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

Domestic Production and Use: In 2018, U.S. mine production of recoverable copper decreased by 5% to an estimated 1.2 million tons and was valued at an estimated $8 billion, essentially unchanged from $7.92 billion in 2017. Arizona was the leading copper-producing State and was responsible for about 66% of domestic output, followed by Utah, New Mexico, Nevada, Montana, Michigan, and Missouri. Twenty-four mines recovered copper, 15 of which accounted for 99% of production. Three smelters, 3 electrolytic refineries, 4 fire refineries, and 14 electrowinning facilities operated during 2018. Refined copper and scrap were used at about 30 brass mills, 15 rod mills, and 500 foundries and miscellaneous consumers. Copper and copper alloy products were used in building construction, 44%; transportation equipment, 20%; electrical and electronic products, 19%; consumer and general products, 11%; and industrial machinery and equipment, 6%.[1]

Salient Statistics—United States:	2014	2015	2016	2017	2018[e]
Production:					
Mine, recoverable	1,360	1,380	1,430	1,260	1,200
Refinery:					
Primary (from ore)	1,050	1,090	1,180	1,040	1,100
Secondary (from scrap)	46	49	46	40	40
Copper recovered from old scrap[2]	173	166	149	146	150
Imports for consumption:					
Ores and concentrates	([3])	([3])	([3])	14	30
Refined	620	687	708	813	820
General imports, refined	614	665	701	820	780
Exports:					
Ores and concentrates	410	392	331	237	230
Refined	127	86	134	94	170
Consumption:					
Reported, refined	1,760	1,810	1,800	1,800	1,800
Apparent, refined[4]	1,780	1,820	1,880	1,870	1,850
Price, average, cents per pound:					
U.S. producer, cathode (COMEX + premium)	318.1	256.2	224.9	285.4	300.0
COMEX, high-grade, first position	312.0	250.8	219.7	280.4	295.0
London Metal Exchange, high-grade	311.1	249.5	220.6	279.5	300.0
Stocks, yearend, refined, held by U.S. producers, consumers, and metal exchanges	190	209	223	265	280
Employment, mine and mill, thousands	12.1	11.3	10.1	10.6	12.0
Net import reliance[5] as a percentage of apparent consumption	31	31	29	37	32

Recycling: Old scrap, converted to refined metal and alloys, provided an estimated 150,000 tons of copper, equivalent to 8% of apparent consumption. Purchased new scrap, derived from fabricating operations, yielded an estimated 720,000 tons of contained copper. Of the total copper recovered from scrap (including aluminum- and nickel-base scrap), brass and wire-rod mills recovered approximately 80%; copper smelters, refiners, and ingot makers, 15%; and miscellaneous chemical plants, foundries, and manufacturers, 5%. Copper in all scrap contributed about 35% of the U.S. copper supply.[6]

Import Sources (2014–17): Unmanufactured copper (refined copper and the copper content of blister and anodes; matte, ash, and precipitates; ore and concentrates; and unalloyed and alloyed scrap): Chile, 46%; Canada, 30%; Mexico, 16%; and other, 8%. Refined copper accounted for 86% of all unmanufactured copper imports.

Tariff: Item	Number	Normal Trade Relations 12–31–18
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)	7408.11.0000	1.0% or 3.0% ad val.

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

Government Stockpile: None.

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Events, Trends, and Issues: The International Copper Study Group projected that global mine and refined production of copper would increase slightly in 2018, owing to a decrease in supply disruptions, restarting of temporarily closed mines and electrowon plants in Congo (Kinshasa) and Zambia, and recovery from planned smelter maintenance shutdowns in 2017. Global consumption of refined copper was also expected to rise slightly and to exceed global refined production by roughly 90,000 tons.[7]

Domestic mine production of copper declined in 2018 primarily owing to reduced output from multiple mines in Arizona and New Mexico. One major copper producer operating in these States reported lower ore grades, and a landslide at the Mission Mine on March 21 significantly affected operations throughout the year. These production decreases were partially offset by higher output from the Bingham Canyon Mine in Utah, where mining activity progressed into higher grade ores. Refined production in the United States increased by an estimated 6% in 2018 compared with that in 2017, when output was affected by planned smelter maintenance shutdowns and a 6-week suspension of operations at one smelter following a fatal accident.

Through November 2018, the monthly average COMEX spot copper price varied between $2.69 per pound (August and September) and $3.19 per pound (January). It was projected to average roughly $2.95 per pound for the full year, an increase of 5% from $2.80 per pound in 2017. This increase was attributed primarily to rising global demand and was partially offset by uncertainty in trade policies between the United States and China, among other factors.

World Mine Production and Reserves: Reserves for multiple countries were revised based on reported company data and (or) information from the Governments of those countries.

	Mine production		Reserves[8]
	2017	2018[e]	
United States	1,260	1,200	48,000
Australia	860	950	[9]88,000
Chile	5,500	5,800	170,000
China	1,710	1,600	26,000
Congo (Kinshasa)	1,090	1,200	20,000
Indonesia	622	780	51,000
Mexico	742	760	50,000
Peru	2,450	2,400	83,000
Russia	705	710	61,000
Zambia	794	870	19,000
Other countries	4,250	4,400	210,000
World total (rounded)	20,000	21,000	830,000

World Resources: A 1998 U.S. Geological Survey (USGS) report estimated that 550 million tons of copper were contained in identified and undiscovered resources in the United States.[10] A 2014 USGS global assessment of copper deposits indicated that identified resources contained about 2.1 billion tons of copper (porphyry deposits accounted for 1.8 billion tons of those resources), and undiscovered resources contained an estimated 3.5 billion tons.[11]

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

[e]Estimated.

[1]Distribution reported by the Copper Development Association. Some electrical components are included in each end use.

[2]Includes copper recovered by brass and wire-rod mills, foundries, refineries, and other manufacturers. Old scrap refers to used copper items.

[3]Less than ½ unit.

[4]Primary refined production + copper from old scrap + refined imports (general) – refined exports (domestic) ± changes in refined stocks.

[5]Defined as imports – exports ± adjustments for industry stock changes of refined copper.

[6]Copper supply is defined as apparent consumption + copper recovered from new (manufacturing) scrap.

[7]International Copper Study Group, 2018, Copper market forecast 2018/2019: Lisbon, Portugal, International Copper Study Group press release, October 3, 2 p.

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

[9]For Australia, Joint Ore Reserves Committee-compliant reserves were about 24 million tons.

[10]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., https://pubs.er.usgs.gov/publication/cir1178.

[11]Johnson, K.M., Hammarstrom, J.M., Zientek, M.L., and Dicken, C.L., 2014, Estimate of undiscovered copper resources of the world, 2013: U.S. Geological Survey Fact Sheet 2014–3004, 3 p., *http://dx.doi.org/10.3133/fs20143004.*