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Copper

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In 2012, the United States remained the fourth-ranked mine producer of copper behind Chile, China, and Peru and accounted for about 7% of global production (table 20). U.S. mine production of recoverable copper increased to 1.17 million metric tons (Mt), about 5% greater than that of 2011, but still slightly less than production in 2009 and about 11% less than production in 2008. The principal mining States for copper were, in descending order of production, Arizona, Utah, New Mexico, Nevada, and Montana, and accounted for more tha n 99% of domestic production; copper was also recovered at mines in Alaska, Idaho, and Missouri. Although copper was recovered at 30 mines in the United States during 2012, 19 mines accounted for more than 99% of production (table 2). The remaining mines were either small leach operations or byproduct producers of copper (International Copper Study Group, 2014, p. 9).

Global mine production increased by about 4% to 17.0 Mt. Chile increased mined copper production by 3% and remained the leading world producer. It accounted for 32% of global production and produced about 3.8 Mt more than the second-ranked producer, China, which accounted for 10% of global production. China surpassed the United States in 2010 to become the third-ranked producer and surpassed Peru in 2011 to become the second-ranked producer of mined copper. The remaining top 10 producers after the United States, in descending order of production, were Australia, Russia, Zambia, the Democratic Republic of the Congo [Congo (Kinshasa)], Canada, and Mexico. Fifty-two countries were known to have produced mined copper in 2012, but the top 10 producers accounted for 81% of production and the top 20 producers accounted for 95% of production (table 20).

Global smelter production remained essentially unchanged in 2012, and refinery production rose slightly owing to across-the-board increases in primary electrolytic, electrowon, and secondary production. The United States fell to 10th ranked in copper smelter production from 8th ranked in 2011. The United States accounted for 5% of world refined copper production and remained the fourth leading producer behind China (29%), Chile (14%), and Japan (7%) (tables 21, 22).

In 2012, copper recovered from refined or remelted scrap reached 807,000 metric tons (t) (about 80% from new scrap and 20% from old scrap) and accounted for 35% of the total U.S. copper supply. The conversion of old scrap to alloys and refined copper increased by about 7% (11,000 t) to 164,000 t and was at its highest level since 2005 (tables 1, 6). In addition to scrap consumed domestically, an additional 1.2 Mt of scrap (gross weight) was exported, the majority of which was thought to be old scrap. Copper was consumed as refined copper and as direct melt scrap at about 30 brass mills, 15 wire-rod mills, and 500 chemical plants, foundries, and miscellaneous operations.

According to data compiled by the International Copper Study Group (ICSG), global consumption of refined copper in 2012 increased by about 4% and reached an alltime high of 20.4 Mt, principally owing to a 12% increase in China's apparent consumption, which accounted for about 43% of total global consumption. From 2002 to 2012, global consumption increased an average of about 3% per year, and only declined in 2005 (1%) and 2008 (2%). Consumption remained essentially unchanged in North America in 2012, declined by 7% in the European Union, and decreased by about 1% in Asia (excluding China). Consumption in the European Union accounted for 15% of total global consumption while consumption in the United States accounted for 9%. The ICSG calculation of China's apparent consumption was based on reported production, trade, and Shanghai Futures Exchange (SHFE) stock data, and did not include unreported Government or industry stocks, which can fluctuate significantly on an annual basis (International Copper Study Group, 2014, p. 9, 19–20).

According to ICSG estimates, using the apparent consumption calculation for China, for the third consecutive year global consumption of refined copper was greater than global production of refined copper by 270,000 t. Reported global yearend inventories of refined copper increased by 13% to 1.4 Mt, about 7% of annual consumption of 20.4 Mt of refined copper. An increase in unreported inventories in China (which would lower the country's apparent consumption estimate) may in part account for the disparity between an apparent production deficit and the reported stock increase. When taking into account estimates for unreported stock changes in China, refined consumption could have been as much as 302,000 t less than production. China's net imports of refined copper increased by about 450,000 t to 3.4 Mt owing to an increase in imports of about 570,000 t and an increase in exports of about 120,000 t (International Copper Study Group, 2014, p. 9, 28–29).

In 2012, the average annual Commodity Exchange, Inc. (COMEX) spot price declined by about 10% to $3.61 per pound from a record-high price of $4.00 per pound in 2011 (table 1). The monthly average price reached a high of $3.85 per pound in February but decreased to $3.35 per pound in June and averaged $3.62 per pound in December. The 2012 high price was $3.97 on February 9, and the low price was $3.28 on June 8.

Legislation and Government Programs

In May 2011, the Mexican affiliate of China-based Golden Dragon Precise Tube Group Inc. (Golden Dragon) filed a request with the U.S. Department of Commerce for a new "shipper review" of the November 2010 antidumping duty order on its seamless refined copper pipe and tube from Mexico. The determination imposed weighted-average dumping margins of

between 24.89% and 27.16% on imports of seamless refined copper pipe and tube from Mexico and between 11.25% and 60.85% on imports of seamless copper pipe and tube from China. In September 2012, the U.S. Department of Commerce announced that, as a result of the review, the weighted-average dumping margin to be applied to U.S. imports of seamless copper pipe and tube from Golden Dragon's Mexican affiliate would be set at 5.53% (U.S. Department of Commerce, 2010, 2012).

In December 2012, the U.S. Securities and Exchange Commission (SEC) approved the establishment of JPMorgan Chase & Co.'s XF Physical Copper Trust and, in February 2013, approved the creation of BlackRock Inc.'s iShares Copper Trust. The XF Physical Copper Trust was the first physical copper exchange traded fund (ETF) approved in the United States and JPMorgan Chase planned to hold about 62,000 t of physical copper cathode as collateral against shares of the fund. The iShares Copper Trust planned to hold 121,000 t of physical copper. The physical copper ETFs still faced legal challenges from copper consumers who thought the establishment of physical copper ETFs would increase copper prices. Although the total amount of copper to be held by these ETFs was small in relation to the total copper market, it was almost equal to the total amount of copper metal held in COMEX and London Metal Exchange (LME)-approved bonded warehouses in the United States at the end of 2012. The organizations opposed to the ETFs thought that because a significant amount of metal outside of the commodity exchange networks was purchased through long-term contracts, the ETFs would purchase copper that otherwise would be held in COMEX- and LME-approved bonded warehouses and available for immediate delivery during times of high demand (Mason, 2012; U.S. Securities and Exchange Commission, 2012, 2013; Burton and Shen, 2013).

Production

Domestic Industry Structure.—Mine production of recoverable copper in the United States increased by 5% based on unrounded figures in 2012, as production in New Mexico and Arizona increased by 56% and 2%, respectively. Output in other States increased slightly, mainly owing to a significant increase in production in Nevada, which was partially offset by reduced output in Utah, where low ore grades at the second leading U.S. copper producer led to a sharp decrease in production. After declining for 2 consecutive years, the copper yield of concentrated copper ore increased by 6%, to 0.36%. Smelter and electrolytically refined copper production, however, decreased by 10% each. Electrowon copper production from leach solutions increased by 5% and accounted for 40% and 49%, respectively, of mine and refinery production. Fifteen solvent extraction-electrowinning (SX-EW) facilities operated during 2012 (table 1).

Domestic production data were based on information compiled from U.S. Geological Survey (USGS) monthly surveys sent to 29 mine producers of copper, 3 copper smelters, and 3 electrolytic copper refineries. In 2012, responses were received from all the surveyed mines, smelters, and refineries for 100% response rates.

Operating Property Reviews.—ASARCO LLC (Phoenix, AZ) produced 149,000 t of refined copper at its Amarillo, TX, refinery and 54,200 t of electrowon copper at its Ray (33,400 t) and Silver Bell (20,800 t) Mines in Arizona. The Ray Mine produced 73,300 t of copper in concentrate and the Mission Mine (AZ) produced 60,900 t. ASARCO planned to invest $60 million to increase production capacity at the Mission Complex's concentrator to 77,500 metric tons per year (t/yr) of copper in concentrate from 66,000 t/yr. The project was expected to be completed in the middle of 2013 (Grupo México, S.A.B. de C.V., 2013, p. 40, 42, 61).

BHP Billiton (Melbourne, Australia, and London, United Kingdom) increased production of copper cathode at its Pinto Valley, AZ, residual leach operation to 5,000 t. The company restarted mine production at its Pinto Valley Mine in December 2012 and produced about 500 t of copper in concentrate by yearend. Production capacity of the mine was about 60,000 t/yr of copper in concentrate. Mining was halted in January 2009, owing to the global economic slowdown and a decline in copper prices (BHP Billiton, 2009, p. 28, 30; 2012; 2013, p. 9).

Production of copper at Freeport-McMoRan Copper & Gold Inc.'s (FCX's) U.S. operations increased to 618,000 t in 2012 from 571,000 t in 2011. The Chino Mine in New Mexico increased production by 34,000 t to produce 65,000 t of copper in 2012, as mine production ramped up after the mine was restarted in 2011. In Arizona, the Safford Mine increased output by 16% (10,900 t) to about 79,000 t, the Morenci Mine increased production by 3% (8,000 t) to 287,000 t and output at the Bagdad Mine in Arizona increased slightly to 89,000 t and Production at the Sierrita Mine in Arizona decreased by 11% (9,000 t) to 71,000 t (Freeport-McMoRan Copper & Gold Inc., 2013b, p. 7–12, 24).

FCX was expanding the mining and milling capacity of sulfide ores at its Morenci Mine. The project was estimated to cost $1.4 billion, and was projected to increase production of copper in concentrate by 100,000 t/yr in 2014. The investments would increase mining rates to 815,000 metric tons per day (t/d) from 635,000 t/d and milling rates to 115,000 t/d from 50,000 t/d. Production at the Chino Mine was continuing to ramp up, with output expected to reach 113,000 t in 2014. The planned increase in production at the Chino Mine included concentrate and leach production (Freeport-McMoRan Copper & Gold Inc., 2013a, p. 35).

