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

**Domestic Production and Use:** Domestic mine production of copper in 2010 declined by about 5% to 1.12 million tons but its value rose to about $8.4 billion. The principal mining States, in descending order of production—Arizona, Utah, Nevada, New Mexico, and Montana—accounted for more than 99% of domestic production; copper also was recovered at mines in Idaho and Missouri. Although copper was recovered at 28 mines operating in the United States, 19 mines accounted for about 99% of production. Three primary smelters, 4 electrolytic and 3 fire refineries, and 15 solvent extraction-electrowinning facilities operated during the year. Refined copper and direct-melt scrap were consumed at about 30 brass mills; 15 rod mills; and 500 foundries, chemical plants, and miscellaneous consumers. Copper and copper alloy products were used in building construction, 49%; electric and electronic products, 20%; transportation equipment, 12%; consumer and general products, 10%; and industrial machinery and equipment, 9%.[1]

| Salient Statistics—United States: | 2006 | 2007 | 2008 | 2009 | 2010[e] |
|---|---|---|---|---|---|
| Production: | | | | | |
| Mine | 1,200 | 1,170 | 1,310 | 1,180 | 1,120 |
| Refinery: | | | | | |
| Primary | 1,210 | 1,270 | 1,220 | 1,110 | 1,050 |
| Secondary | 45 | 46 | 54 | 46 | 45 |
| Copper from all old scrap | 151 | 158 | 155 | 172 | 160 |
| Imports for consumption: | | | | | |
| Ores and concentrates | (2) | 1 | 1 | (2) | 1 |
| Refined | 1,070 | 829 | 724 | 664 | 640 |
| Unmanufactured | 1,320 | 1,100 | 934 | 788 | 760 |
| General imports, refined | 1,070 | 832 | 721 | 645 | 620 |
| Exports: | | | | | |
| Ores and concentrates | 108 | 134 | 301 | 151 | 140 |
| Refined | 106 | 51 | 37 | 81 | 90 |
| Unmanufactured | 990 | 884 | 1,090 | 932 | 1,020 |
| Consumption: | | | | | |
| Reported, refined | 2,110 | 2,140 | 2,020 | 1,650 | 1,730 |
| Apparent, unmanufactured[3] | 2,200 | 2,270 | 2,000 | 1,600 | 1,730 |
| Price, average, cents per pound: | | | | | |
| Domestic producer, cathode | 314.8 | 328.0 | 319.2 | 241.2 | 342 |
| London Metal Exchange, high-grade | 304.9 | 322.8 | 315.0 | 233.6 | 335 |
| Stocks, yearend, refined, held by U.S. producers, consumers, and metal exchanges | 194 | 130 | 187 | 433 | 440 |
| Employment, mine and mill, thousands | 8.4 | 9.7 | 11.9 | 8.3 | 8.7 |
| Net import reliance[4] as a percentage of apparent consumption | 38 | 37 | 31 | 20 | 30 |

**Recycling:** Old scrap, converted to refined metal and alloys, provided 160,000 tons of copper, equivalent to 9% of apparent consumption. Purchased new scrap, derived from fabricating operations, yielded 670,000 tons of contained copper; about 82% of the copper contained in new scrap was consumed at brass or wire-rod mills. Of the total copper recovered from scrap (including aluminum- and nickel-based scrap), brass mills recovered 70%; miscellaneous manufacturers, foundries, and chemical plants, 14%; ingot makers, 11%; and copper smelters and refiners, 5%. Copper in all old and new, refined or remelted scrap contributed about 35% of the U.S. copper supply.

**Import Sources (2006–09):** Unmanufactured: Chile, 41%; Canada, 33%; Peru, 13%; Mexico, 6%; and other, 7%. Refined copper accounted for 82% of unwrought copper imports.

| Tariff: Item | Number | Normal Trade Relations[5] 12-31-10 |
|---|---|---|
| Copper ores and concentrates | 2603.00.0000 | 1.7¢/kg on lead content. |
| Unrefined copper; anodes | 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:** The stockpiles of refined copper and brass were liquidated in 1993 and 1994, respectively. Details on inventories of beryllium-copper master alloys (4% beryllium) can be found in the section on beryllium.

