

COPPER

(Data in thousand metric tons of copper content unless otherwise noted)

Domestic Production and Use: U.S. mine production of copper in 2013 increased by 4% to about 1.22 million tons, and was valued at about \$9 billion. Arizona, Utah, New Mexico, Nevada, and Montana—in descending order of production—accounted for more than 99% of domestic mine production; copper also was recovered in Idaho and Missouri. Twenty-seven mines recovered copper, 18 of which accounted for about 99% of production. Three primary smelters, 3 electrolytic and 4 fire refineries, and 15 electrowinning facilities operated during 2013. Refined copper and scrap were used at about 30 brass mills, 15 rod mills, and 500 foundries and miscellaneous consumers. Copper and copper alloys products were used in building construction, 44%; electric and electronic products, 20%; transportation equipment, 17%; consumer and general products, 12%; and industrial machinery and equipment, 7%.¹

| Salient Statistics—United States: | 2009 | 2010 | 2011 | 2012 | 2013^e |
|--|-------------|-------------|-------------|-------------|-------------------------|
| Production: | | | | | |
| Mine | 1,180 | 1,110 | 1,110 | 1,170 | 1,220 |
| Refinery: | | | | | |
| Primary | 1,110 | 1,060 | 992 | 962 | 960 |
| Secondary | 46 | 38 | 37 | 39 | 54 |
| Copper from all old scrap | 138 | 143 | 153 | 163 | 170 |
| Imports for consumption: | | | | | |
| Ores and concentrates | (2) | 1 | 15 | 6 | (2) |
| Refined | 664 | 605 | 670 | 630 | 770 |
| General imports, refined | 645 | 583 | 649 | 628 | 760 |
| Exports: | | | | | |
| Ores and concentrates | 151 | 137 | 252 | 301 | 350 |
| Refined | 81 | 78 | 40 | 159 | 95 |
| Consumption: | | | | | |
| Reported, refined | 1,650 | 1,760 | 1,760 | 1,760 | 1,800 |
| Apparent, unmanufactured ³ | 1,580 | 1,760 | 1,730 | 1,770 | 1,770 |
| Price, average, cents per pound: | | | | | |
| Domestic producer, cathode | 241.2 | 348.3 | 405.9 | 367.3 | 340 |
| London Metal Exchange, high-grade | 233.6 | 341.7 | 399.8 | 360.6 | 332 |
| Stocks, yearend, refined, held by U.S. producers, consumers, and metal exchanges | 434 | 384 | 409 | 236 | 270 |
| Employment, mine and mill, thousands | 8.3 | 9.5 | 10.6 | 11.5 | 12.0 |
| Net import reliance ⁴ as a percentage of apparent consumption | 21 | 32 | 34 | 36 | 36 |

Recycling: Old scrap, converted to refined metal and alloys, provided 170,000 tons of copper, equivalent to 9% of apparent consumption. Purchased new scrap, derived from fabricating operations, yielded 640,000 tons of contained copper. Of the total copper recovered from scrap (including aluminum- and nickel-based scrap), brass mills recovered 74%; miscellaneous manufacturers, foundries, and chemical plants, 11%; ingot makers, 10%; and copper smelters and refiners, 5%. Copper in all old and new, refined or remelted scrap contributed about 32% of the U.S. copper supply.

Import Sources (2009–12): Unmanufactured: Chile, 54%; Canada, 24%; Peru, 11%; Mexico, 9%; and other, 2%. Refined copper accounted for 85% of unwrought copper imports.

| Tariff: Item | Number | Normal Trade Relations⁵ |
|-------------------------------|---------------|---|
| | | 12–31–13 |
| Copper ores and concentrates | 2603.00.0000 | 1.7¢/kg on lead content. |
| Unrefined copper anode | 7402.00.0000 | Free. |
| Refined and alloys; unwrought | 7403.00.0000 | 1.0% ad val. |
| Copper wire (rod) | 7408.11.6000 | 3.0% ad val. |

Depletion Allowance: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: The COMEX spot copper price began 2013 at \$3.72 per pound of copper, rose to \$3.78 per pound in February, and declined to a low of \$3.03 per pound in June before averaging \$3.28 per pound in October. Copper prices on average trended downward during the year in large part owing to slower economic growth

COPPER

in China and expectations that the U.S. Federal Reserve would begin cutting its bond purchases during 2013. At the end of September, domestic stocks were 17% greater than those at yearend 2012. The International Copper Study Group (ICSG)⁶ projected that global refined copper production in 2013 would exceed demand by about 390,000 tons. Global production of refined copper was projected to increase by 3.9% and consumption was projected to remain essentially unchanged.