Output at Kennecott Utah Copper Corp.'s (Magna, UT) Bingham Canyon Mine declined by 16% to 163,200 t of contained copper from 195,000 t in 2011, owing to the mining of lower grade ore in the first half of the year. Ore grades improved to 0.47% and 0.60% in the third and fourth quarters, respectively, compared with 0.32% in each of the first two quarters of 2012. Production of refined copper at the Kennecott refinery decreased by 24% to 162,700 t from 215,300 t in 2011, mainly because the smelter was shut down for maintenance for 26 days during the second quarter. In June 2012, Rio Tinto approved a $660 million investment in infrastructure and equipment to push back the south wall of the mine and to extend the life of the Bingham Canyon Mine from 2018 to 2029. After the project is complete, Rio Tinto expected to produce an

average of 180,000 t/yr of copper in concentrate at Bingham Canyon from 2019 to 2029 (Rio Tinto plc, 2012, p. 3; 2013a, p. 45; 2013b, p. 23).

Quadra FNX Mining Ltd. was purchased by KGHM Polska Miedź S.A. in March 2012 and was renamed KGHM International Ltd. Through the purchase, KGHM obtained the Robinson Mine (Nevada); the Carlota Mine (Arizona); the Franke Mine in Chile; and the McCreedy West Mine, the Podolsky Mine, and the Morrison deposit in Ontario, Canada. In 2012, the Robinson Mine increased production to 54,200 t of copper in concentrate from 43,100 t in 2011, mainly owing to higher grade ore from the Ruth pit and increased recovery rates. The Carlota Mine decreased production to 10,400 t of copper content in 2012 from 10,700 t in 2011, mainly owing to the implementation of a mine-for-closure plan that called for a reduction in ore production. A planned closure date was not released (KGHM International Ltd., 2013, p. 2, 8, 12).

Mercator Minerals Ltd.'s (Kingman, AZ, and Vancouver, British Columbia, Canada) Mineral Park Mine (Arizona) decreased production by 500 t to 18,600 t of copper (1,600 t from SX-EW, 17,000 t contained in concentrate). In the third quarter of 2011, a new mill was commissioned which increased mill throughput capacity to 50,000 t/d. In the first half of 2012, however, harder than expected ore was mined, which required the company to make adjustments to the mill, and design capacity of the new mill was not reached until March 2013 (Mercator Minerals Ltd., 2013, p. 9–10, 19, 27).

Nord Resources Corp. (Tucson, AZ) produced copper from residual leaching operations at its Johnson Camp Mine in Arizona. Sales of copper cathode decreased to 1,020 t in 2012 compared with 1,620 t in 2011. New ore production was suspended in July 2010, and in 2012, the company continued to seek financing to build a new leach pad and to restart mining (Nord Resources Corp., 2013, p. 2).

On December 17, Revett Minerals, Inc. (Spokane Valley, WA) suspended production at its underground Troy Mine (MT) owing to concerns about geotechnical conditions. The company installed equipment to monitor ground conditions and hoped to reopen the mine as soon as possible. Copper production from the Troy Mine in 2012 was 3,430 t of copper in concentrate compared with 4,830 t in 2011 (Revett Minerals, Inc., 2012, 2013).

Newmont Mining Corp. (Denver, CO) announced in April that its board of directors had authorized funding for the Phoenix Copper Leach project in Nevada. The project was expected to begin production in the second half of 2013 and to produce about 9,000 t/yr of copper from materials previously mined and considered waste rock during the project's first 5 years (Newmont Mining Corp., 2013a, p. 52).

Consumption

U.S. reported consumption of refined copper remained essentially unchanged in 2012. Consumption by wire-rod producers, which accounted for 73% of reported consumption, increased slightly, and consumption at brass mills, which accounted for about 24% of consumption, declined slightly (table 5). According to data compiled by the American Bureau of Metal Statistics, Inc. (ABMS) (2013), domestic apparent consumption of wire rod remained essentially unchanged.

According to preliminary data from the Copper Development Association Inc., the total shipments of copper and copper alloy products to the U.S. market by fabricators (brass mills, foundries, powder producers, and wire mills), which included net imports, increased slightly from those in 2011. With the exception of 2010, when revised shipment data indicated a 2% increase, shipments to the domestic market have trended downward since 2004. Wire-mill products accounted for about 55% of total shipments to the domestic market; brass mill products, 38%; and foundry and powder products, 3%. Shipments to the building construction sector, which remained the leading end-use market, increased slightly and accounted for about 43% of shipments. Shipments to the electric and electronic products sector (20% market share) decreased slightly, shipments to the transportation equipment sector (18% market share) and the consumer and general products sector (12% market share) increased slightly, and shipments to the industrial machinery and equipment sector (7% market share) remained essentially unchanged (Copper Development Association Inc., 2013, p. 18).

Prices and Stocks

In 2012, the average annual COMEX spot price declined by about 10% to $3.61 per pound from a record-high price of $4.00 per pound in 2011 (table 1). Owing to a relatively tight market balance, prices fluctuated in response to industry news, especially as it related to China's demand pattern. Copper prices increased fairly steadily from a COMEX spot price of $3.53 per pound at the beginning of January to the 2012 high of $3.97 per pound on February 9. For the remainder of February and March, the price ranged between $3.71 per pound and $3.92 per pound, before dropping to $3.52 per pound in April. The prices started May at $3.84 per pound but steadily declined until reaching the annual low price of $3.28 per pound on June 8. The price reached $3.85 per pound on September 14, and ended the year at $3.64 per pound. Total U.S. refined copper stocks declined by 42% during the year, to 236,000 t at the end of December from 409,000 t at the beginning of January, with a low of 187,000 t at the end of September.

Copper scrap prices (table 13) generally followed the trend in refined copper prices. With lower refined copper prices, however, the discount of most grades of copper scrap to refined copper decreased. According to American Metal Market price data, the discount for refiners' No. 2 scrap from the COMEX spot price averaged 39.1 cents per pound in 2012, compared with 49.3 cents per pound for 2011, and ranged between 33.9 cents per pound in July and 43.7 cents per pound in April.

Foreign Trade

Although reported U.S. consumption of refined copper remained essentially unchanged in 2012, net imports of refined copper in 2012 decreased by about 25% (160,000 t) from those in 2011. Refined copper accounted for 94% of all unmanufactured copper imports. The decrease in refined copper imports corresponded with a 42% (170,000 t) reduction in

yearend inventories, mainly owing to decreases at COMEX and LME warehouses, although factors other than destocking may have been responsible for the decrease in imports. Chile, Canada, and Mexico were the leading sources of refined copper imports in 2012, accounting for 64%, 18%, and 14%, respectively, of refined imports. Exports of copper ore and concentrates increased by 19% and correlated with increased production of concentrates by nonintegrated domestic mine producers. Exports of refined copper tripled and correlated with a drawdown of refined copper held in LME warehouses (tables 14, 16).

According to the U.S. Census Bureau data compiled by the Copper and Brass Fabricators Council Inc., in 2012, U.S. imports of copper and copper-alloy semifabricated products (excluding wire-rod mill products) were 222,000 t (a slight decrease from those in 2011), exports were 108,000 t (unchanged from those in 2011), and the resulting net imports increased by about 5% to 114,000 t. Canada and Mexico collectively accounted for 66% of semifabricated copper exports and 19% of imports. The leading import sources were Germany (21%), the Republic of Korea (13%), Mexico (10%), Canada (9%), and China (8%) (Copper and Brass Fabricators Council Inc., 2013, p. 1–10).

Copper scrap was the leading U.S. copper export and combined copper-alloy and unalloyed scrap exports were greater in terms of quantity and value than all other unmanufactured copper exports combined (tables 14, 18). In 2011, total U.S. scrap exports reached a record high of 1.24 Mt, with 941,000 t of those exports going to China. In 2000, the U.S. exported a total of 486,000 t of scrap (228,000 t of unalloyed copper scrap and 258,000 t of copper-alloy scrap), compared with 1.20 Mt (479,000 t of unalloyed copper scrap and 716,000 t of copper-alloy scrap) in 2012. United States scrap exports to China have increased along with total U.S. scrap exports, and in 2012, China was the recipient of 71% of U.S. unalloyed copper scrap exports and 75% of alloyed copper scrap exports in terms of volume, and 65% and 70%, respectively, in terms of value. Shipments to China of unalloyed copper scrap increased to 341,000 t in 2012 from 124,000 t in 2000, and shipments of copper-alloy scrap increased to 539,000 t in 2012 from 86,100 t in 2000. The increase in total U.S. exports and rising demand in China correlated with the shutdown of U.S. secondary smelting capacity. In 2001, the last active secondary copper smelter in the United States shut down, which decreased domestic demand for copper scrap (fire-refining of copper scrap continues in the United States but requires higher purity copper scrap than secondary smelting and generally yields a lower grade refined material). Also, with higher copper prices, copper scrap became more valuable, more scrap was collected, and more scrap was available for export. Based on global import data for 2012, China was the recipient of 61% of the reported 8.0 Mt of global scrap trade (International Copper Study Group, 2014, p. 40–41).

World Review

World mine production of copper increased by about 650,000 t (4%) in 2012 to a record high of 17.0 Mt, but has increased by only 9% since 2008. According to data compiled by the ICSG, there was a 1.7-Mt (9%) increase in world mine capacity from 2008 [18.5 million metric tons per year (Mt/yr)] to 2012 (20.2 Mt/yr). World mine capacity in 2011 was 19.6 Mt/yr. Based on ICSG production and capacity data, capacity utilization at copper mines worldwide increased to 82.7% in 2012 from 81.9% in 2011. It was the first year capacity utilization has increased since 2004, when it reached 91.9% (International Copper Study Group, 2013, p. 14; 2014, p. 9).

Chile was the leading producer of mined copper in 2012 and produced 5.4 Mt, or 32% of total world production. Other leading producers were China, 1.6 Mt (10%); Peru, 1.3 Mt (8%); and the United States, 1.2 Mt (7%). Significant production increases were seen in China (320,000 t), Chile (171,000 t), Peru (63,000 t), and the United States (60,000 t). The most significant decreases in production were in Indonesia (143,000 t) and South Africa (20,000 t) (table 20).

Global smelter production increased slightly (150,000 t), to 16.1 Mt (table 21). According to ICSG data, global smelter capacity increased by about 600,000 t/yr in 2012 to 19.0 Mt/yr and capacity utilization increased slightly, to 87% in 2012 from 86% in 2011 (International Copper Study Group, 2013, p. 15).

