USGS
science for a changing world

2011 Minerals Yearbook

ARMENIA

U.S. Department of the Interior
U.S. Geological Survey

September 2013

The Mineral Industry of Armenia

By Elena Safirova

Armenia was a significant producer of molybdenum and ranked seventh in the world in mine output in 2011. Besides molybdenum, Armenia produced other metals, which included copper, gold, silver, and zinc, and industrial minerals, which included cement, diatomite, gypsum, limestone, and perlite. The country also produced aluminum foil from aluminum imported from Russia, ferromolybdenum, molybdenum metal, and rhenium salt (potassium perrhenate) from local ores; it also had developed a diamond-cutting industry based on imported diamond. Armenia possesses resources of copper, gold, iron, lead, molybdenum, and zinc. It also has resources of construction material, such as basalt, granite, limestone, marble, and tuff; semiprecious stones, such as agate, jasper, and obsidian; and other nonmetallic minerals, such as bentonite, diatomite, perlite, and zeolites (Arm3a.org, 2012; Polyak, 2012; U.S. Central Intelligence Agency, 2012).

The country had almost no domestic fuel production; most domestically produced electricity was generated by one nuclear powerplant and several hydroelectric powerplants. Armenia imported fuel for its nuclear powerplant and natural gas from Russia. Since 2006, Armenia also had received natural gas from Iran through a direct pipeline between the two countries, in addition to liquefied natural gas (LNG) transported in tanker trucks. In 2011, Armenia received 1,600 million cubic meters of natural gas from Russia and 460 million cubic meters from Iran. Armenia and Iran continued to participate in a program of direct exchange of natural gas for electric power. In 2011, Iran and Armenia agreed to build a 365-kilometer (km)-long pipeline between Tabriz, Iran, and Yerevan, Armenia, to transport petroleum products from Iran to Armenia. A new, third, high-voltage power line between the two countries was expected to be completed by the summer of 2012 (Polpred.com, 2011a; Interfax.az, 2012; U.S. Department of State, 2012).

Minerals in the National Economy

In 2011, Armenia's real gross domestic product (GDP) increased by 4.7% compared with an increase of 2.1% in 2010. Nominal GDP in 2011 amounted to $10.1 billion. The share of industrial production in the total GDP was 40.4%, and the share of the mineral industry in total industrial production was 17.0%. Mining of metal ores dominated the mineral industry, accounting for 97.3% of the production value produced in this sector (National Statistical Service of the Republic of Armenia, 2012a, b; U.S. Central Intelligence Agency, 2012).

In 2011, the country's exports, which were valued at $1.33 billion, were much lower than the country's imports of $4.15 billion. Mineral commodities constituted a significant percentage of the country's exports. The main export commodities were diamond, energy, foodstuffs, nonferrous metals, pig iron, unwrought copper, and other mineral products. Overall, exports of ash, ores, and slag accounted for $287 million, or 21.5% of the country's export revenue; ferrous metals and articles made out of them accounted for $134 million (10.0%); and precious metals and precious stones contributed $196 million (14.7%). The main export partners of Armenia were Russia (which accounted for 16.7% of export revenue), Germany (11.8%), Bulgaria (11.4%), the Netherlands (8.8%), Iran (8.0%), the United States (7.5%), Spain (6.2%), Belgium and Canada (5.3% each), and Georgia (4.6%). In 2011, Armenia's imports of mineral products included diamond, natural gas, and petroleum. The main trade partners for imports were Russia (which provided 20.1%, by value, of Armenia's imports), China (8.2%), Ukraine (6.9%), Iran (6.5%), Germany (5.9%), Italy (4.7%), and Turkey (4.0%) (National Statistical Service of the Republic of Armenia, 2012a, b; U.S. Central Intelligence Agency, 2012).

Production

In 2011, Armenia produced 30% more gold than it produced in 2010. Production of salt increased by 21.09%; that of primary copper metal, by 16.12%; molybdenum concentrate, by 11.12%; molybdenum metal, by 11.09%; barite, by 9.09%; zinc concentrate, by 8.54%; copper concentrate, by 8.16%; and ferromolybdenum, by 7.78%. At the same time, production of caustic soda decreased by 93.44%; that of cement, by 13.52%; and gypsum, by 12.14%. Data on other mineral production are in table 1.

