

CALIFORNIA NON-FUEL MINERALS 2015

By John Clinkenbeard, Supervising Engineering Geologist (PG #4731) California Geological Survey

Based on U.S. Geological Survey (USGS) preliminary data for 2015, California ranked sixth after Nevada, Arizona, Texas, Minnesota, and Wisconsin 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 \$3.6 billion. California produced more than two dozen non-fuel mineral commodities during the year, and was the only U.S. producer of boron compounds and rare earth elements. It led the nation in the production of construction sand and gravel and diatomite, and was second behind Texas in portland cement production. The state ranked fourth out of eleven states that reported gold production for the year. Other mineral commodities produced include bentonite clay (including hectorite), common clay, crushed stone, dimension stone, feldspar, fuller's earth, gemstones, gypsum, industrial sand and gravel, iron ore, kaolin clay, lime, magnesium compounds, masonry cement, pumice, pumicite, salt, silver, soda ash, sodium sulfate, and zeolites.

There were 717 active mines in California producing non-fuel minerals during 2015 (California Office of Mine Reclamation). Approximately 5,400 people were employed at these mines and their processing facilities (California Employment Development Department, Labor Market Information Division).

INDUSTRIAL MINERALS

Construction-grade sand and gravel was California's leading mineral commodity in terms of dollar value in 2015. California produced 107 million tons of construction sand and gravel worth \$1.29 billion in 2015; in 2014, the state produced 96 million tons valued at \$1.01 billion. Portland cement ranked second in value at \$879 million for 10.9 million tons produced, an increase in value and tonnage over 2014. 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. Crushed stone ranked fourth with a value of \$347 million for 41.9 million tons produced, an increase over the revised 2014 value and production.

Construction materials, including aggregate (sand and gravel and crushed stone) and cement, accounted for about 70 percent of the value of California's annual non-fuel mineral production in 2015. The building and paving industries consume large quantities of construction materials, which are essential to the state, to maintain the existing infrastructure and to provide for new construction.

Aggregate

Total production of construction aggregate (sand and gravel and crushed stone) in 2015 was 148.9 million tons valued at \$1.64 billion. This compares to the revised 2014 production of 135.5 million tons valued at \$1.32 billion. The average statewide production of construction aggregate over the last 30 years (1986-2015) has been about 179 million tons per year.

In December 2014, the Solano County Planning Commission approved the use permit and reclamation plan for the proposed expansion of the Syar Industries Lake Herman Quarry. The expansion will increase both the acreage and the depth of the existing quarry (not reported in the 2014 report).

In February of 2015, the San Luis Obispo County Planning Commission denied the Conditional Use Permit for the proposed Las Pilitas Quarry project. In May, the San Luis Obispo County Board of Supervisors upheld the Planning Commission decision. The proposed quarry would have produced up to 500,000 tons of construction aggregate per year for a period of approximately 30 years.

In February, the Fresno County Planning Commission approved the proposed Riverbend Sand and Gravel project near Sanger. The mine will produce up to 1.25 million tons of construction aggregate a year for 75 years.

In November, the Napa County Planning Commission approved the expansion of the Syar Industries Napa Quarry. The expansion will increase annual production from approximately 1 million to 1.3 million tons and extend the quarry life for 35 years.

Cement

Portland cement production was 10.9 million tons valued at \$879 million in 2015, ranking second in value among commodities produced in the state. This is a slight increase over the revised 2014 production of 10.8 million tons valued at \$829 million.

Rare Earth Elements

In June of 2015, Molycorp Minerals LLC., operator of the Mountain Pass Mine in San Bernardino County, filed for Chapter 11 bankruptcy. The company announced in August that the mine and processing facility would be placed on care and maintenance in October. The Mountain Pass Mine was the only domestic producer of Rare Earth Elements (REE).

METALS

Gold dominated California's metal production in 2015 – comprising over 99 percent of the value of the state's metals production. Gold production increased slightly to 160,767 ounces in 2015, from a 2014 production of 144,123 ounces. The value of gold production in the state increased to \$187.5 million from \$183.3 million in 2014.

The state's largest gold producer was the New Gold Inc. Mesquite Mine in Imperial County. It produced approximately 134,868 ounces for the year.

In November, Atna Resources Ltd., operator of the Briggs Mine in Inyo County, filed for Chapter 11 bankruptcy. Mining and crushing operations at the Briggs Mine were discontinued in the third quarter of the year.

Golden Queen Mining Company Ltd. continued construction of its Soledad Mountain project located approximately five miles south of Mojave in Kern County. Stockpiling of unprocessed ore started in late August. The open pit mine will use a cyanide heap leach and a Merrill-Crowe process to recover gold and silver. The company anticipates first gold production in 2016.

In addition to the above mentioned lode mines, placer gold was produced as a byproduct 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 byproduct of gold production and makes up less than two tenths of one percent of California's total metal production by value. Silver production decreased slightly in 2015 compared to revised 2014 production.

A small amount of iron ore was produced in 2015. 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 2014 DATA

Based on revised USGS data for 2014, the 2014 market value of non-fuel minerals decreased from \$3.55 to \$3.16 billion. The revised 2014 data appears in the table.

THE CALIFORNIA GEOLOGICAL SURVEY

The California Geological Survey (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 assisted the State Mining and Geology Board with designation activities in the San Bernardino, Stockton-Lodi, San Luis Obispo-Santa Barbara, and North San Francisco Bay Production-Consumption regions. Mineral Land Classification updates are ongoing in the South San Francisco Bay and Western San Diego County regions.