In 2012, world production of refined copper increased by about 360,000 t (about 2%) to 20.1 Mt owing to increases in both primary and secondary production. Production of refined copper from electrowinning rose by 4%; electrolytic and fire refining (other primary) and secondary (from scrap) production increased slightly. Most of the growth in refined copper production came from China, where total refined copper production increased by an estimated 650,000 t (12%); Japan, 164,000 t (12%); and Congo (Kinshasa), 94,000 t (26%). Significant decreases in refined copper production took place in Chile, where output declined by 190,000 t (6%); the Philippines, 74,000 t (45%); and Peru, 57,000 t (15%) (table 22).

World apparent consumption of refined copper, according to ICSG data, rose by about 697,000 t (3.5%) to a record-high 20.4 Mt. Consequently, the ICSG global market balance indicated a production deficit for the third consecutive year, amounting to about 266,000 t in 2012 and totaling 511,000 t from 2010 to 2012. For the calculation of this balance, the apparent consumption calculation for China did not take into account changes in unreported bonded stocks in China that are held by the State Reserve Bureau, producers, consumers, and traders. When taking into account estimates for these unreported stock changes, refined consumption in 2012 could have been as much as 302,000 t less than production. Stocks held on the more visible commodity exchanges (COMEX, LME, SHFE) increased by about 45,000 t to 589,000 t. ICSG estimates of total reported inventories (exchanges, governments, and industry) increased by 163,000 t to 1.37 Mt. With the exception of SHFE exchange inventories, inventory levels in China were not reported and estimates were made for other inventories (International Copper Study Group, 2014, 9, 19–21).

Chile.—The 3% increase in Chile's mine production was owing mainly to an increase in production of 288,000 t at the Escondida Mine [57.5% BHP Billiton (London, United Kingdom), 30% Rio Tinto plc (London, United Kingdom)], the world's leading copper-producing mine, and an increase of 144,000 t at Anglo American Sur S.A.'s [majority owned by

Anglo American plc (London, United Kingdom)] Los Bronces Mine. Output at Escondida increased owing to higher ore grades and an increase in mill throughput owing to improved material handling and production at Los Bronces increased owing to a mine expansion that ramped up to full capacity in August. These increases were offset by a 171,000-t decrease in production at the Collahuasi Mine [44% Anglo American, 44% Xstrata plc (Zug, Switzerland)] owing to lower ore grades and recovery rates, adverse weather conditions early in 2012, safety stoppages, and a ball mill failure (Anglo American plc, 2013, p. 28, 77; Rio Tinto plc, 2013a, p. 24, 49).

China.—In 2012, China reportedly commissioned 100,000 t/yr of new copper mine capacity, although the increase in 2012 mine production mainly came from existing mines. Expanded smelter capacity in China in part drove the demand for new mine production, and newly built smelters were reportedly purchasing copper concentrates to increase stockpiles. Imports of copper ores and concentrates into China increased to 7.8 Mt (2.2 Mt contained copper) in 2012 from 6.4 Mt (1.8 Mt contained copper) in 2011. In 2012, China also imported 4.9 Mt of copper and copper alloy scrap (4.7 Mt in 2011), 3.4 Mt of refined copper (2.8 Mt in 2011), and 523,000 t of copper blister and anodes (417,000 t in 2011) (Copper Monthly, 2013, p. 3–4; International Copper Study Group, 2014, p. 24–28, 40).

Indonesia.—Mine production at FCX's operations in the Grasberg minerals district declined by 21% (85,000 t) to about 315,000 t in 2012 owing to a decrease in average ore grades to 0.62% copper from 0.79% in 2011. Newmont Gold Corp.'s (Greenwood Village, CO) Batu Hijau Mine decreased production by 42% (53,000 t) to 71,000 t in 2012 owing to lower ore grades and recovery rates. Newmont expected ore grades to remain low until 2014 when planned waste removal operations would be completed and phase 6 of its mining plan could begin (Freeport-McMoRan Copper & Gold Inc., 2013a, p. 24; Newmont Mining Corp., 2013b, p. 73).

Peru.—Compania Minera Antamina S.A. (Lima, Peru) increased production of copper in concentrate by 34% to 446,800 t following the completion of a mine and concentrator expansion in the first quarter of the year. Southern Copper Corp.'s [81.3% Grupo Mexico (Mexico City, Mexico)] Cuajone Mine increased output by about 18,600 t to 159,000 t owing to higher ore grades and recovery rates. Production from Xstrata plc's managed operations in Peru decreased by 46% to 51,800 t in 2012 as the Tintaya Mine was depleted and shut down. In November, Xstrata began production at the Antapaccay Mine, which was adjacent to the former Tintaya Mine. Xstrata expected the Antapaccay Mine to produce about 160,000 t/yr of copper. Production at Sociedad Minera Cerro Verde S.A.A. (Cerro Verde) [53.56% Freeport McMoRan (Phoenix, AZ)] decreased by 24,000 t to 270,000 t in 2012, owing to mining of lower grade ores in the first half of the year. Cerro Verde was undertaking an expansion project to increase production capacity by 270,000 t/yr beginning in 2016 (Freeport-McMoRan Copper & Gold Inc., 2012, p. 6; 2013b, p. 15, 26; Southern Copper Corp., 2013, p. 75; 2014; Xstrata plc, 2013, p. 20, 31).

South Africa.—Production of copper in concentrate at Palabora Mining Company Ltd.'s Palabora Mine declined by 29% (20,000 t) to 49,000 t in 2012. The decrease in production was caused by the failure of a new ore-hoisting shaft guide rope, which halted production in July and August (Palabora Mining Company Ltd., 2013, p. 4, 20, 48).

Outlook

In 2013, U.S. mine production increased owing to increased production at the restarted Pinto Valley Mine and at the Bingham Canyon Mine. Smelter and refinery production also increased. According to data compiled by the ICSG (2014, p. 9, 12), global mine production increased by 8% in 2013 as output of copper in concentrate increased by 9% and production of copper from SX-EW operations increased by 4%. World mine capacity increased by 4% and mine capacity utilization increased to 85.2% from 82.4% in 2012.

In 2013, according to ICSG data (2014, p. 9, 14, 17), global smelter production increased slightly and refinery production rose by 4% owing to across-the-board increases in primary electrolytic, electrowon, and secondary production. Global consumption of refined copper in 2013 rose by about 4%, and for the fourth consecutive year, global consumption for refined copper was higher (190,000 t) than global production of refined copper. This estimate used an apparent consumption calculation for China that did not take into account changes in unreported bonded stocks in China that are held by the State Reserve Bureau, producers, consumers, and traders. When taking into account estimates for these unreported stock changes in China, refined consumption could have been as much as 450,000 t more than production.

The average monthly COMEX copper spot price in 2013 reached a high of $3.67 per pound in January but dropped as low as $3.14 per pound in July before increasing to $3.34 per pound in December. Copper prices in 2013 fluctuated mainly owing to concerns about China's economic growth and speculation that the U.S. Federal Reserve System would begin to taper its bond buying program. As the world's leading copper consumer, changes in China's economic growth could have a major impact on copper prices, and actions by the U.S. Federal Reserve System that could strengthen the dollar could make copper futures, which are valued in U.S. dollars, more expensive for consumers and investors who use currencies other than the U.S. dollar.

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TABLE 1
SALIENT COPPER STATISTICS[1]

(Metric tons, unless otherwise specified)

		2008	2009	2010	2011	2012
United States:						
Mine production:						
Ore concentrated	thousand metric tons	219,000	149,000	160,000 r	187,000 r	180,000
Average yield of concentrated ore	percent	0.36	0.46	0.41 r	0.34 r	0.36
Recoverable copper:						
Arizona		836,000	711,000	703,000	751,000	763,000
New Mexico		104,000	56,500	52,700	66,000	103,000
Other States		368,000	414,000	353,000	296,000	300,000
Total		1,310,000	1,180,000	1,110,000	1,110,000	1,170,000
Total value	millions	$9,200	$6,290	$8,520	$9,960	$9,450
Smelter production:						
Primary and secondary		574,000	597,000	601,000	538,000	485,000
Byproduct sulfuric acid, sulfur content	thousand metric tons	655	671	704	679	545
Refinery production:						
Primary materials:						
Electrolytic from domestic ores		603,000	588,000	606,000	545,000	491,000
Electrolytic from foreign materials		109,000	48,300	21,000	W	W
Electrowon		508,000 r	476,000	430,000	447,000	471,000
Total		1,220,000	1,110,000	1,060,000	992,000	962,000
Secondary materials (scrap), electrolytic and fire refined		53,800	46,400	37,700	37,300	39,500
Grand total		1,270,000	1,160,000	1,090,000	1,030,000	1,000,000
Secondary copper produced:						
Recovered from new scrap		700,000	639,000	642,000	649,000	642,000
Recovered from old scrap		159,000	138,000	143,000	153,000	164,000
Total		859,000	777,000	785,000	802,000	807,000
Copper sulfate production		22,000	22,400	23,700	22,800	22,500
Exports, refined		36,500	80,800	78,300	40,400	159,000
Imports, refined		724,000	664,000	605,000	670,000	630,000
Stocks, December 31:						
Blister and in-process material		24,100	15,500	21,100	13,000	12,300
Refined copper:						
Refineries		18,300	23,700	10,300	8,360	12,900
Wire-rod mills		31,700	24,700	19,700	24,000	28,100
Brass mills		8,340	7,610	6,400	6,850	6,540
Other industry		3,230	4,290	4,380	4,330	4,180
COMEX		31,300	90,000	58,600	79,800	64,100
London Metal Exchange (LME), U.S. warehouses		106,000	283,000	284,000	286,000	120,000
Total		199,000	434,000	384,000	409,000	236,000
Consumption:						
Refined copper, reported		2,020,000	1,650,000	1,760,000	1,760,000	1,760,000
Apparent consumption, primary refined and old scrap[2]		2,000,000	1,580,000	1,760,000	1,730,000	1,770,000
Price:						
Producer, weighted average	cents per pound	319.16	241.24	348.34	405.85	367.28
COMEX, first position	do.	313.36 r	235.42	342.51	400.05	361.45
LME, Grade A cash	do.	315.47	233.56	341.74	399.79	360.58
World, production:						
Mine	thousand metric tons	15,600	16,000	16,200 r	16,300 r	17,000
Smelter	do.	14,600	14,900	15,600 r	15,900 r	16,100
Refinery	do.	18,300	18,300	19,100	19,700	20,100

rRevised. do. Ditto. W Withheld to avoid disclosing company proprietary data.

[1]Data are rounded to no more than three significant digits, except prices; may not add to totals shown.