Commodity Review

Metals

Aluminum.—The ARMENAL aluminum foil rolling mill was one of the leading production facilities in Armenia and the only producer of aluminum foil in the Caucasus and Central Asia regions. It was formed from the Kanaker aluminum plant in Yerevan in 2000 and became a part of United Company RUSAL's packaging division. Before 2010, ARMENAL operated at a loss. In 2010, the company received a net profit of 3.66 billion drams ($9.8 million).[1] In 2011, the mill's production volume increased by 2.7% to about 25,000 metric tons (t) of foil. During the period from 2000 through 2011, the company invested about $120 million in improvement of production facilities; also during that time period, the plant produced almost 130,000 t of product. The company was planning to invest another $6 million from 2012 through 2014 that would allow an increase in annual production to 33,600 t. As of 2011, ARMENAL employed 700 people at an average monthly wage of 100,000 drams (about $270). Most of the plant's output was

[1]Where necessary, values have been converted from Armenian drams (AMD) to U.S. dollars (US$) at an annual average exchange rate of AMD 372.50=US$1.00 for 2011 and AMD 373.66=US$1.00 for 2010.

exported to the United States (80%), Europe, and the Middle East (Regnum.ru, 2011; Armenpress.am, 2012; United Company RUSAL, 2012; Worldal.com, 2012).

Copper and Molybdenum.—The leading producer of copper and molybdenum concentrates in Armenia was the Zangezur copper-molybdenum complex (ZCMC) followed by the Agarak copper-molybdenum mining and processing complex (ACMC). The ZCMC was developing the Kajaran deposit whose resources were estimated to be 4.5 million metric tons (Mt) of copper and 722,000 t of molybdenum. In 2011, the ZCMC was building a new mill that was expected to increase the ZCMC's productivity by about 30%. The new mill was expected to grind the ore into finer particles, and the new production process would increase metal production and reduce waste. As of 2011, the complex was processing 43,000 metric tons per day (t/d) of ore, and the new mill was projected to increase that figure to 50,000 t/d. The mill was expected to become fully operational in the beginning of 2012 (Minerjob.ru, 2011b; Mineral.ru, 2012c).

The ACMC included the Agarak Mine and a beneficiation plant. The ACMC was acquired by GeoProMining, Ltd. (GPM) of Russia in 2007 and had been undergoing expansion and modernization since then. The ACMC produced copper and molybdenum concentrates through bulk-selective flotation recovery. In 2012, the ACMC was planning to increase annual ore processing to 3.5 Mt from 2.7 Mt in 2011. The reconstruction started in 2009 when the ACMC received a $14 million loan from the Armenian Government. As of 2011, the complex employed 911 workers, or one-third of the total population of the village of Agarak (Minerjob.ru, 2011a).

In 2011, ZAO Teghout was preparing for production of copper and molybdenum at the Teghout deposit, which was scheduled to start in 2014. The company had already invested $130 million in the project, and was planning to invest $190 million more. The Teghout copper-molybdenum deposit was the second largest copper-molybdenum deposit in Armenia; its resources were estimated to be 1.5 Mt of copper and 100,000 t of molybdenum. ZAO Teghout was a part of the Vallex Group that also included Armenian Copper Company (ACP), which managed the copper smelter in Alaverdi, and Base Metals Co., which operated the Drmbon gold-copper deposit in Nagorno-Karabakh (Mineral.ru, 2012a, 2012c; Minerjob.ru, 2012).

Gold.—The Ararat Gold Recovery Co. (AGRC) continued to mine the Sotk deposit. As of 2011, AGRC was a subsidiary of GPM. AGRC had a gold processing facility in the city of Ararat. AGRC also owned a large open pit gold mine at Zod in eastern Armenia, close to the border with Azerbaijan. GPM was preparing to reconstruct AGRC's beneficiation plant to be able to apply new Albion technology. The Albion technology was initially developed by Xstrata Technology of Australia and was first used in the Dominican Republic; Armenia would be the second place in the world where the technology has been applied. The construction of the new plant started in 2011 and was expected to be completed in the first quarter of 2013 at a cost of about $100 million. The main benefit of the Albion technology is that it allows processing of a variety of ore types. The ores found in Sotk are of the sulfide type, and it is usually more expensive to extract gold from such ores. GPM expected to increase annual gold production to 3.7 t in 2013 and 4.6 t in 2015 (from about 1.1 t in 2011). In 2011, the GPM plant employed 735 workers, whose average monthly salary was 165,000 drams ($443) (Bulanov, 2011; Mineral.ru, 2011; Tetralab.ru, 2011; GeoProMining, Ltd., 2012).

