

## **CALIFORNIA NON-FUEL MINERALS 2013**

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Based on the U.S. Geological Survey's (USGS) preliminary data for 2013, California ranked eighth after Utah, Alaska, Texas, Florida, Minnesota, Arizona and Nevada in the value of non-fuel mineral production, accounting for approximately 4.2 percent of the nation's total. The market value of non-fuel mineral production for California was \$3.3 billion. California produced more than two dozen different non-fuel mineral commodities during the year, and was the only U.S. producer of boron compounds and rare earth minerals. It ranked second behind Texas in the production of construction sand and gravel and portland cement. The state ranked sixth in gold production out of ten states that reported gold production for the year. Other mineral commodities produced include common clay, bentonite clay (including hectorite), crushed stone, diatomite, dimension stone, feldspar, fuller's earth, gemstones, gypsum, industrial sand and gravel, iron ore, kaolin clay, lime, magnesium compounds, masonry cement, perlite, pumice, pumicite, salt, silver, soda ash, sodium sulfate, and zeolites.

There were about 700 active mines in California producing non-fuel minerals during 2013 (California Office of Mine Reclamation). Approximately 5,300 people were employed at these mines and their processing facilities (California Employment Development Division).

### **INDUSTRIAL MINERALS**

Construction grade sand and gravel was California's leading mineral commodity in terms of dollar value in 2013. The total value of construction sand and gravel produced in California in 2013 was \$911 million for 93.9 million tons produced compared to the revised 2012 totals of \$843 million for 85.0 million tons produced. This represents a continuing upward trend in production since 2011. Portland cement ranked second in value at \$691 million for 10.1 million tons produced, also an increase in value and tonnage over 2012. Boron minerals ranked third in value; because there are only two producers of boron minerals in the state, specific production values are withheld to protect proprietary company information. The value of boron production is included in the "other" category in the table and chart. Boron makes up more than 50 percent of the "other" category. Crushed stone ranked fourth with a value of \$325 million for 38.1 million tons produced, an increase over 2012 value and production.

Construction materials, including aggregate (sand and gravel and crushed stone) and cement, accounted for about 58 percent of the value of California's annual non-fuel mineral production in 2013. The building and paving industries consume large quantities of construction materials and they are essential to the State, both to maintain the existing infrastructure and to provide for new construction.

## **Aggregate**

Total production of construction aggregate (sand and gravel and crushed stone) in 2013 was 132.0 million tons valued at \$1.24 billion. This compares to the revised 2012 production of 121.5 million tons valued at \$1.16 billion. The 6.4 percent increase in value and 8.6 percent increase in tonnage show a continued increase in construction aggregate production starting in 2011. The average statewide production of construction aggregate over the last 30 years (1983-2013) has been about 178 million tons per year.

In January, the San Mateo County Planning Commission granted final approvals for a 107-acre expansion of the West Coast Aggregates Pilarcitos Quarry. The quarry began operation in 1957 and the current expansion will add more than 52 million tons of reserves.

In March, Troesh Materials received final clearance to proceed with the development of the Diamond Rock Mine along the Cuyama River in Santa Barbara County, after a state appeals court rejected a lawsuit related to environmental concerns with the proposed mine. The mine could produce up to 500,000 tons of material a year for 30 years.

In April, the Draft Environmental Impact Report for the proposed Las Pilitas Quarry in San Luis Obispo County was released. The proposed quarry would produce up to a maximum 500,000 tons of construction aggregate per year for a period of approximately 30 years.

In July, a Draft Environmental Impact Report for a proposed extension of the permit for the expansion of the Syar Industries Lake Herman quarry in Solano County was released. The proposed expansion would increase the annual production from 2 million to 4 million tons and would extend the quarry life for 35 years.

In September, a Draft Environmental Impact Report for a proposed expansion of the Syar Industries quarry in Napa County was released. The proposed expansion would increase annual production from 1 million to 2 million tons and would extend the quarry life for 35 years.

In September, Vulcan Materials Company began a new phase of mine development at the Azusa Rock quarry in Los Angeles County. The company was able to proceed after a state appeals court upheld a decision by the Los Angeles Superior Court rejecting a lawsuit by the city of Duarte to overturn the certification of the environmental impact report.

The reclamation plan for the proposed Carmelita mine in Fresno County, approved by the County Board of Supervisors in October of 2012, was appealed to the State Mining and Geology Board (SMGB) in late 2012. In March, 2013 the SMGB sent the reclamation plan back to the County for further consideration and possible revision. In August, the Board of Supervisors approved a revised reclamation plan. The revised reclamation plan was again appealed to the SMGB and, in November, the SMGB found that the decision of the Board of Supervisors was supported by the record. The proposed 886-acre operation would produce up to 1.25 million tons of aggregate per year over a 100-year lifespan.