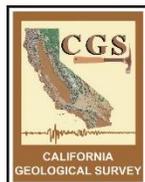
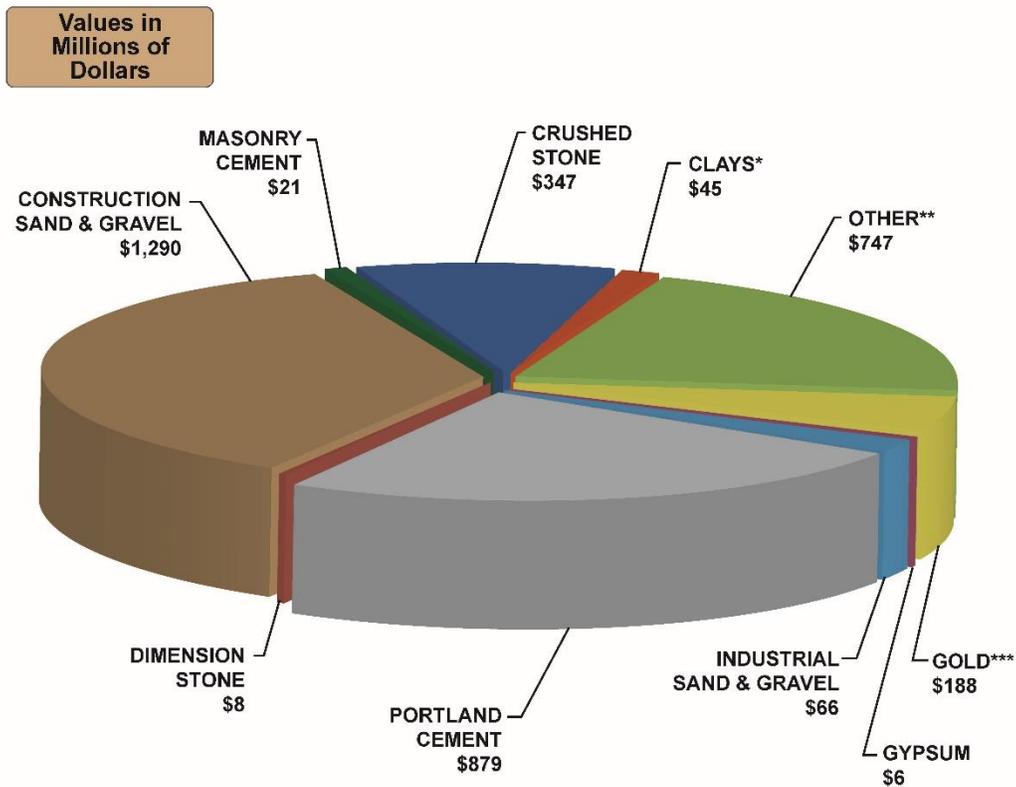
Amount and value of non-fuel mineral production for 2013, 2014, 2015. ^{1,2}

Mineral	2013 ^R		2014 ^R		2015 ^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	19,600	^R 205,000	^R 20,100	198,400	21,000
Portland	short tons	^R 10,207,300	714,000	^R 10,818,000	^R 829,000	10,912,800	879,000
Clays ⁵	short tons	^R 750,200	^R 37,400	^R 800,000	^R 41,040	813,500	45,040
Gemstones		NA	1,220	NA	^R 1,210	NA	880
Gold ³	troy ounces	^R 4146,436	⁴ 207,200	^R 4144,123	^R 4183,290	⁴ 160,767	⁴ 187,516
Gypsum (crude)	short tons	^R 1,279,000	^R 17,700	^R 795,500	^R 6,030	760,600	5,930
Pumice & Pumicite	short tons	^R 59,600	2,620	^R 67,200	^R 1,580	W	W
Sand and gravel:							
Construction	short tons	^R 96,892,200	^R 890,000	96,010,300	1,010,000	107,033,300	1,290,000
Industrial	short tons	951,300	42,500	^R 1,675,000	^R 52,500	2,050,300	66,100
Silver ³	troy ounces	W	W	W	W	W	W
Stone:							
Crushed	short tons	38,139,600	325,000	^R 39,462,000	^R 314,000	41,887,400	347,000
Dimension	short tons	26,500	9,210	^R 25,000	^R 9,170	23,100	7,780
Values for boron, diatomite, feldspar, iron ore, lime, magnesium compounds, rare earths, salt, silver, soda ash, sodium sulfate and zeolites are combined to avoid disclosing company proprietary data.							
Total combined and W values		^R 1,035,000		^R 689,000		746,000	
Total annual value-all minerals		^R3,301,000		^R3,157,000		3,596,000	
¹ Production as measured by mine shipments, sales, or marketable production (including consumption by producers). ² Quantities 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. ³ Recoverable content of ores, etc. ⁴ Data from California Department of Conservation, California Geological Survey. ⁵ Clays includes bentonite, kaolin, common, and monmorillonite (fullers earth). ^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 2015 data will be published in the California chapter of the USGS Mineral Yearbook, Area Reports: Domestic 2015, Volume II.

CALIFORNIA NON-FUEL MINERAL PRODUCTION 2015

Total Value \$3.6 Billion



*CLAYS includes: bentonite, kaolin, common, and montmorillonite (fullers earth)

**OTHER includes: boron, diatomite, feldspar, gemstones, iron ore, lime, magnesium compounds, pumice, pumicite, rare earth elements, salt, silver, soda ash, sodium sulfate and zeolites

***Data from the California Geological Survey

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