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**Events, Trends, and Issues:** Refined copper prices, which began the year above $3.00 per pound, fluctuated sharply through several cycles during the first 9 months of the year, the London Metal Exchange Ltd. (LME) price ranging between $2.76 per pound (June 7) and $3.65 per pound (September 30), and averaging $3.25 during the period. While LME inventories of refined copper at the end of June were down slightly from those at yearend 2009, in September, the International Copper Study Group[6] projected that global refined copper production in 2010 would exceed refined copper demand by about 200,000 tons, about equal to that in 2009, as consumption and production of copper were projected to increase by 4% each. While consumption in 2010 was expected to increase significantly in North America and Europe, apparent consumption in the Asian market was expected to increase only slightly. China's apparent consumption of refined copper, which had increased by 38% in 2009, was expected to fall below that level in 2010. Substitution of refined copper for scrap and the assumed accumulation of significant quantities of unreported inventories had boosted apparent consumption in 2009 well above the growth in China's semimanufactures.

U.S. mine and refinery production continued to decline in 2010 owing to mine cutbacks instituted at yearend 2008 and lower ore grades. One electrolytic refinery in Michigan that treated imported anode closed in August. U.S. copper mine production was expected to rise by more than 100,000 tons in 2011 owing to expansions and restoration of cutbacks. Domestic consumption of refined copper rose by about 5% in 2010 but remained below the 2008 level.

**World Mine Production and Reserves:** Significant upward revisions to reserves for Australia and Peru are based on government reports. For Australia, Geoscience Australia's "Accessible Economically Demonstrated Resources" are reported; Joint Ore Reserves Committee (JORC) compliant reserves for Australia were only about 23 million tons. The Russian reserves estimate was revised and adjusted upward to include the Udokan deposit.

| | Mine production | | Reserves[7] |
|---|---|---|---|
| | 2009 | 2010[e] | |
| United States | 1,180 | 1,120 | 35,000 |
| Australia | 854 | 900 | 80,000 |
| Canada | 491 | 480 | 8,000 |
| Chile | 5,390 | 5,520 | 150,000 |
| China | 995 | 1,150 | 30,000 |
| Indonesia | 996 | 840 | 30,000 |
| Kazakhstan | 390 | 400 | 18,000 |
| Mexico | 238 | 230 | 38,000 |
| Peru | 1,275 | 1,285 | 90,000 |
| Poland | 439 | 430 | 26,000 |
| Russia | 725 | 750 | 30,000 |
| Zambia | 697 | 770 | 20,000 |
| Other countries | 2,190 | 2,300 | 80,000 |
| World total (rounded) | 15,900 | 16,200 | 630,000 |

**World Resources:** Recent assessments of copper resources indicated 550 million tons of copper remaining in identified and undiscovered resources in the United States[8] and 1.3 billion tons of copper in discovered, mined, and undiscovered resources in the Andes Mountains of South America.[9] A preliminary assessment indicates that global land-based resources exceed 3 billion tons. Deep-sea nodules and massive sulfides are potential copper resources.

**Substitutes:** Aluminum substitutes for copper in power cables, 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.

[e]Estimated.

[1]Some electrical components are included in each end use. Distribution for 2009 by the Copper Development Association, Inc., 2010.

[2]Less than ½ unit.

[3]Defined 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.

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

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

[6]International Copper Study Group, 2010, Forecast 2010–2011: Lisbon, Portugal, International Copper Study Group press release, October 1, 1 p.

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

[8]U.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.

[9]Cunningham, C.G., et al., 2008, Quantitative mineral resource assessment of copper, molybdenum, gold, and silver in undiscovered porphyry copper deposits in the Andes Mountains of South America: U.S. Geological Survey Open-file Report 2008–1253, 282 p.