In December, the Sonoma County Board of Supervisors approved a 33-acre expansion of the Mark West quarry owned by the BoDean Company. The expansion will not change the volume of rock to be mined, but will allow the operators to continue to mine higher quality rock.

## **Cement**

Portland cement production was 10.1 million tons valued at \$691 million in 2013 ranking second in value among commodities produced in the state. This is an increase of about 8.6 percent over the revised 2012 production of 9.3 million tons and continues the increase in production from the recent low in 2010. Cement imports through California ports remained at low levels in 2013.

## **Rare Earth Elements**

The Mountain Pass Mine in San Bernardino County operated by Molycorp Minerals LLC. continued to be the only domestic producer of Rare Earth Elements (REE) in 2013. A new multi-stage cracking plant, part of the process to recover rare earth elements, became operational in 2013 and work on a new chloralkali plant was completed and it is expected to be operational in 2014.

## **METALS**

Gold dominated California's metal production in 2013 – comprising over 99 percent of the value of the state's metals production. Gold production decreased to 146,500 ounces in 2013, from a revised 2012 production of 187,390 ounces. The value of gold production in the state decreased to \$207.2 million from a revised \$314.4 million in 2012, a 34.1 percent decrease in value.

The state's largest gold producer was the New Gold Inc., Mesquite gold mine in Imperial County – producing approximately 107,000 ounces for the year. The other major producer of gold in California was the Atna Resources Ltd., Briggs Mine in Inyo County, which produced about 31,700 ounces in 2013

In addition to the above mentioned lode mines, placer gold was produced from one active dredge and as a by-product from many sand and gravel mines in the northern and central parts of the state. California also has several small lode mines that sporadically produce gold including specimen gold and gold in quartz for use in jewelry.

Silver is produced as a by-product of gold production and makes up less than one tenth of one percent of California's total metal production by value. Silver production decreased in 2013.

A small amount of iron ore was produced in 2013. Much of the iron ore currently produced in California is used in the production of portland cement and is considered an industrial mineral.

## **REVISIONS TO 2012 DATA**

Based on revised USGS data for 2012, the 2012 market value of non-fuel minerals has been increased slightly from \$3.27 to \$3.29 billion. The revised 2012 data appears in the table.

## **THE CALIFORNIA GEOLOGICAL SURVEY**

The California Geological Survey's (CGS) Mineral Land Classification Project, a mandate of the Surface Mining and Reclamation Act (Public Resources Code Section 2710, et.seq.), continued to provide lead agencies with mineral resource maps that have proved to be of great value in land-use planning and mineral resource conservation. To date, CGS has completed mineral resource studies in about one third of the state. During the year, CGS completed an updated classification project in the North San Francisco Bay region and assisted the State Mining and Geology Board with designation activities in the Stockton Lodi, San Bernardino, and San Luis Obispo/Santa Barbara Production-Consumption regions. Mineral Land Classification updates are ongoing in the South San Francisco Bay Region and the Temescal Valley area of Riverside County.

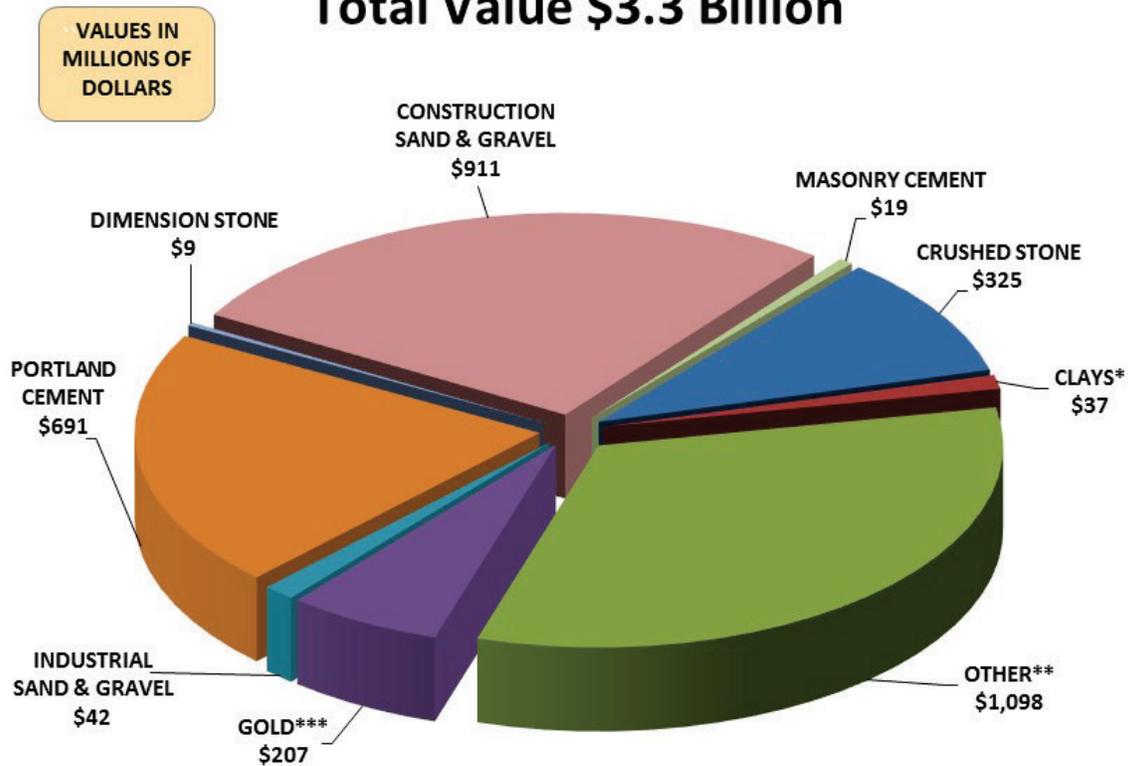
Amount and value of non-fuel mineral production for 2011, 2012, 2013. <sup>1,2</sup>