[2]In 2008, 2009, 2010, 2011, and 2012, apparent consumption was calculated using general imports of 721,000 metric tons (t), 645,000 t, 583,000 t, 649,000 t, and 628,000 t, respectively.

TABLE 2
LEADING COPPER-PRODUCING MINES IN THE UNITED STATES IN 2012, IN ORDER OF OUTPUT[1]

Rank	Mine	County and State	Operator	Source of copper	Capacity (thousand metric tons)
1	Morenci	Greenlee, AZ	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum ore, concentrated and leached	420
2	Bingham Canyon	Salt Lake, UT	Kennecott Utah Copper Corp.[2]	do.	280
3	Ray	Pinal, AZ	ASARCO LLC[3]	Copper ore, concentrated and leached	150
4	Bagdad	Yavapai, AZ	Freeport-McMoRan Copper & Gold Inc.	Copper-molybdenum ore, concentrated	100
5	Safford	Graham, AZ	do.	Copper ore, leached	110
6	Chino	Grant, NM	do.	Copper-molybdenum ore, concentrated and leached	130
7	Sierrita	Pima, AZ	do.	do.	80
8	Mission Complex	Pima, AZ	ASARCO LLC[3]	Copper ore, concentrated	66
9	Robinson	White Pine, NV	KGHM International Ltd.[4]	Copper-molybdenum ore, concentrated	60
10	Tyrone	Grant, NM	Freeport-McMoRan Copper & Gold Inc.	Copper ore, leached	45
11	Phoenix	Lander, NV	Newmont Mining Corp.	Gold-copper ore, concentrated	40
12	Continental Pit	Silver Bow, MT	Montana Resources	Copper-molybdenum ore, concentrated	40
13	Miami	Gila, AZ	Freeport-McMoRan Copper & Gold Inc.	Copper ore, leached	90
14	Silver Bell	Pima, AZ	ASARCO LLC[3]	do.	25
15	Mineral Park	Mohave, AZ	Mercator Minerals Ltd.	Copper-molybdenum ore, concentrated and leached	30
16	Carlota	Gila, AZ	KGHM International Ltd.[4]	Copper ore, leached	10
17	Lisbon Valley	San Juan, UT	Lisbon Valley Mining Co. LLC	do.	14
18	Brushy Creek	Reynolds, MO	Doe Run Resources Corp.	Lead-copper ore, concentratated	NA
19	Troy Mine	Lincoln, MT	Revett Minerals Inc.	Copper-silver ore, concentrated	5

do. Ditto. NA Not available.

[1]The mines on this list accounted for more than 99% of U.S. mine production in 2012.

[2]Wholly owned subsidiary of Rio Tinto plc.

[3]Wholly owned subsidiary of Grupo México, S.A.B. de C.V.

[4]The Carlota Mine was formerly owned by Quadra FNX Mining Ltd., which was purchased by KGHM Polska Miedź S.A. on March 5, 2012, and renamed KGHM International Ltd.

TABLE 3
MINE PRODUCTION OF COPPER-BEARING ORES AND RECOVERABLE COPPER CONTENT OF ORES PRODUCED IN THE UNITED STATES, BY SOURCE AND TREATMENT PROCESS[1]

(Metric tons)

Source and treatment process	2011		2012	
	Gross weight	Recoverable copper	Gross weight	Recoverable copper
Mined copper ore:				
Concentrated	187,000,000 r	640,000 r	180,000,000	647,000
Leached	NA	447,000	NA	471,000
Total	NA	1,090,000	NA	1,120,000
Copper precipitates shipped, leached from tailings, dumps, and in-place material	NA	W	NA	W
Other copper-bearing ores[2]	5,230,000	25,100	5,300,000	48,900
Grand total	XX	1,110,000	XX	1,170,000

rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data; included with "Other copper-bearing ores." XX Not applicable.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes gold ore, lead ore, and silver ore.

TABLE 4
CONSUMPTION OF COPPER AND BRASS MATERIALS IN THE UNITED STATES, BY ITEM[1]

(Metric tons)

Item	Brass mills	Wire-rod mills	Foundries, chemical plants, miscellaneous users	Smelters, refiners, ingot makers	Total
2011:					
Copper scrap	655,000 r, 2	W	77,200	157,000	889,000 r
Refined copper[3]	430,000	1,270,000	56,600	5,000	1,760,000
Hardeners and master alloys	10,100	--	4,410	--	14,500
Brass ingots	--	--	61,600	--	61,600
Slab zinc	39,300	--	(4)	(4)	40,400
2012:					
Copper scrap	659,000 2	W	75,900	157,000	891,000
Refined copper[3]	424,000	1,280,000	54,500	4,510	1,760,000
Hardeners and master alloys	10,100	--	4,540	--	14,600
Brass ingots	--	--	65,100	--	65,100
Slab zinc	40,000	--	(4)	(4)	49,700

rRevised. W Withheld to avoid disclosing company proprietary data; included with "Brass mills." -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes item indicated by symbol W.

[3]Detailed information on consumption of refined copper can be found in table 5.

[4]Withheld to avoid disclosing company proprietary data; included in "Total."

TABLE 5
CONSUMPTION OF REFINED COPPER SHAPES IN THE UNITED STATES, BY CLASS OF CONSUMER[1]

(Metric tons)

Class of consumer	Cathodes	Ingots and ingot bars	Cakes and slabs	Wirebar, billets, other	Total
2011:					
Wire-rod mills	1,270,000	--	--	--	1,270,000
Brass mills	305,000	W	43,800	81,700	430,000
Chemical plants	W	W	--	1,520	1,520
Ingot makers	W	W	W	5,000	5,000
Foundries	4,950	2,460	--	10,200	17,700
Miscellaneous[2]	W	W	W	37,500	37,500
Total	1,580,000	2,460	43,800	136,000	1,760,000
2012:					
Wire-rod mills	1,280,000	--	--	[3]	1,280,000
Brass mills	330,000	W	42,800	51,600	424,000
Chemical plants	W	W	--	275	275
Ingot makers	W	W	W	4,510	4,510
Foundries	6,380	2,320	W	11,200	19,900
Miscellaneous[2]	W	W	W	34,300	34,300
Total	1,610,000	2,320	42,800	102,000	1,760,000

W Withheld to avoid disclosing company proprietary data; included with "Wirebar, billets, other." -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes consumers of copper powder and copper shot, iron and steel plants, and other manufacturers.

[3]Included with "Cathodes: wire-rod mills."

TABLE 6
COPPER RECOVERED FROM SCRAP PROCESSED IN THE UNITED STATES,
BY KIND OF SCRAP AND FORM OF RECOVERY[1]

(Metric tons)

	2011	2012
Kind of scrap:		
New:		
Copper-base	618,000	609,000
Aluminum-base	31,400 [r]	32,900
Nickel-base	18	18
Total	649,000	642,000
Old:		
Copper-base	124,000	134,000
Aluminum-base	28,700	30,300
Nickel-base	267	267
Zinc-base	13	10
Total	153,000	164,000
Grand total	802,000	807,000
Form of recovery:		
As unalloyed copper	38,400	40,600
In brass and bronze	699,000	698,000
In alloy iron and steel	692	658
In aluminum alloys	59,300 [r]	62,500
In other alloys	12	10
In chemical compounds	5,030	5,030
Total	802,000	807,000

[r]Revised.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 7
COPPER RECOVERED AS REFINED COPPER AND IN ALLOYS AND OTHER FORMS
FROM COPPER-BASE SCRAP PROCESSED IN THE UNITED STATES, BY TYPE OF OPERATION[1]

(Metric tons)

	From new scrap		From old scrap		Total	
Type of operation	2011	2012	2011	2012	2011	2012
Ingot makers	11,800	11,800	64,600	63,700	76,400	75,500
Refineries[2]	18,900	17,900	18,400	21,600	37,300	39,500
Brass and wire-rod mills	553,000	544,000	17,600	28,300	571,000	572,000
Foundries and manufacturers	28,400	30,600	23,600	20,200	52,000	50,900
Chemical plants	5,030	5,030	--	--	5,030	5,030
Total	618,000	609,000	124,000	134,000	742,000	743,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes electrolytically refined based on source of material at smelter level.

TABLE 8
PRODUCTION OF SECONDARY COPPER AND COPPER-ALLOY PRODUCTS
IN THE UNITED STATES, BY ITEM PRODUCED FROM SCRAP[1]

(Metric tons)

Item produced from scrap	2011	2012
Unalloyed copper products:		
Refined copper	37,300	39,500
Copper powder	1,030	1,030
Copper castings	124	122
Total	38,400	40,600
Alloyed copper products:		
Brass and bronze ingots:		
Tin bronzes	9,050	9,070
Leaded red brass and semired brass	51,200	50,300
High leaded tin bronze	9,650	9,650
Yellow brass	5,280	5,280
Manganese bronze	7,500	7,500
Aluminum bronze	6,330	6,320
Nickel silver	1,020	1,030
Silicon bronze and brass	4,740	4,710
Copper-base hardeners and master alloys	5,250	5,250
Miscellaneous	7,800	7,800
Total	108,000	107,000
Brass mill and wire-rod mill products	701,000	700,000
Brass and bronze castings	45,000	44,600
Copper in chemical products	5,030	5,030
Grand total	897,000	897,000

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 9
COMPOSITION OF SECONDARY COPPER-ALLOY PRODUCTION IN THE UNITED STATES[1]

(Metric tons)

	Copper	Tin	Lead	Zinc	Nickel	Aluminum	Total
Brass and bronze ingot production:[2]							
2011	90,200 r	3,360 r	4,890 r	9,210 r	107 r	13	108,000
2012	88,400	3,700	5,260	9,350	109	13	107,000
Secondary metal content of brass mill products:							
2011	578,000	1,360	2,310	118,000	1,100	16	701,000
2012	577,000	1,310	2,330	118,000	1,050	16	700,000
Secondary metal content of brass and bronze castings:							
2011	41,800	1,090	564	1,370	90	103	45,000
2012	41,700	1,070	541	1,090	92	98	44,600

rRevised.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes approximately 96% from scrap and 4% from other than scrap.