In 2011, ZAO Geotim of Armenia, which represented Lydian International Ltd. of Canada, obtained a license for development of the Amulsar gold deposit. According to the company data, the deposit contained about 40 t of gold, and this estimate may as much as double after further exploration. The company planned to conduct open pit mining and recovery using the heap-leach method. In 2012, Geotim was planning to invest $52 million in additional prospecting and preparatory works (Minerjob.ru, 2011c; Mineral.ru, 2012b).

Another foreign company mining gold in Armenia was Deno Gold (a subsidiary of Dundee Precious Metals Inc. of Canada). Deno Gold was mining the Shahumian deposit located in the Kapan ore field. The deposit had both open pit and underground potential, and the company continued work to determine total resources of the deposit. In addition to gold, the ore contained copper, silver, and zinc. In 2011, the company mined 582,000 t of ore and produced 8,883 t of zinc, 1,357 t of copper, 836 kilograms of gold, and 16.1 t of silver. The company continued exploratory drilling to verify the estimates of the deposit's resources made during the Soviet times. Deno Gold was planning to finalize preliminary project documentation by the third quarter of 2012 (Dundee Precious Metals Inc., 2012; News.am, 2012).

Iron Ore.—In January 2011, Fortune Oil Co. of China announced that it had acquired 35% of the shares of Armenian company Bounty Resources Armenia for $24 million. Bounty Resources owned three iron ore mines in the cities of Abovian and Hrazdan and the village of Svarants. Fortune Oil had an option to eventually increase its share to 50% for an additional $16 million; the company expected to invest a total of $500 million in the mineral industry of Armenia (Reuters News, 2011).

According to the announced development plans, the Hrazdan deposit would be the first to be developed; proven and probable reserves of iron ore there amounted to 77 Mt. The ore of the deposit was of good quality and high iron content (about 40%). In addition, the ore was located close to the surface, and the mine had access to water and power sources and was accessible to railroad and roads. The mining was scheduled to start in 2014 and was expected to reach from 1.5 to 2.0 million metric tons per year (Mt/yr). The ore would be transported by rail to one of the large ports in Georgia, Turkey, or Iran; the final destination of the ore would be China. The Hrazdan deposit was expected to be developed during a 15-year period. The Abovian deposit would be developed next; its proven and probable reserves amounted to 255 Mt. The Svarants deposit was still at the exploration stage; inferred potential resources there were estimated to be 1,500 Mt of iron ore. Fortune Oil was planning to certify resources by the Joint Ore Reserves Committee (JORC) standards in the third quarter of 2011, but it was not known if it was able to complete the work (Arminfo.info, 2011; News.am, 2011).

Outlook

In the next few years, Armenia is likely to continue developing its facilities for processing copper, gold, and molybdenum. Several new gold and iron ore mining projects were underway in 2011 and will likely be operational in the next 3 to 5 years. Some Armenians, however, are beginning to voice concerns about the potential effects of the new mining projects. GPM Gold is facing increased scrutiny concerning the environmental soundness of its mining practices, and ZAO Teghout is facing opposition to its cutting of Teghout trees in the forest (Polpred.com, 2011b). The proximity of these projects to Sevan Lake and other environmentally sensitive objects is likely to slow down the completion of these projects and make their approvals both lengthy and costly. Success of mining and mineral processing projects in Armenia will depend on the ability of the Government to provide a solid legal basis for reconciling often contradictory goals of economic development and environmental protection.

References Cited

Arm3a.org, 2012, Kratkaya informatsia ob Armenii [Brief information about Armenia]: Arm3a.org. (Accessed January 3, 2013, at http://www.arm3a.org/?lang=ru&go=about_armenia.)

Armenpress.am, 2012, Prime Minister of Armenia visits Rusal-Armenal company: Armenpress.am, March 2. (Accessed January 3, 2013, at http://armenpress.am/eng/news/682396/prime-minister-of-armenia-visits-rusal-armenal-company.)

Arminfo.info, 2011, Fortune Oil naznachila Djerri Gormana direktorom po proektam dobychi zheleznoy rudy v Armenii [Fortune Oil appointed Jerry Gorman as a director of iron ore mining projects in Armenia: Arminfo.info, August 23. (Accessed January 3, 2013, at http://www.arminfo.info/russian/economy/article/23-08-2011/03-09-00.)