Mineral	2011		2012 <sup>R</sup>		2013 <sup>P</sup>		
	Quantity	Value (thousands \$)	Quantity	Value (thousands \$)	Quantity	Value (thousands \$)	
Boron Minerals	short tons	W	W	W	W	W	
Cement							
Masonry	short tons	170,000	18,600	167,600	15,900	196,200	19,000
Portland	short tons	8,521,000	581,700	<sup>R</sup> 9,261,500	621,100	10,141,100	691,000
Clays:							
Bentonite	short tons	18,900	2,300	W	W	W	W
Common	short tons	398,000	6,990	572,680	7,780	520,100	7,490
Gemstones		NA	760	NA	970	NA	970
Gold <sup>3</sup>	troy ounces	<sup>4</sup> 198,770	<sup>4</sup> 312,600	<sup>4R</sup> 187,390	<sup>4R</sup> 313,430	<sup>4</sup> 146,500	<sup>4</sup> 207,200
Pumice & Pumicite	short tons	W	W	W	W	59,700	2,620
Sand and gravel:							
Construction	short tons	80,308,000	888,800	<sup>R</sup> 85,036,900	843,000	93,855,300	911,050
Industrial	short tons	1,298,000	40,800	1,111,100	37,570	951,300	42,460
Silver <sup>3</sup>	troy ounces	W	W	W	W	W	W
Stone:							
Crushed	short tons	32,800,000	295,400	36,455,000	318,700	38,107,700	325,010
Dimension	short tons	24,600	9,600	25,400	9,200	26,000	9,210
Values for bentonite, boron, diatomite, feldspar, fuller's earth, gypsum (crude), kaolin, lime, magnesium compounds, perlite (crude), rare earths, salt, silver soda ash, sodium sulfate and zeolites are combined to avoid disclosing company proprietary data.							
Total combined and W values		1,431,000		<sup>R</sup> 1,091,000		1,124,000	
<b>Total annual value-all minerals</b>		<b>3,589,000</b>		<b><sup>R</sup>3,259,000</b>		<b>3,340,000</b>	
<sup>P</sup> roduction as measured by mine shipments, sales, or marketable production (including consumption by producers). <sup>Q</sup> uantities are rounded to the nearest 100 units except for gold and silver. Values are rounded to the nearest \$10,000 and totals to the nearest \$1,000,000. <sup>R</sup> ecoverable content of ores, etc. <sup>D</sup> ata from California Department of Conservation, California Geological Survey. <sup>P</sup> reliminary. NA=Not available. W=Withheld to avoid disclosing company proprietary data; value included with "combined value" data. <sup>R</sup> evised from previous non-fuel mineral production report							

Modified from unpublished U.S. Geological Survey (USGS) data, subject to change; official USGS final 2013 data will be published in the California chapter of the USGS Mineral Yearbook, Area Reports: Domestic 2013, Volume II.

# CALIFORNIA NON-FUEL MINERAL PRODUCTION 2013

Total Value \$3.3 Billion



\*CLAYS includes: bentonite, kaolin, common, and montmorillonite (fuller's earth)

\*\* OTHER Includes: boron, diatomite, feldspar, gemstones, gypsum, lime, magnesium compounds, perlite, pumice, pumicite, rare earth elements, salt, silver, soda ash, sodium sulfate and zeolites

\*\*\* Data from California Geological Survey

Information modified from preliminary unpublished U.S. Geological Survey (USGS) data and subject to change; Official USGS final 2013 data will be published in the California Chapter of the USGS Minerals Yearbook, Area Reports: Domestic 2013 Volume II.