TABLE 10
CONSUMPTION AND YEAREND STOCKS OF COPPER-BASE SCRAP[1]

(Metric tons, gross weight)

Scrap type and processor	2011		2012	
	Consumption	Stocks	Consumption	Stocks
Unalloyed scrap:				
No.1 wire and heavy:				
Smelters, refiners, and ingot makers	17,100	970	17,300	875
Brass and wire-rod mills	324,000	(2)	292,000	(2)
Foundries and miscellaneous manufacturers	28,200	(2)	29,000	(2)
No. 2 mixed heavy and light:				
Smelters, refiners, and ingot makers	62,000	1,540	61,900	1,950
Brass and wire-rod mills	9,530	(2)	40,400	(2)
Foundries and miscellaneous manufacturers	9,150	(2)	7,590	(2)
Total unalloyed scrap:				
Smelters, refiners, and ingot makers	79,100	2,510	79,300	2,820
Brass and wire-rod mills	333,000	509	333,000	1,170
Foundries and miscellaneous manufacturers	37,300	4,000	36,600	2,580
Alloyed scrap:				
Red brass:[3]				
Smelters, refiners, and ingot makers	22,300	2,050	22,300	1,920
Brass mills	9,700	(2)	10,600	(2)
Foundries and miscellaneous manufacturers	2,690	(2)	2,520	(2)
Leaded yellow brass:				
Smelters, refiners, and ingot makers	10,000	813	10,000	894
Brass mills	118,000	(2)	119,000	(2)
Foundries and miscellaneous manufacturers	930	(2)	696	(2)
Yellow and low brass, all plants	146,000	918	141,000	844
Cartridge cases and brass, all plants	91,800	(2)	98,000	(2)
Auto radiators:				
Smelters, refiners, and ingot makers	20,500	829	20,500	782
Foundries and miscellaneous manufacturers	1,900	(2)	1,900	(2)
Bronzes:				
Smelters, refiners, and ingot makers	12,800	885	12,800	940
Brass mills and miscellaneous manufacturers	15,500	(2)	15,500	(2)
Nickel-copper alloys, all plants	9,620	152	9,290	184
Low grade and residues; smelters, refiners, miscellaneous manufacturers	22,900	(2) 593	22,900	(2) 630
Other alloy scrap:[4]				
Smelters, refiners, and ingot makers	1,510	793	1,510	687
Brass mills and miscellaneous manufacturers	5,650	(2)	5,610	(2)
Total alloyed scrap:				
Smelters, refiners, and ingot makers	78,000	6,850	78,000	6,790
Brass mills	374,000	584	376,000	1,040
Foundries and miscellaneous manufacturers	39,900	1,990	39,300	1,980
Total scrap:				
Smelters, refiners, and ingot makers	157,000	9,360	157,000	9,610
Brass and wire-rod mills	707,000	1,090	709,000	2,220
Foundries and miscellaneous manufacturers	77,200	5,990	75,900	4,550

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Individual breakdown is not available; included in "Total unalloyed scrap," "Total alloyed scrap," and "Total scrap."

[3]Includes cocks and faucets, commercial bronze, composition turnings, gilding metal, railroad car boxes, and silicon bronze.

[4]Includes aluminum bronze, beryllium copper, and refinery brass.

TABLE 11
CONSUMPTION OF PURCHASED COPPER-BASE SCRAP[1, 2]

(Metric tons, gross weight)

Type of operation	New scrap		Old scrap		Total	
	2011	2012	2011	2012	2011	2012
Ingot makers	28,800	27,700	89,900	88,900	119,000	117,000
Smelters and refineries	19,700	18,900	18,700	21,800	38,400	40,600
Brass and wire-rod mills	689,000	680,000	18,200	29,500	707,000	709,000
Foundries and miscellaneous manufacturers	52,000	54,300	25,200	21,600	77,200	75,900
Total	790,000	781,000	152,000	162,000	942,000	942,000

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Consumption at brass and wire-rod mills assumed equal to receipts.

TABLE 12
FOUNDRIES AND MISCELLANEOUS MANUFACTURERS CONSUMPTION OF BRASS INGOT, REFINED COPPER, AND COPPER SCRAP IN THE UNITED STATES[1]

(Metric tons)

Ingot type or material consumed	2011	2012
Tin bronzes	8,550	6,740
Leaded red brass and semired brass	36,500	39,600
Yellow, leaded, low brass[2]	7,140	8,270
Manganese bronze	2,530	2,720
Nickel silver[3]	879	1,450
Aluminum bronze	4,130	4,050
Hardeners and master alloys[4]	4,410	4,540
Lead-free alloys[5]	1,820	2,260
Total brass ingot	66,000	69,600
Refined copper	56,600	54,500
Copper scrap	77,200	75,900

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes brass and silicon bronze.
[3]Includes brass, copper nickel, and nickel bronze.
[4]Includes special alloys.
[5]Includes copper-bismuth and copper-bismuth-selenium alloys.

TABLE 13
AVERAGE PRICES FOR COPPER SCRAP, BY TYPE

(Cents per pound)

			Dealers' buying (New York)	
Year	Brass mills No. 1 scrap	Refiners No. 2 scrap	No. 2 scrap	Red brass turnings and borings
2011	389.12	350.72	301.67	188.28
2012	354.19	322.35	289.91	195.35

Source: American Metal Market.

TABLE 14

U.S. EXPORTS OF UNMANUFACTURED COPPER (COPPER CONTENT), BY COUNTRY[1]

	Ore and concentrate		Matte, ash, and precipitates		Blister and anodes		Refined		Unalloyed copper scrap		Total	
Country	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2011	252,000	$1,740,000	38,300	$91,300	14,300	$98,200	40,400	$246,000	501,000	$2,710,000	846,000	$4,880,000
2012:												
Belgium	6	19	88	173	138	792	39	340	23,900	152,000	24,200	154,000
Canada	13,300	103,000	34,900	57,300	3,100	10,200	757	2,710	20,000	159,000	72,100	332,000
China	118,000	613,000	460	2,270	149	1,010	100,000	641,000	341,000	1,600,000	560,000	2,860,000
Germany	104	694	284	1,020	409	3,470	84	504	22,200	126,000	23,000	132,000
Hong Kong	--	--	4	6	1,530	12,900	84	432	4,820	19,700	6,440	33,100
India	12,100	60,800	--	--	532	4,630	72	349	1,260	7,230	14,000	73,000
Japan	14,100	80,300	--	--	863	7,390	1,410	2,060	9,470	60,300	25,900	150,000
Korea, Republic of	14,400	84,500	--	--	1,090	8,280	105	697	16,400	117,000	32,000	211,000
Mexico	120,000	922,000	--	--	164	1,410	54,000	366,000	3,960	15,500	178,000	1,300,000
Philippines	7	64	--	--	377	1,760	(2)	3	2	8	386	1,840
Spain	(2)	3	--	--	110	896	209	1,580	4,270	28,900	4,580	31,400
Other	9,170	57,400	139	110	5,440	22,700	1,600	4,570	32,400	191,000	48,800	275,000
Total	301,000	1,920,000	35,800	60,800	13,900	75,500	159,000	1,020,000	479,000	2,480,000	989,000	5,550,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 15
U.S. EXPORTS OF COPPER SEMIMANUFACTURES, BY COUNTRY[1]

Country	Pipes and tubing		Plates, sheets, foil, bars		Bare wire, including wire rod[2]		Wire and cable, stranded		Copper sulfate	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2011	21,300	$223,000	29,300	$302,000	144,000	$1,280,000	32,700	$359,000	6,510	$18,400
2012:										
Bahamas, The	6	40	6	69	46	413	339	2,540	--	--
Belgium	5	55	50	677	307	1,580	172	7,080	70	239
Canada	5,270	43,500	12,900	121,000	41,400	344,000	16,200	140,000	2,540	5,950
China	255	1,980	1,700	18,200	10,700	44,600	3,130	49,400	602	1,720
Colombia	95	628	109	1,120	35	424	64	1,280	--	--
Costa Rica	43	126	261	3,470	4	171	140	2,740	--	--
Czech Republic	14	217	13	81	13	410	(3)	26	--	--
Dominican Republic	10	98	12	56	605	4,960	79	1,140	--	--
Germany	31	452	209	5,250	58	1,720	105	2,800	64	88
Hong Kong	7	249	557	9,690	56	619	87	1,960	--	--
India	5	67	161	1,070	40	658	48	841	--	--
Israel	(3)	11	42	520	28	138	44	1,230	584	1,810
Japan	11	139	210	3,560	66	4,320	50	1,000	93	74
Korea, Republic of	26	406	109	3,060	454	4,270	203	4,220	247	614
Malaysia	4	122	645	11,000	(3)	12	9	327	212	1,060
Mexico	8,850	94,700	8,700	81,300	96,800	810,000	16,200	165,000	59	276
Netherlands	17	211	37	608	9	63	68	763	--	--
Saudi Arabia	2,700	28,100	26	204	6	154	153	1,510	--	--
Singapore	66	880	36	659	300	2,900	50	1,530	130	311
Taiwan	5	44	1,660	10,500	27	158	33	441	1,030	2,230
Trinidad and Tobago	4	50	1	18	544	3,850	141	1,470	--	--
United Arab Emirates	1,070	10,700	12	95	15	166	43	1,190	--	--
United Kingdom	18	198	101	2,100	50	575	48	1,520	10	20
Other	1,060	10,900	857	10,300	562	9,940	1,330	17,200	842	1,670
Total	19,600	194,000	28,400	285,000	152,000	1,240,000	38,700	408,000	6,480	16,100

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Total exports of wire rod in 2011 were 103,000 (revised) metric tons (t) valued at $884 (revised) million, and in 2012, wire-rod exports were 120,000 t valued at $1,000 million.

[3]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 16

U.S. IMPORTS FOR CONSUMPTION OF UNMANUFACTURED COPPER (COPPER CONTENT), BY COUNTRY[1]

	Ore and concentrate		Matte, ash, and precipitates		Blister and anode		Refined		Unalloyed scrap		Total	
Country	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
2011	15,100	$144,000	983	$5,720	498 r	$5,880	670,000	$6,030,000	30,400	$171,000	717,000	$6,360,000
2012:												
Canada	186	483	224	1,020	12	149	115,000	927,000	14,300	90,600	130,000	1,020,000
Chile	--	--	--	--	--	--	402,000	3,190,000	42	144	402,000	3,190,000
Costa Rica	--	--	3	20	--	--	--	--	582	2,470	585	2,490
Dominican Republic	--	--	--	--	--	--	--	--	837	2,210	837	2,210
Germany	15	18	--	--	--	--	2,230	19,700	28	128	2,270	19,900
Japan	--	--	2	19	52	3,030	4,700	46,200	20	75	4,750	49,300
Mexico	5,940	29,200	369	847	--	--	88,200	701,000	9,040	57,300	104,000	788,000
Nicaragua	--	--	--	--	--	--	--	--	921	3,450	921	3,450
Peru	--	--	--	--	--	--	16,400	131,000	169	1,390	16,600	133,000
Other	154	291	903	4,400	553	5,600	1,380	12,200	4,490	14,000	7,480	36,500
Total	6,290	30,000	1,500	6,310	617	8,780	630,000	5,030,000	30,500	172,000	669,000	5,250,000

rRevised. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Cost, insurance, freight value at U.S. port.