Bulanov, Alexey, 2011, Nadezhnyi partnyor Armenii [A reliable partner of Armenia]: Obzory stran, v. 55, no. 8, September 26. (Accessed January 3, 2012, at http://expert.ru/countries/2011/08/nadezhnyij-partner-armenii/.)

Dundee Precious Metals Inc., 2012, Operations—Producing Mines—Kapan: Dundee Precious Metals Inc. (Accessed January 3, 2012, at http://www.dundeeprecious.com/English/operations/producing-mines/kapan/default.aspx.)

GeoProMining, Ltd., 2012, Armenia: GeoProMining, Ltd. (Accessed January 3, 2013, at http://www.geopromining.com/en/our-business/geography/armenia/.)

Interfax.az, 2012, Armeniya v 2012 g. mozhet uvelichit' import gaza na 21%, proizvodstvo elektroenergii – na 10% [In 2012, Armenia might increase imports of gas by 21% and production of electricity by 10%]: Interfax.az, November 11. (Accessed January 3, 2013, at http://interfax.az/view/557983.)

Mineral.ru, 2011, GPM do 2014 g. vlozhit 100 mln dol. V Araratskuyu zolotoizvlekatel'nuyu fabriku [GPM will invest $100 million in Ararat gold processing plant through 2014]: Mineral.ru, July 14. (Accessed January 3, 2013, at http://www.mineral.ru/News/45436.html.)

Mineral.ru, 2012a, Armenia mozhet proizvodit' 80 tys. t. medi v god [Armenia can produce 80 thousand tons of copper per year]: Mineral.ru, February 22. (Accessed January 3, 2013, at http://www.mineral.ru/News/47724.html.)

Mineral.ru, 2012b, Osvoeniyu zolotonosnogo mestorozhdeniya Amulsar (Armeniya) meshayut protesty ekologov [Ecologists' protests slow down the development of gold deposit Amulsar (Armenia)]: Mineral.ru, February 28. (Accessed January 3, 2013, at http://www.mineral.ru/News/47781.html.)

Mineral.ru, 2012c, V Armenii razvedano 857 tys. t. molybdena [In Armenia, there are 857 thousand tons of molybdenum]: Mineral.ru, January 24. (Accessed January 3, 2013, at http://www.mineral.ru/News/47364.html.)

Minerjob.ru, 2011a, Agarakskiy medno-molibdenovyi kombinat planiruet v 2012 godu uvelichit' ezhegodnuyu pererabotku rudy s 2,7 do 3,5 mln. t. [In 2012, Agarak copper-molybdenum complex is planning to increase annual processing of ore from 2.7 to 3.5 million tons]: Minerjob.ru, September 12. (Accessed January 3, 2013, at http://www.minerjob.ru/viewnew.php?id=20293.)

Minerjob.ru, 2011b, Kadjaranskiy medno-molibdenovyi kombinat uvelichit proizvoditel'nost' na 30% [Kajaran copper molybdenum complex will increase productivity by 30%]: Minerjob.ru, September 21. (Accessed January 3, 2013, http://www.minerjob.ru/viewnew.php?id=20346.)

Minerjob.ru, 2011c, V Armenii budet ekspluatirovat'sya novoe mestorozhdeniye zolota [A new gold deposit will be developed in Armenia]: Minerjob.ru, February 3. (Accessed January 3, 2013, at http://www.minerjob.ru/viewnew.php?id=19219.)

Minerjob.ru, 2012, V Armenii v 2014 godu nachnutsya razrabotki Tegutskogo mestorozhdeniya [In 2014 in Armenia they will start developing the Teghout deposit]: Minerjob.ru, February 20. (Accessed January 3, 2013, at http://www.minerjob.ru/viewnew.php?id=20917.)

National Statistical Service of the Republic of Armenia, 2012a, Armenia in figures: National Statistical Service of the Republic of Armenia. (Accessed January 3, 2013, at http://www.armstat.am/en/?nid=82&id=1300.)

National Statistical Service of the Republic of Armenia, 2012b, Statistical yearbook of Armenia: National Statistical Service of the Republic of Armenia. (Accessed January 3, 2013, at http://www.armstat.am/en/?nid=45&year=2012.)

News.am, 2011, Kitaytsy rady investirovat' v armyanskiye zheleznorudnyye mestorozhdeniya [The Chinese are glad to invest in Armenian iron deposits]: News.am, January 16. (Accessed January 3, 2013, at http://news.am/rus/news/44681.html.)

