Sandstone Mines Over 50 Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Callanan Industries, Inc.	Sullivan	Thompson	375
Cobleskill Stone Products, Inc.	Delaware	Hancock	123
E. Tetz & Sons, Inc.	Sullivan	Thompson	103
Shelby Crushed Stone, Inc.	Orleans	Shelby	88
Callanan Industries, Inc.	Rensselaer	Brunswick	76
Hanson Aggregates NY, Inc.	Orleans	Murray	68
Blades Construction Products	Steuben	Bath	55
Callanan Industries, Inc.	Sullivan	Cochecton	53



Potsdam sandstone is a well-known type of sandstone found on many public buildings in New York State. In the 1800s it was lauded for its ability to withstand fire better than granite (less cracking and spalling). In fact its fire resistant properties were so well known, it was used to line furnaces.



New York and Pennsylvania are the only sources of bluestone, a specific type of commercial sandstone. The New York State Bluestone Association estimates that the market value of bluestone is approximately \$40 million a year.

In 2005 there were 59 permitted bluestone mines in an area extending from Tompkins County on the west to Albany County on the east. However, the majority of the bluestone activity is in Delaware and Broome Counties. In Broome County roughly 90% of the bluestone mines are in the Pennsylvania border towns of Windsor and Sanford. In Delaware the majority of mines are in the western end of the county with the highest number in Hancock, a long-time stronghold of the bluestone industry.

Bluestone mining is by nature a relatively small-scale operation. Roughly 60% of the bluestone mines are between 1 and 5 acres in size. The operators with the largest mines are shown in Table 10. In 2005 the companies with the highest number of mines were Johnston & Rhodes Bluestone (16), Tompkins Bluestone (5), and Indian Country (3).

While bluestone is a strongly cemented rock, it splits easily into smooth thin slabs that are ideal for outdoor patios, building exteriors and indoor floors. Bluestone's current popularity has led to exploration for new deposits and reopening of old mines. In addition, bluestone's recent high prices are enabling mine operators to switch from old-fashioned hand mining to more modern techniques.

As an aid to exploration, bluestone miners have the option of applying for a simplified one-year Exploration Authorization (EA) instead the full mining permit. When the EA expires, the operator must apply for a regular mining permit if the site is commercially viable or reclaim the land.

Table 10 - Bluestone Mines Over 15 Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Heldeberg Bluestone & Marble	Albany	Berne	30
Damascus 535 Quarry & Stone	Broome	Windsor	24
Larry Schaefer	Delaware	Deposit	22
RCS, LLC	Delaware	Multiple Towns	18
Johnston & Rhodes Bluestone	Delaware	Masonville	16
Johnston & Rhodes Bluestone	Delaware	Hancock	15
Fannie E. Kemp	Broome	Sanford	15
Kenneth Decker	Broome	Conklin	15

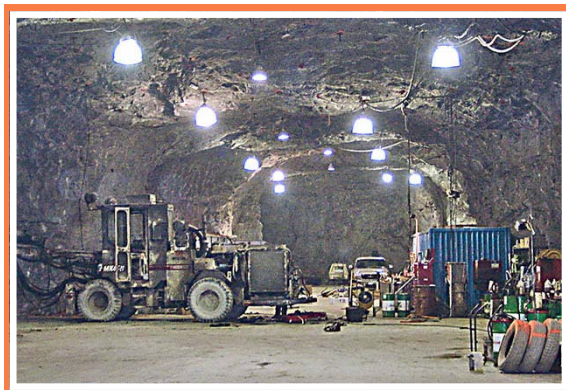
New York Granite

In 2005 there were 18 granite mines operating mostly in the Adirondack and Taconic regions. Washington County, with 6 mines, has the highest concentration of this type of mine in New York State. While granite had long been used for building exteriors, statues and gravestone monuments, it has recently become very popular for kitchen countertops and other interior decorative uses. New York granite ranges in color from gray and green to black. The larger granite mines produce crushed stone.

Granites are composed mostly of quartz and feldspar. New York granite mines also include anorthosite and granitic gneiss. Anorthosite is well-known as the core rock of the Adirondacks (its also found on the moon). Granitic gneiss is a banded form of granite.

Table 11 - Granite Mines Over 20 Permitted Acres, 2005

<u>Company</u>	<u>County</u>	<u>Town</u>	<u>Acres</u>
Hanson Aggregates NY, Inc.	Oneida	Forestport	100
Peckham Materials Corp.	Saratoga	Greenfield	91
Graymont Materials NY, Inc.	Franklin	Brandon	67
Wingdale Materials, LLC	Dutchess	Dover	60
Thalle Industries, Inc.	Dutchess	Fishkill	46
Graymont Materials NY, Inc.	Essex	St. Armand	36
Lake Placid Granite Co.	Essex	Jay	28
Lake Placid Granite Co.	Essex	Jay	20



New York State has both above-ground and underground granite mines. Wingdale Materials' underground mine in Dutchess County supplies crushed granite for road and other construction.