Source: U.S. Census Bureau.

TABLE 17
U.S. IMPORTS FOR CONSUMPTION OF COPPER SEMIMANUFACTURES, BY COUNTRY[1]

Country	Pipes and tubing		Plates, sheets, foil, bars		Bare wire, including wire rod[2]		Wire and cable, stranded		Copper sulfate	
	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)
2011	1,080	$13,900	60,700	$661,000	152,000	$1,420,000	11,600	$122,000	38,600	$107,000
2012:										
Brazil	(4)	5	823	7,980	4	42	1	7	--	--
Canada	6	207	2,170	21,000	119,000	966,000	614	4,880	4,290	9,350
Chile	133	1,240	129	988	281	2,390	--	--	1,070	2,560
China	18	279	1,440	14,800	376	4,780	99	1,230	552	1,650
Finland	138	2,520	3,880	42,300	1,030	10,500	--	--	--	--
France	12	235	1,580	14,800	24	1,990	58	1,000	--	--
Germany	186	2,410	24,000	244,000	731	13,300	24	1,500	153	162
Hong Kong	--	--	768	6,910	34	406	--	--	--	--
India	26	348	185	1,260	11	225	66	2,290	21	59
Israel	--	--	11	203	394	4,480	--	--	--	--
Italy	97	1,110	9	178	1	47	19	309	--	--
Japan	3	81	951	18,600	229	4,260	(4)	18	357	372
Korea, Republic of	34	314	1,230	12,600	62	807	52	563	72	484
Luxembourg	--	--	1,130	16,100	--	--	--	--	--	--
Mexico	10	101	3,350	30,500	10,900	87,500	544	3,850	26,100	66,000
Peru	--	--	9,530	81,500	398	3,360	--	--	584	1,410
Russia	--	--	1	7	--	--	--	--	2,740	7,710
Sweden	--	--	5,020	49,600	10	88	(4)	25	--	--
Taiwan	(4)	4	213	2,350	105	589	17	754	1,670	4,580
Thailand	--	--	197	1,920	16	147	231	2,110	--	--
Turkey	--	--	13	121	23	317	14,000	121,000	--	--
United Kingdom	1	43	289	3,550	2	151	4	98	--	--
Other	2	30	2,200	20,200	123	1,770	112	1,350	1	21
Total	666	8,930	59,100	592,000	133,000	1,100,000	15,900	141,000	37,600	94,300

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Total imports of wire rod in 2011 were 143,000 (revised) metric tons (t) valued at $1,300 (revised) million, and in 2012, wire-rod imports were 126,000 t valued at $1,030 million.

[3]Cost, insurance, freight value at U.S. port.

[4]Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 18
U.S. EXPORTS OF COPPER SCRAP, BY COUNTRY[1]

	Unalloyed copper scrap				Copper-alloy scrap			
	2011		2012		2011		2012	
Country	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Belgium	14,400	$78,000	23,900	$152,000	14,300	$40,300	15,700	$48,100
Canada	20,400	177,000	20,000	159,000	38,000	124,000	41,400	140,000
China	383,000	1,880,000	341,000	1,600,000	557,000	1,570,000	539,000	1,350,000
Germany	8,470	57,100	22,200	126,000	13,900	87,500	13,400	67,200
Hong Kong	5,970	31,100	4,820	19,700	29,000	126,000	43,900	104,000
India	1,690	10,300	1,260	7,230	12,200	42,200	8,880	33,300
Japan	8,810	62,300	9,470	60,300	7,480	52,100	8,760	40,600
Korea, Republic of	19,100	150,000	16,400	117,000	17,100	81,700	9,750	39,400
Mexico	3,150	24,100	3,960	15,500	7,000	45,400	5,340	30,900
Spain	5,170	41,000	4,270	28,900	11,600	42,800	8,070	27,600
Taiwan	4,170	22,500	2,990	18,600	3,400	9,660	3,200	7,390
Other	25,700 r	173,000 r	29,400	172,000	27,400 r	50,200 r	18,200	43,900
Total	501,000	2,710,000	479,000	2,480,000	739,000	2,280,000	716,000	1,930,000

rRevised.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 19
U.S. IMPORTS FOR CONSUMPTION OF COPPER SCRAP, BY COUNTRY[1]

	Unalloyed copper scrap		Copper-alloy scrap		
Country or territory	Quantity (metric tons)	Value[2] (thousands)	Gross weight (metric tons)	Copper content[3] (metric tons)	Value[2] (thousands)
2011	30,400	$171,000	79,400	57,200	$381,000
2012:					
Bahamas, The	255	713	247	178	613
Canada	14,300	90,600	32,600	23,500	180,000
Chile	42	144	192	138	1,070
China	74	363	665	479	3,200
Colombia	57	325	596	429	4,750
Costa Rica	582	2,470	1,750	1,260	9,870
Dominican Republic	837	2,210	1,330	959	3,580
El Salvador	921	2,150	1,130	815	2,830
Guatemala	558	1,360	2,520	1,810	14,100
Haiti	123	222	219	158	1,430
Honduras	53	286	1,100	789	5,770
Malaysia	--	--	722	520	4,510
Mexico	9,040	57,300	26,500	19,100	105,000
Nicaragua	921	3,450	660	476	2,250
Panama	23	168	949	683	5,410
Suriname	430	3,400	75	54	351
United Kingdom	1,120	3,050	384	276	2,880
Other	1,090	3,560	2,470	1,780	14,300
Total	30,500	172,000	74,100	53,300	362,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Cost, insurance, freight value at U.S. port.

[3]Content is estimated by the U.S. Geological Survey to be 72% of gross weight.

Source: U.S. Census Bureau.

TABLE 20
COPPER: WORLD MINE PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2008	2009	2010	2011	2012
Albania[e]	1,700	1,800	2,200	4,900	4,900
Argentina	156,893	143,084	140,001	116,698	136,000
Armenia	18,800	23,233	31,062	33,597 r	34,000 e
Australia:[e]					
Concentrates	833,000	831,000	856,000	922,300	914,000
Leaching, electrowon	53,000 r	23,000 r	14,400	35,600	44,000
Total	886,000 r	854,000 r	870,000	958,000	958,000
Azerbaijan	--	--	184	160	300
Bolivia	731	882	2,063	4,176	9,449
Botswana	28,800	28,595	20,833	31,929 r	35,708
Brazil:					
Concentrates	218,295	211,692	213,548	218,670	213,800 p
Leaching, electrowon	3,800	6,500	7,400	4,600	7,500 e
Total	222,095	218,192	220,948	223,270	221,000 e
Bulgaria[e]	105,000	105,000	105,000	105,000	107,900 [3]
Burma, leaching, electrowon	--	3,500	12,000	10,000 e	10,000 e
Canada:					
Concentrates	605,399	493,700	521,900	565,200	577,700
Leaching, electrowon	1,600	800	3,200	1,000	900
Total	606,999	494,500	525,100	566,200	578,600
Chile:[4]					
Concentrates	3,356,600	3,276,900	3,330,400	3,238,000	3,405,100
Leaching, electrowon	1,971,000	2,117,500	2,088,500 r	2,024,800	2,028,800
Total	5,327,600	5,394,400	5,418,900 r	5,262,800	5,433,900
China:[e]					
Concentrates	1,070,000	1,040,000	1,160,000	1,270,000	1,600,000
Leaching, electrowon	20,000	25,000	35,000	35,000	30,000
Total	1,090,000	1,070,000	1,200,000	1,310,000	1,630,000
Colombia	1,151 r	1,251 r	861 r	890 r	690
Congo (Kinshasa):[5]					
Concentrates[e]	185,000 r	178,000	160,000	174,000 r	190,000
Leaching, electrowon	44,742	167,000 r	270,000	380,000 e	410,000
Total[e]	230,000 r	345,000 r	430,000	554,000 r	600,000
Cyprus, leaching, electrowon	2,986 r	2,380 r	2,595 r	3,660 r	4,328
Dominican Republic	2,109 r	12,937 r	10,015 r	11,777 r	11,737
Finland	13,440 r	14,600	14,700	16,000	16,000 e
Georgia	11,000	9,800	6,700	6,300 e	6,300 e
India	30,600	29,500	35,500	37,700	34,000
Indonesia[5]	632,600	998,530	878,376	541,200 r	398,500
Iran:[e]					
Concentrates	241,000	256,000	249,000	249,000	233,000
Leaching, electrowon	7,000	7,000	7,000 r	10,100	12,000
Total	248,000	263,000	256,000 r	259,000	245,000
Kazakhstan:	465,000	455,000	427,000	417,000	424,000
Korea, North[e]	12,000	12,000	12,000	12,000	12,000
Korea, Republic of	4	14	9	NA r	NA
Laos:					
Concentrates	24,929	54,019	67,806	59,897	60,000 e
Leaching, electrowon	64,075	67,561	64,241	78,859	79,000 e
Total	89,004	121,580	132,047	138,756	139,000 e
Macedonia[e]	8,400	7,600	7,900	7,600 r	10,400
Mauritania	33,073	35,000 r	37,000	35,281 r	37,670

See footnotes at end of table.