News.am, 2012, V 2012 g. Deno Gold planiruet dobyt' do 9070 t tsinka i 1450 t medi v kontsentrate [In 2012 Deno Gold is planning to produce up to 9,070 tons of zinc and 1,450 tons of copper in concentrate]: News.am, June 30. (Accessed January 3, 2013, at http://news.am/rus/news/115105.html.)

Polpred.com, 2011a, [Untitled]: Polpred.com, February 16. (Accessed January 3, 2013, at http://polpred.com/?ns=1&ns_id=291622&cnt=13&sector=8.)

Polpred.com, 2011b, [Untitled]: Polpred.com, October 19. (Accessed January 3, 2013, at http://polpred.com/?ns=1&ns_id=422587&cnt=13&sector=5.)

Polyak, D.E., 2012, Molybdenum: U.S. Geological Survey Mineral Commodity Summaries 2012, p. 106–107.

Regnum.ru, 2011, ZAO "Rusal-Armenal" vpervye vyshlo na pribyl'—Armenia [ZAO Rusal-Armenal first time reached profits—Armenia]: Regnum.ru, August 9. (Accessed January 3, 2013, at http://www.regnum.ru/news/1433542.html.)

Reuters News, 2011, Povtor—Kitayskaya Fortune Oil vlozhit okolo $500 mln v rudnyye aktivy Armenii [Repeat—Chinese Fortune Oil will invest about $500 in ore assets in Armenia]: Reuters News, February 24. (Accessed January 3, 2013, at http://ru.reuters.com/article/idRUANT36930420110224.)

Tetralab.ru, 2011, V Armenii budet postroen zolotoizvlekatel'nyi zavod po samym peredovym tekhnologiyam [A new gold processing plant with advanced technologies will be built in Armenia]: Tetralab.ru, July 7. (Accessed on January 3, 2013, at http://tetralab.ru/pages/viewpage.action?pageId=47644676.)

U.S. Central Intelligence Agency, 2012, Armenia, *in* The world factbook: U.S. Central Intelligence Agency, May 23. (Accessed January 3, 2013, at https://www.cia.gov/library/publications/the-world-factbook/geos/am.html.)

U.S. Department of State, 2012, Armenia: U.S. Department of State background note, March 22. (Accessed January 3, 2013, at http://www.state.gov/r/pa/ei/bgn/5275.htm.)

United Company RUSAL, 2012, ARMENAL: United Company RUSAL. (Accessed January 3, 2013, at http://www.rusal.ru/en/about/9.aspx.)

Worldal.com, 2012, Rusal to invest USD 6 million in foil plant in Armenia by 2015: Worldal.com, March 6. (Accessed January 3, 2013, at http://www.worldal.com/news/russia/2012-03-06/133102202938598.shtml.)

TABLE 1
ARMENIA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2007	2008	2009	2010	2011
METALS						
Aluminum, foil		12,256	22,694 r	21,456	24,617	25,289
Copper:						
Concentrate, Cu content		17,600	18,800	23,233	31,062	33,597
Blister, smelter, primary		6,954	6,480	6,858	7,644	8,876
Ferroalloys:						
Ferromolybdenum		5,977	5,323	5,144	5,126	5,525
Ferrotungsten[e]		45 [2]	45	40	40	40
Gold, mine output, Au content	kilograms	1,300 e	1,359	944	974 r	1,266
Molybdenum:						
Concentrate, Mo content		4,295	4,472	4,365	4,335	4,817
Metal		500	520	500	469	521
Rhenium[e]	kilograms	400	400	400	400	400
Silver	do.	37,324	40,434	52,876	68,428	73,000 e
Zinc, concentrate, Zn content		2,585	4,200	3,800	7,808 r	8,475
INDUSTRIAL MINERALS						
Barite[e]		600	600	500	550	600
Caustic soda		5,484	4,476	1,138	960	63
Cement	thousand metric tons	722	770	467	488	422
Clays:						
Bentonite		40,000	40,000	38,000	41,000	41,000
Bentonite, powder		1,129	1,100	1,000	1,100	1,100
Diamond, cut	carats	123,000	100,945	49,573	65,000 r	68,000
Diatomite		200	200 e	180	220	220
Gypsum		54,600	45,900	40,100	38,700 r	34,000
Limestone	thousand metric tons	18,000	18,000	15,000	18,000	18,000
Perlite[e]		35,000	35,000	35,000	35,000	35,000
Salt		34,800	37,300	29,400 r	29,400 r	35,600
MINERAL FUELS AND RELATED MATERIALS						
Natural gas, dry[e]	million cubic meters	2,285 [2]	-- r	-- r	-- r	--

[e]Estimated; estimated data are rounded to no more than three significant digits. [r]Revised. do. Ditto. -- Zero.
[1]Table includes data available through January 2, 2013.
[2]Reported figure.

