

CALIFORNIA NON-FUEL MINERALS 2012

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Based on the U.S. Geological Survey's (USGS) preliminary data for 2012, California ranked fifth after Florida, Minnesota, Arizona and Nevada in the value of non-fuel mineral production, accounting for approximately 4.6 percent of the nation's total. The market value of non-fuel mineral production for California was \$3.27 billion. California produced more than two dozen non-fuel mineral commodities during the year. It led the nation in the production of construction sand and gravel and was the only producer of boron compounds and rare earth minerals. The state ranked third behind Missouri and Texas for portland cement production. California ranked fifth in gold production out of eleven states that reported gold production for the year. Other minerals produced commercially include common clay, bentonite clay (including hectorite), crushed stone, diatomite, dimension stone, feldspar, fuller's earth, gemstones, gypsum, iron ore, kaolin clay, lime, magnesium compounds, perlite, pumice, pumicite, salt, soda ash, sodium sulfate, and zeolites.

There were about 700 active mines in California producing non-fuel minerals during 2012 (California Office of Mine Reclamation). Approximately 5,300 people were employed at these mines and their processing facilities (California Employment Development Department).

INDUSTRIAL MINERALS

Construction sand and gravel was California's leading mineral commodity in terms of dollar value in 2012. Preliminary figures for 2012 indicate a slight decrease in value with an increase in tons produced relative to 2011. The total value of construction sand and gravel produced in California in 2012 was \$843 million for 84.9 million tons produced compared to the revised 2011 totals of \$889 million for 80.3 million tons produced. With the revisions to the 2011 data, preliminary figures for 2012 show the first increase in the volume of construction sand and gravel produced since 2007. Boron minerals ranked second in value, but 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 and makes up more than 60 percent of this category. The third highest dollar value mineral commodity produced was portland cement valued at \$621 million for 9.3 million tons produced. Crushed stone ranked fourth with a value of \$319 million for 36.5 million tons produced.

For industrial minerals, construction materials including aggregate (sand and gravel and crushed stone) and cement accounted for about 55 percent of the value of California's annual non-fuel mineral production in 2012. California consumes large quantities of these construction materials annually, 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 2012 was 121.3 million tons valued at \$1,162 million. This compares to the revised 2011 production of 113.1 million tons valued at \$1,184 million. Although the value dropped slightly, the 7.3 percent increase in production represents the first increase in construction aggregate production since the beginning of the recession in 2007. From the previous high of 245.9 million tons in 2006, production dropped 54 percent to 113.1 million tons by 2011. Statewide production of construction aggregate over the last 30 years (1982-2012) has averaged about 177 million tons per year.

In February, the Riverside County Board of Supervisors denied the permit for Granite Construction's proposed Liberty Quarry located in southwestern Riverside County. The project had faced strong opposition from the City of Temecula and the Pechanga Band of Luiseño Indians. In May, the County Board of Supervisors upheld the permit denial, but certified the project's environmental impact report. Granite Construction subsequently submitted a proposal for a scaled-down quarry operation in July. The scaled-down operation would produce a maximum of 4 million tons per year versus the previously proposed 5 million tons per year. In November it was announced that Granite Construction and the Pechanga Band of Luiseño Indians had reached an agreement for the sale of the property to the Tribe, ending plans for a quarry at the site.

The Fresno County Planning Commission rejected CEMEX's proposal to open a quarry at Jessie Morrow Mountain in May of 2012. The County Board of Supervisors also rejected the project in August by voting against approval of the project environmental impact report. The project would have produced 1.5 million tons of aggregate per year over a 50-year lifespan.

The proposed Carmelita mine in Fresno County received approval from the Fresno County Planning Commission in August and from the County Board of Supervisors in October. The proposed 886-acre operation would produce up to 1.25 million tons of aggregate per year over a 100-year lifespan. In November, Friends of the Kings River, a local group opposing the project sued the County to halt the proposed mine.

In January, a scoping meeting was held to receive comments regarding issues to be addressed in the Environmental Impact Report for the proposed Moody Flats Quarry in Shasta County. The proposed project, located just north of the City of Shasta Lake, would include a hardrock quarry, processing facilities, a ready-mix concrete plant, an asphalt batch plant, and facilities for truck and rail transport. The proposed project would produce up to two million tons of aggregate per year and would supply the local and regional northern California market. The project proponent, Moody Flats Quarry LLC., is a wholly owned subsidiary of the 3M Company.

The proposed Newman Ridge Quarry in Amador County received approval from the Amador County Planning Commission in August and from the County Board of Supervisors in October. The proposed operation would produce up to 5 million tons of aggregate per year over a

50-year lifespan. In November, the Lone Valley Land, Air, & Water Defense Alliance, a local group opposing the project, sued the County and project proponents to halt the proposed mine.