TABLE 20—Continued
COPPER: WORLD MINE PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2008	2009	2010	2011	2012
Mexico:[e]					
Concentrates	172,000 [r]	173,000 [r]	170,100 [r]	295,000 [r]	343,000
Leaching, electrowon	74,500 [r]	68,000 [r]	100,000 [r]	149,000 [r]	157,000
Total	247,000 [r]	241,000 [r]	270,000 [r]	444,000 [r]	500,000
Mongolia	126,796	129,800	124,985	121,590	121,700
Morocco	5,055	12,615	12,690	12,893	13,000 [e]
Namibia	7,471	--	--	3,600 [e]	4,000 [e]
Oman[e]	2,000	2,000	2,000	2,000	2,000
Pakistan	18,700	18,500	18,000	19,000 [e]	19,000 [e]
Papua New Guinea	159,650	166,700	159,800	130,465	121,000
Peru:					
Concentrates	1,107,789	1,113,454	1,094,123	1,094,971	1,197,560
Leaching, electrowon	160,078	162,795	153,022	140,341	101,007
Total	1,267,867	1,276,249	1,247,145	1,235,312	1,298,567
Philippines	21,235	49,060	58,412	63,835	65,444
Poland	429,400	439,000	425,400	426,700	427,100
Portugal	89,504	86,500	74,426	79,686	82,500 [p]
Romania[e, 6]	2,000	1,000	5,000	6,500	6,500
Russia[e]	750,000	676,000	703,000	856,200 [r, 3]	883,000
Saudi Arabia	1,465	1,719	1,603	1,620 [e]	1,500 [e]
Serbia	20,800 [r]	23,400 [r]	24,600 [r]	28,000 [r]	34,400
South Africa	108,700	107,600	102,600	96,600	77,000 [e]
Spain:					
Concentrates	7,067	6,987	17,833	32,146	26,500 [p]
Leaching, electrowon	--	5,600	28,500	42,100	42,200 [p]
Total	7,067	12,587	46,333	74,246	68,700 [p]
Sweden	57,220 [r]	54,602 [r]	76,500	83,000	83,000 [e]
Tanzania, in concentrates and bullion	2,852	3,079 [r]	6,392 [r]	6,748 [r]	5,840
Turkey[e, 6]	100,000	105,000	97,000	80,000	90,000
United States:[5]					
Concentrates	800,000 [r]	705,000	679,000	666,000 [r]	696,000
Leaching, electrowon	509,000 [r]	476,000	430,000	447,000 [r]	471,000
Total	1,310,000	1,180,000	1,110,000	1,110,000	1,170,000
Uzbekistan[e]	95,000	95,000	90,000	91,500 [3]	95,600
Vietnam[e]	11,000 [r]	11,300	11,300	11,000	11,000
Zambia:[e]					
Concentrates	372,000	557,000	540,000	524,000	515,000
Leaching, electrowon	161,500	141,000	146,000	144,000	175,000
Total	534,000	698,000	686,000	668,000	690,000
Zimbabwe, concentrates[e]	2,827 [3]	3,572 [3]	4,700	6,000	6,300
Grand total	15,600,000	16,000,000	16,200,000 [r]	16,300,000 [r]	17,000,000
Of which:					
Concentrates	12,500,000 [r]	12,800,000	12,800,000	12,800,000 [r]	13,400,000
Leaching, electrowon	3,070,000 [r]	3,270,000 [r]	3,360,000 [r]	3,510,000 [r]	3,570,000

[e]Estimated. [p]Preliminary. [r]Revised. NA Not available. -- Zero.

[1]Grand total, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Represents copper content by analysis of concentrates produced (includes cement copper, if applicable), except where otherwise noted. Includes data available through February 4, 2015.

[3]Reported figure.

[4]Reported by Comisión Chilena del Cobre. Includes recoverable copper content of nonduplicative mine and metal products produced from domestic ores and concentrates and leach production for electrowinning.

[5]Recoverable content.

[6]Excludes copper content of pyrite.

TABLE 21
COPPER: WORLD SMELTER PRODUCTION, BY COUNTRY[1, 2]

(Metric tons, gross weight)

Country	2008	2009	2010	2011	2012
Armenia, primary	6,480	6,858	7,644	8,876	9,000 e
Australia, primary	449,000 r	422,000	410,000	441,000 r	421,000
Austria, secondary	94,200	90,800	92,200	92,200	95,000 e
Belgium, secondary	124,500 r	114,400 r	118,600	112,900 r	113,000 e
Botswana, primary[3]	23,146	24,382	22,750 r	16,100	17,625
Brazil:					
Primary	191,008	193,899	177,800	178,000	178,000 e
Secondary[e]	39,000	31,000	28,948 [4]	47,700	48,000
Total[e]	230,000	225,000	207,000	226,000	226,000
Bulgaria:					
Primary	258,500 r	254,700 r	229,900 r	256,300 r	264,200
Secondary[e]	22,700 r	46,100 r	38,800 r	82,000 r	46,300
Total[e]	281,000 r	301,000 r	269,000 r	338,000 r	311,000
Canada:					
Primary	443,710 r	316,510	318,006 r	304,724 r	287,051
Secondary	41,777	29,733	31,815 r	25,214 r	23,362
Total	485,487 r	346,243	349,821 r	329,938 r	310,413
Chile, primary	1,369,200	1,522,300	1,559,800	1,522,300 r	1,342,400
China:[e]					
Primary	2,500,000	2,700,000	2,800,000 r	3,030,000 r	3,200,000
Secondary	870,000	1,100,000	1,300,000	1,600,000	1,800,000
Total	3,370,000	3,800,000	4,100,000 r	4,630,000 r	5,000,000
Finland:[e]					
Primary	172,354 [4]	137,710 [4]	149,000	156,000	156,000
Secondary	2,000	2,000	2,000	2,000	2,000
Total	174,000	140,000	151,000	158,000	158,000
Germany:					
Primary	295,000	286,300	378,700	346,200 r	339,500
Secondary	293,300	247,500	212,400	218,000 r	216,800
Total	588,300	533,800	591,100	564,200 r	556,300
India:					
Primary	651,000	705,100	748,800 r	670,000	680,000
Secondary[e]	11,000	10,000	9,000	7,000	5,000
Total[e]	662,000	715,000	758,000 r	677,000	685,000
Indonesia, primary	253,300	295,900	276,800	276,200	200,000 e
Iran:[e, 5]					
Primary	180,000	193,000	190,000	185,000	180,000
Secondary	68,000 r	69,000 r	91,000 r	85,000 r	90,000
Total	248,000 r	262,000 r	281,000 r	270,000 r	270,000
Japan:					
Primary	1,366,310	1,297,943	1,382,700	1,168,284	1,300,000 e
Secondary	259,060	243,859	260,200	269,748	300,000 e
Total	1,625,370	1,541,802	1,642,900	1,438,032	1,600,000 e
Kazakhstan, undifferentiated	392,575	332,854	318,637	302,975 r	302,197
Korea, North, undifferentiated[e]	10,000 r	10,000 r	10,000 r	10,000 r	10,000
Korea, Republic of:					
Primary	502,000	455,400	457,900 r	449,200 r	477,300
Secondary[e]	42,000	43,800 r	65,200	89,800 r	144,500 [4]
Total[e]	544,000	499,000 r	523,000 r	539,000	621,800 [4]
Mexico:[e]					
Primary	190,900 r	160,700 r	118,500 r	233,800 r	255,900
Secondary	5,000	5,000	5,000	5,000	5,000
Total	196,000 r	166,000 r	124,000 r	239,000 r	261,000

See footnotes at end of table.

TABLE 21—Continued
COPPER: WORLD SMELTER PRODUCTION, BY COUNTRY[1, 2]

(Metric tons, gross weight)

Country	2008	2009	2010	2011	2012
Namibia, primary	16,271	21,543	31,900	43,800	44,000 e
Oman, primary	11,906	16,000 r	16,000 r	20,000 r	20,000 e
Pakistan, primary[e]	17,800	17,500	17,000	16,500	16,000
Peru, primary	306,584	325,782 r	312,968	299,004	290,088
Philippines, primary	239,700	230,100	216,200	205,000	97,000
Poland:					
Primary	438,600	427,800	433,900 r	449,000	451,700
Secondary	43,800	68,800	94,600 r	82,100 r	97,200
Total	482,400	496,600	528,500 r	531,100 r	548,900
Russia:[e]					
Primary	630,000	580,000	590,000	596,490 r, 4	600,000
Secondary	235,000	220,000	240,000	240,000 r	242,640 4
Total	865,000	800,000	830,000	836,000 r	843,000
Serbia:[e]					
Primary	20,000 r	22,000 r	23,000 r	27,000 r	33,000
Secondary	1,000	1,000	1,000	1,000	1,000
Total	21,000 r	23,000 r	24,000 r	28,000 r	34,000
Slovakia, secondary	27,500	34,200	46,500	48,800	41,700 e
South Africa, primary	94,800	86,900	75,900	82,400 r	60,000 e
Spain:					
Primary	259,900	260,000	236,000	231,300	231,500
Secondary[e]	10,000	10,000	19,000	21,700	21,800
Total[e]	270,000	270,000	255,000	253,000	253,000
Sweden:					
Primary	128,500	126,000	137,000	155,000	155,000
Secondary[e]	53,800	39,600	42,000	44,000	44,000
Total[e]	182,000	166,000	179,000	199,000	199,000
Thailand, secondary	NA r	NA r	NA r	NA r	NA
Turkey, undifferentiated[e, 6]	30,000 r	25,000 r	25,000 r	25,000 r	25,000
United States, undifferentiated	574,000	597,000	601,000	538,000	485,000
Uzbekistan, undifferentiated[e]	92,000	92,000	92,000	92,000	92,000
Vietnam, primary[e]	2,200	6,000	8,000	8,000	8,000
Zambia, primary	232,000 e	334,000	490,000	511,000	515,000
Grand total	14,600,000	14,900,000	15,600,000 r	15,900,000 r	16,100,000
Of which:					
Primary	11,300,000	11,400,000	11,800,000 r	11,900,000 r	11,800,000
Secondary	2,240,000 r	2,410,000 r	2,700,000 r	3,070,000 r	3,340,000
Undifferentiated	1,100,000	1,060,000 r	1,050,000 r	970,000 r	910,000

[e]Estimated. [r]Revised. NA Not available.

[1]Grand total, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes total production of smelted copper metal, including low-grade cathode produced by electrowinning methods. The smelter feed may be derived from ore, concentrates, copper precipitate or matte (primary), and (or) scrap (secondary). To the extent possible, primary and secondary output of each country is shown separately. In some cases, total smelter production is officially reported, but the distribution between primary and secondary has been estimated. Includes data available through February 4, 2015.

[3]Copper content of nickel-copper matte exported to Norway for refining.

[4]Reported figure.

[5]Data are for year beginning March 21 of that stated.

[6]Secondary production is estimated to be about one-third of total.