U.S. mine production increased by about 4% in 2013, mainly owing to a significant increase in production in Utah, but smaller production increases occurred in all other copper-producing states. In April, a rock slide at the Bingham Canyon Mine in Utah temporarily halted production. Despite the interruption, Bingham Canyon Mine production was expected to increase during 2013. Total U.S. refined production was estimated to remain essentially unchanged. In 2014, domestic mine and refined production of copper were expected to increase significantly, and according to ICSG projections, global refined copper output was expected to exceed demand owing to more modest demand growth in China and a 5.5% growth in global refined production.

World Mine Production and Reserves: Reserves for Peru were revised based on new company and Government information.

| | Mine production | | Reserves ⁷ |
|-----------------------|-----------------|-------------------|-----------------------|
| | 2012 | 2013 ^e | |
| United States | 1,170 | 1,220 | 39,000 |
| Australia | 958 | 990 | ⁸ 87,000 |
| Canada | 579 | 630 | 10,000 |
| Chile | 5,430 | 5,700 | 190,000 |
| China | 1,630 | 1,650 | 30,000 |
| Congo (Kinshasa) | 600 | 900 | 20,000 |
| Indonesia | 360 | 380 | 28,000 |
| Kazakhstan | 424 | 440 | 7,000 |
| Mexico | 440 | 480 | 38,000 |
| Peru | 1,300 | 1,300 | 70,000 |
| Poland | 427 | 430 | 26,000 |
| Russia | 883 | 930 | 30,000 |
| Zambia | 690 | 830 | 20,000 |
| Other countries | <u>2,000</u> | <u>2,000</u> | <u>90,000</u> |
| World total (rounded) | 16,900 | 17,900 | 690,000 |

World Resources: A 1998 USGS assessment estimated 550 million tons of copper contained in identified and undiscovered resources in the United States.⁹ A USGS global assessment of porphyry copper deposits, the most significant source of mined copper, indicated that known resources contain about 1.8 billion tons of copper, some of which has already been extracted, and undiscovered resources contain an estimated 3.1 billion tons.¹⁰ (For a listing of USGS regional copper resource assessments, go to: <http://minerals.usgs.gov/global>.) Deep-sea nodules and submarine massive sulfides are unconventional copper resources.

Substitutes: Aluminum substitutes for copper in power cable, electrical equipment, automobile radiators, and cooling and refrigeration tube; titanium and steel are used in heat exchangers; optical fiber substitutes for copper in telecommunications applications; and plastics substitute for copper in water pipe, drain pipe, and plumbing fixtures.

^eEstimated.

¹Some electrical components are included in each end use. Distribution for 2012 by the Copper Development Association, Inc., 2013.

²Less than ½ unit.

³Defined as primary refined production + copper from old scrap converted to refined metal and alloys + refined imports – refined exports ± changes in refined stocks. General imports were used to calculate apparent consumption.

⁴Defined as imports – exports + adjustments for Government and industry stock changes for refined copper.

⁵No tariff for Canada, Chile, Mexico, and Peru for items shown. Tariffs for other countries may be eliminated under special trade agreements.

⁶International Copper Study Group, 2013, Forecast 2013–2014: Lisbon, Portugal, International Copper Study Group press release, October 2, 1 p.

⁷See [Appendix C for resource/reserve definitions and information concerning data sources](#).

⁸For Australia, Joint Ore Reserves Committee (JORC)-compliant reserves were about 24 million tons.

⁹U.S. Geological Survey National Mineral Resource Assessment Team, 2000, 1998 assessment of undiscovered deposits of gold, silver, copper, lead, and zinc in the United States: U.S. Geological Survey Circular 1178, 21 p.

¹⁰Hammarstrom, J.M., and others, 2013, Undiscovered porphyry copper resources—A global assessment [abs.]: The Geological Society of America Annual Meeting and Exposition, 125th, Denver, Colo., October 27–30, 2013, Paper no. 236-2. (Also available at <https://gsa.confex.com/gsa/2013AM/webprogram/Paper226200.html>.)