The proposed expansion of the Harris Quarry in Mendocino County received approval from the Mendocino County Planning Commission in May and from the County Board of Supervisors in June. The proposed expansion would increase the area of the operation from 11.5 acres to 46 acres and would increase production from 75,000 to 200,000 cubic yards per year. The expansion also includes construction of an asphalt plant. In May, Keep the Code, a local group opposing the project, sued the County claiming the Environmental Impact Report approved by the County was inadequate.

Cement

Portland cement production was 9.3 million tons valued at \$621.1 million in 2012. This is an increase of about 10.7 percent over the revised 2011 production of about 8.4 million tons and continues the increase in production from the recent low in 2010.

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 in 2012. The company also continued with construction of new state-of-the-art processing facilities at Mountain Pass as part of “Project Phoenix”, an effort to expand and modernize its rare-earth production facilities. Completion of these new facilities is expected in 2013.

METALS

Gold dominated California’s metal production in 2012 – comprising over 99 percent of the value of the state’s metals production. Gold production decreased to 186,980 ounces in 2012, from a revised 2011 production of 198,770 ounces. The value of gold production in the state decreased to \$312.7 million from a revised \$332.5 million in 2011.

The state’s largest gold producer was the New Gold Inc., Mesquite gold mine in Imperial County – producing approximately 142,000 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 36,900 ounces in 2012. In February, the U.S. Bureau of Land Management approved an updated Environmental Assessment for the Briggs mine allowing a 94-acre extension that will occur entirely within the existing permitted area of the mine. This extension is projected to increase the mine life by three to five years.

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.

In September, the Idaho Maryland Mining Corporation, a subsidiary of Emgold Corporation, allowed its application to reopen the historic Idaho Maryland Mine in Nevada County to lapse.

The company has placed permitting activities for the mine, which began in 2005, on hold pending improved market conditions and financing activity. The permit applications will need to be resubmitted if and when the company moves forward with the project. The historic mine was a significant gold producer in the 19th and 20th centuries with a total production from 1862-1956 of 2.4 million ounces. At 2012 gold prices that 2.4 million ounces would be worth about 4 billion dollars.

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 slightly in 2012.

A small amount of iron ore was produced in 2012. Most of this iron ore was used in the production of portland cement and is considered an industrial mineral.

REVISIONS TO 2011 DATA

Based on revised USGS data for 2011, the 2011 market value of non-fuel minerals has been increased from \$2.9 to \$3.6 billion. Most of this increase was the result of a revision to the value of construction sand and gravel. The revised 2011 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 for construction aggregate in parts of San Joaquin and Stanislaus counties. CGS also assisted the State Mining and Geology Board with designation activities in the Stockton-Lodi Production-Consumption region. Mineral Land Classification updates are ongoing in the North and South San Francisco Bay regions.

In March, CGS released an updated statewide aggregate resource map (*CGS Map Sheet 52, updated 2012, Aggregate Sustainability in California*). The map and report compare projected aggregate demand for the next 50 years with currently permitted aggregate resources in 31 regions of the state. These 31 regions cover about 30 percent of the state and provide aggregate for about 85 percent of California's population. The map also shows aggregate production areas and highlights regions where there are less than 10 years of permitted aggregate resources remaining. The accompanying report discusses supply and demand of the state's permitted aggregate resources, aggregate quality and use, and transportation issues.

The map and report are available online at:

<http://www.consrv.ca.gov/cgs/minerals/mlc/Pages/Index.aspx>.