TABLE 22

COPPER: WORLD REFINERY PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2008	2009	2010	2011	2012
Argentina, secondary[e]	16,000	16,000	16,000	13,000 [r]	13,000
Australia, primary:					
Electrowon	53,000	23,000	14,400	35,600	44,000
Other	450,000	423,000	410,000	441,000 [r]	417,000
Total	503,000	446,000	424,400	476,600 [r]	461,000
Austria, secondary	106,700	96,200	113,700	112,500	115,000 [e]
Belgium:					
Primary[3]	233,100	220,600	216,000	226,200	226,000 [e]
Secondary	162,700	153,100	165,000	168,000	168,000 [e]
Total	395,800	373,700	381,000	394,200	394,000 [e]
Bolivia, primary	8	215	895	1,034	1,500
Brazil:					
Primary:					
Electrowon	3,800	6,500	7,400	4,300	4,500 [p]
Other	191,008	193,899	177,800	173,500	174,000 [p]
Total	194,808	200,399	185,200	177,800	178,500 [p]
Secondary	39,000	21,000 [r]	23,000 [r]	22,800 [r]	23,000 [p]
Total, primary and secondary	233,808	221,399 [r]	208,200 [r]	200,600 [r]	201,500 [p]
Bulgaria:					
Primary	114,200	183,600	195,400	201,100 [r]	201,000 [e]
Secondary[e]	12,600	13,200	19,600	25,000	25,000
Total[e]	127,000	197,000	215,000	226,000 [r]	226,000
Burma, primary, electrowon	--	3,500 [r]	12,000 [e]	10,000 [r]	10,000 [e]
Canada:					
Primary:					
Electrowon	1,600	800	3,200	1,000	900
Other	398,100	304,500	283,700	247,000	251,100
Total	399,700	305,300	286,900	248,000	252,000
Secondary	42,400	30,600	32,300	25,800	24,000
Total, primary and secondary	442,100	335,900	319,200	273,800	276,000
Chile, primary:					
Electrowon	1,971,000	2,117,500	2,088,500	2,024,800	2,028,800
Other	1,086,600	1,159,100	1,155,400	1,067,600	873,200
Total	3,057,600	3,276,600	3,243,900	3,092,400	2,902,000
China:[e]					
Primary:					
Electrowon	16,600 [r]	17,000	24,000 [r]	23,000 [r]	30,000
Other	2,680,000	2,750,000 [r]	2,950,000 [r]	3,390,000 [r]	3,930,000
Total	2,700,000	2,770,000 [r]	2,970,000 [r]	3,410,000 [r]	3,960,000
Secondary	1,200,000	1,400,000	1,700,000	1,850,000 [r]	1,950,000
Total, primary and secondary	3,900,000	4,170,000 [r]	4,670,000 [r]	5,260,000 [r]	5,910,000
Congo (Kinshasa), primary, electrowon	38,632	166,917 [r]	264,708 [r]	366,000	460,000 [e]
Cyprus, primary, electrowon	2,986	2,380	2,595 [r]	3,660 [r]	4,328
Egypt, secondary[e]	2,842 [4]	3,000 [4]	3,000	3,000	3,000
Finland:					
Primary[e]	127,952 [r]	95,549	108,700	116,500 [r]	117,000 [e]
Secondary[e]	10,000	10,000	4,000	9,000	9,000
Total	137,952 [r]	105,549	112,700	125,500 [r]	126,000 [e]
Germany:					
Primary	300,470	290,200	401,900	401,200	390,000 [e]
Secondary	389,300	378,745	302,400	308,000	295,700
Total	689,770	668,945	704,300	709,200	686,000 [e]

See footnotes at end of table.

TABLE 22—Continued
COPPER: WORLD REFINERY PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2008	2009	2010	2011	2012
India:					
Primary, electrolytic	654,200	705,100	654,900	671,100	670,000
Secondary[e]	15,000	10,000	9,000	2,000	10,000
Total[e]	669,000	715,000	664,000	673,000	680,000
Indonesia, primary	254,000	289,200	278,200	274,900 r	197,200
Iran:					
Primary:[e]					
Electrowon	7,000	7,000	7,000	10,000	13,000
Other	140,000	150,000	143,000	149,000	136,000
Total	147,000	157,000	150,000	159,000	149,000
Secondary	54,000 r	53,000	70,000	68,000	76,000 e
Total, primary and secondary[e]	201,000 r	210,000	220,000	227,000	225,000
Italy, secondary[e]	24,200	6,500	2,000	2,000	2,000
Japan:					
Primary	1,328,157	1,238,012	1,333,787 r	1,094,360	1,262,000
Secondary	211,681	201,831	214,901 r	233,238	230,000
Total	1,539,838	1,439,843	1,548,688 r	1,327,598	1,492,000
Kazakhstan, primary	398,411	312,767 r	323,368 r	338,346	338,346
Korea, North, primary[e]	10,000 r	10,000 r	10,000 r	10,000 r	10,000
Korea, Republic of:					
Primary	489,000 r	448,600 r	462,200 r	486,900 r	493,200
Secondary	42,000 r	90,300 r	97,000 r	106,600 r	96,200
Total	531,000 r	538,900 r	559,200 r	593,500 r	589,400
Laos, primary, electrowon	64,075	67,561	64,241	78,859	78,900 e
Macedonia, primary	--	--	--	--	2,300
Mexico:					
Primary:					
Electrowon[e]	74,500	68,000 r	100,000 r	149,000 r	157,000
Other	215,500	190,000	156,600	251,000 r	215,300
Total	290,000	258,000 r	256,600 r	400,000 r	372,300
Secondary[e]	5,000 r	5,000	5,000 r	5,000	5,000
Total, primary and secondary[e]	295,000 r	263,000 r	262,000 r	405,000 r	377,000
Mongolia, primary, electrowon	2,587	2,470	2,720 r	2,360 r	2,260
Norway, primary[e, 5]	32,000 [4]	30,000	40,000 r	40,000	40,000
Oman, primary[e]	12,000	15,000 r	15,000 r	16,000	16,000
Peru, primary:					
Electrowon	160,078	162,795 r	153,022	140,341	101,007
Other	303,855	260,618 r	240,616	227,320	210,119
Total	463,933	423,413 r	393,638	367,661	311,126
Philippines, primary	174,600	178,000	171,900 r	164,000	90,400
Poland:					
Primary	483,000	433,600	452,700	489,000 r	464,900
Secondary	43,800	68,800	94,300	81,900 r	99,400
Total	526,800	502,400	547,000	570,900 r	564,300
Romania:[e]					
Primary	10,323 r, [4]	3,000 [4]	--	--	--
Secondary	3,000	1,000	--	--	--
Total	13,300 r	4,000	--	--	--
Russia:					
Primary	610,000 r	612,000	656,000	674,000 r	655,000 e
Secondary	250,000 r	250,000	218,000	250,000 r	220,000 e
Total	860,000 r	862,000	874,000	924,000 r	875,000 e

See footnotes at end of table.

TABLE 22—Continued
COPPER: WORLD REFINERY PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country	2008	2009	2010	2011	2012
Serbia:					
Primary	18,550 r	18,875 r	21,240 r	25,251 r	32,229
Secondary	2,641 r	1,186 r	963 r	3,198 r	2,473
Total	21,191 r	20,061 r	22,203 r	28,449 r	34,702
South Africa, primary	92,972	89,453	81,129	86,166 r	66,000 e
Spain:					
Primary:					
Electrowon	--	5,600	28,500	42,100 e	42,100 e
Other	257,000	250,200	236,000	225,700	226,000 e
Total	257,000	255,800	264,500	268,000 e	268,000 e
Secondary[e]	62,000	73,000	82,900	86,000	86,000
Total, primary and secondary[e]	319,000	329,000	347,000	354,000	354,000
Sweden:					
Primary	184,674	164,759	150,497	179,316	180,000 e
Secondary[e]	43,100 4	41,000 4	40,000	40,000	40,000
Total[e]	227,774 4	205,759 4	190,000	219,000	220,000
Taiwan, secondary	4,500	4,500	4,500	4,500	4,500
Thailand, secondary	NA r	NA r	NA r	NA r	NA
Turkey:[e]					
Primary	83,000	29,000 r	50,000	80,000	75,000
Secondary	5,000	4,000	5,000	5,000	5,000
Total	88,000	33,000 r	55,000	85,000	80,000
Ukraine, secondary[e]	20,000	20,000	20,000	20,000	20,000
United States:					
Primary:					
Electrowon	508,000 r	476,000	430,000	447,000	471,000
Other	713,000	636,000	627,000	545,000	491,000
Total	1,220,000	1,110,000	1,060,000	992,000	962,000
Secondary	53,800	46,400	37,700	37,300	39,500
Total, primary and secondary	1,270,000	1,160,000	1,090,000	1,030,000	1,000,000
Uzbekistan, primary[e]	71,000	80,000	90,000	90,000	90,000
Vietnam, primary[e]	2,200 4	6,000	8,000	8,000	8,000
Zambia, primary:[e]					
Electrowon[6]	175,000	145,400 4	160,000	146,000	190,000
Other	240,000	269,000 4	370,000	370,000	340,000
Total	415,000	414,400 4	530,000	516,000	530,000
Zimbabwe, primary	3,072	4,000 r	4,545 r	4,355 r	900 e
Grand total	18,300,000	18,300,000	19,100,000	19,700,000	20,100,000
Of which:					
Primary:					
Electrowon	3,730,000 r	3,980,000 r	4,020,000 r	4,160,000 r	4,310,000
Other	11,700,000 r	11,300,000 r	11,800,000 r	12,100,000 r	12,200,000
Total	15,400,000 r	15,300,000 r	15,800,000 r	16,200,000 r	16,500,000
Secondary	2,820,000	3,000,000 r	3,280,000 r	3,480,000 r	3,560,000

[e]Estimated. [p]Preliminary. [r]Revised. NA Not available. -- Zero.

[1]Grand total, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes total production of refined copper whether produced by pyrometallurgical or electrolytic refining methods and whether derived from primary unrefined copper or from scrap. Copper cathode derived from electrowinning processing is also included. Includes data available through February 4, 2015.

[3]Includes reprocessed leach cathode from Congo (Kinshasa).

[4]Reported figure.

[5]May include secondary.

[6]Covers only high-grade electrowon cathodes reported as “finished production leach cathodes.”