TABLE 2
ARMENIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2011[1]

(Metric tons unless otherwise specified)

Commodity	Major operating companies, main facilities, or deposits	Location or deposit name	Annual capacity[e]
Aluminum, rolled and foil	ARMENAL (formerly Kanaker aluminum plant) (United Company RUSAL)	Kanaker	25,000
Cement	Aarattsement Group	Ararat region	NA
Do. thousand metric tons	Mika-Cement	Hrazdan	1,200
Copper:			
Mine output, Cu content	Facilities in operation:		30,000 [2]
	Agarak copper-molybdenum mining and processing complex (ACMC) [GeoProMining, Ltd. (GPM)]	Agarak	
	Kapan mining complex (Deno Gold Mining Co.)	Kapan	
	Zangezur copper-molybdenum complex (ZCMC) [Cronimet Mining AG, 60%; Yerevan Pure Iron Works, 15%; Armenian Molybdenum Production LLC (AMP), 12.5%; Zangezur Mining LLC, 12.5%]	Kajaran	
	Facilities not in operation:		
	Akht'ala mining complex	Akht'ala	
	Shamlugh mining complex	Shamlugh	
Blister	CJSC Armenian Copper Programme (ACP) (Valex F.M. Establishment, 81%, and Russian businessman, 19%)	Alaverdi	15,000
Diamond, cut stones	Aghavni diamond-cutting works[3]	Nor Geghi	NA
Do.	Amma group diamond-cutting works[3]	Artashat	NA
Do.	Andranik-Dashk diamond-cutting works	Nor Hachyn	NA
Do.	Arevakn diamond producing plant	do.	NA
Do.	Diamond Company of Armenia (DCA)	Yerevan	NA
Do.	Diamond Tech	Talin	NA
Do.	Lori diamond-cutting works	Nor Hachyn	NA
Do.	Lusampor[3]	Melik'gyugh	NA
Do.	Punji diamond-cutting works[3]	Yerevan	NA
Do.	Sapphire diamond-cutting works	Nor Hachyn	NA
Do. thousand carats	Shoghakan gem-cutting plant	do.	120
Gold kilograms	Ararat Gold Recovery Co. (AGRC) [GeoProMining, Ltd. (GPM)]	Sotk, Zod	2,000
Do.	Megradzor deposit	Meghradzor	NA
Do.	Lichkvazkoye, Shaumyanskiy Rayon, Sotkskoye, and Terterasarskoye deposits	NA	NA
Do.	Deno Gold Mining (Dundee Precious Metals Inc.)	Shaunian Deposit	NA
Iron ore	Hrazdan deposit	Hrazdan region	NA
Molybdenum:			
Mine output, Mo content	Agarak copper-molybdenum mining and processing complex (ACMC) [GeoProMining, Ltd. (GPM)]	Agarak	2,000
Do.	Zangezur copper-molybdenum complex (ZCMC) [Cronimet Mining AG, 60%; Yerevan Pure Iron Works, 15%; Armenian Molybdenum Production LLC (AMP), 12.5%; Zangezur Mining LLC, 12.5%]	Kajaran	20,400
Metal, ferromolybdenum	Armenian Molybdenum Production LLC (AMP) (Cronimet Mining AG, 51%, and Armenian residents, 49%)	NA	3,600
Do.	Yerevan Pure Iron Works	Yerevan	NA
Perlite thousand metric tons	Aragats perlite mining-beneficiation complex	Aragats deposit	1,110
Zinc, mine output, Zn content	Kapan mining complex (Deno Gold Mining Co.)	Kapan	NA

[e]Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

[1]Many location names have changed since the breakup of the Soviet Union. Many enterprises, however, are still named or commonly referred to based on the former location name, which accounts for discrepancies in the names of enterprises and that of locations.

[2]Capacity estimates are totals for all enterprises that produce that commodity.

[3]Current existence of enterprise cannot be confirmed.