Amount and value of non-fuel mineral production for 2010, 2011, 2012.^{1,2}

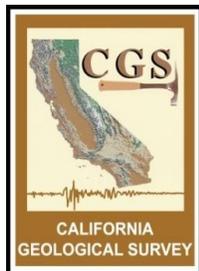
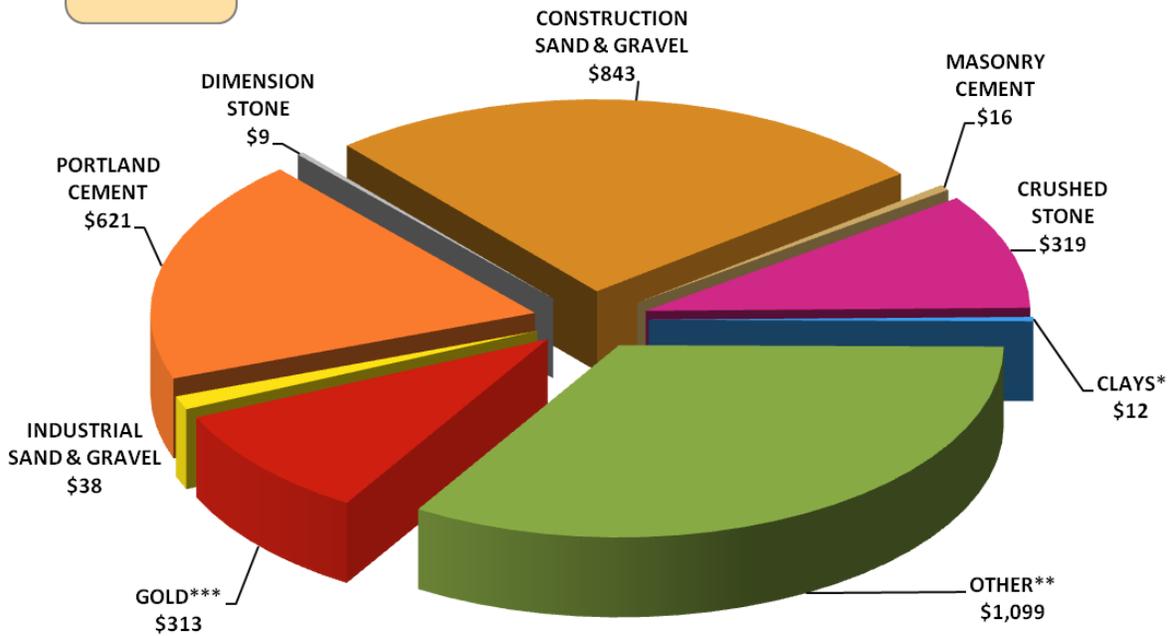
Mineral	2010 ^R		2011 ^R		2012 ^P		
	Quantity	Value (thousands \$)	Quantity	Value (thousands \$)	Quantity	Value (thousands \$)	
Boron Minerals	short tons	W	W	W	W	W	
Cement							
Masonry	short tons	196,200	19,500	^R 170,000	^R 18,600	167,600	15,900
Portland	short tons	7,655,500	548,600	^R 8,402,000	^R 581,700	9,262,000	621,100
Clays:							
Bentonite	short tons	24,900	2,700	^R 18,900	^R 2,300	55,310	4,290
Common	short tons	391,500	5,000	^R 398,000	^R 6,990	572,680	7,780
Gemstones		NA	750	NA	^R 760	NA	970
Gold ³	troy ounces	⁴ 198,980	⁴ 244,300	⁴ 198,770	^{4R} 312,600	⁴ 186,980	⁴ 312,700
Sand and gravel:							
Construction	short tons	82,360,000	809,000	^R 80,308,000	^R 888,800	84,877,100	843,000
Industrial	short tons	1,457,000	39,400	^R 1,298,000	^R 40,800	1,111,100	37,600
Silver ³	troy ounces	W	W	W	W	W	W
Stone:							
Crushed	short tons	34,995,000	313,000	^R 32,800,000	295,400	36,455,000	318,700
Dimension	short tons	28,800	6,900	^R 24,600	^R 9,600	25,400	9,200
Values for bentonite, boron, diatomite, feldspar, fuller's earth, gypsum (calcined), iron ore (usable shipped), kaolin, lime, magnesium compounds, perlite (crude), pumice and pumicite, rare earths, salt, soda ash, sodium sulfate and zeolites are combined to avoid disclosing company proprietary data.							
Total combined and W values			^R 854,000		^R 1,431,000		1,098,000
Total annual value-all minerals			^R2,843,000		^R3,589,000		3,269,000
¹ Production as measured by mine shipments, sales, or marketable production (including consumption by producers). ² Quantity and value data are rounded to the nearest 100 units except for silver and gemstones(rounded to nearest 10 units). ³ Recoverable content of ores, etc. ⁴ Data from California Department of Conservation, California Geological Survey. ^P Preliminary. NA = Not available. W = Withheld to avoid disclosing company proprietary data; value included with "combined value" data. ^R Revised from previous non-fuel mineral production report							

Modified from unpublished U.S. Geological Survey (USGS) data, subject to change; official USGS final 2012 data will be published in the California chapter of the USGS Minerals Yearbook, Area Reports: Domestic 2012, Volume II.

CALIFORNIA NON-FUEL MINERAL PRODUCTION 2012

Total Value \$3.3 Billion

VALUES IN
MILLIONS OF
DOLLARS



*CLAYS includes: bentonite and common
 ** OTHER Includes: boron, diatomite, feldspar, fuller's earth, gemstones, gypsum, iron ore, kaolin, lime, magnesium compounds, perlite, pumice, pumicite, rare earth elements, salt, silver, soda ash, sodium sulfate and zeolites
 *** Data from California Geological Survey

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