

COPPER

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

Domestic Production and Use: In 2020, U.S. mine production of recoverable copper decreased by 5% to an estimated 1.2 million tons and was valued at an estimated \$7.5 billion, 3% less than \$7.75 billion in 2019. Arizona was the leading copper-producing State and accounted for an estimated 74% of domestic output, followed by, in descending order, Utah, New Mexico, Nevada, Montana, Michigan, and Missouri. Copper was recovered or processed at 25 mines (18 of which accounted for 99% of mine production), 3 smelters, 3 electrolytic refineries, and 14 electrowinning facilities. 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, 43%; electrical and electronic products, 21%; transportation equipment, 19%; consumer and general products, 10%; and industrial machinery and equipment, 7%.¹

<u>Salient Statistics—United States:</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020^e</u>
Production:					
Mine, recoverable	1,430	1,260	1,220	1,260	1,200
Refinery:					
Primary (from ore)	1,180	1,040	1,070	985	860
Secondary (from scrap)	46	40	41	44	45
Copper recovered from old (post-consumer) scrap ²	149	146	149	^e 150	150
Imports for consumption:					
Ore and concentrates	(3)	14	32	27	2
Refined	708	813	778	663	680
Exports:					
Ore and concentrates	331	237	253	363	390
Refined	134	94	190	125	40
Consumption:					
Reported, refined metal	1,800	1,800	1,820	1,830	1,700
Apparent, primary refined and old scrap ⁴	1,880	1,860	1,830	1,810	1,600
Price, annual average, cents per pound:					
U.S. producer, cathode (COMEX + premium)	224.9	285.4	298.7	279.6	280.0
COMEX, high-grade, first position	219.7	280.4	292.6	272.3	270.0
London Metal Exchange, high-grade	220.6	279.5	296.0	272.4	270.0
Stocks, refined, held by U.S. producers, consumers, and metal exchanges, yearend	223	265	244	111	150
Employment, mine and plant, thousands	10.1	10.5	11.7	12.0	11.0
Net import reliance ⁵ as a percentage of apparent consumption	30	36	33	37	37

Recycling: Old (post-consumer) scrap, converted to refined metal and alloys, provided an estimated 150,000 tons of copper. Purchased new (manufacturing) scrap, derived from fabricating operations, yielded an estimated 720,000 tons. Of the total copper recovered from scrap (including non-copper-base scrap), brass and wire-rod mills accounted for about 80%; smelters, refiners, and ingot makers, 15%; and miscellaneous chemical plants, foundries, and manufacturers, 5%. Copper recovered from scrap contributed about 38% of the U.S. copper supply.⁶

Import Sources (2016–19): Copper content of blister and anodes: Finland, 75%; Malaysia, 19%; and other, 6%. Copper content of matte, ash, and precipitates: Canada, 27%; Mexico, 21%; Spain, 11%; Belgium, 10%; and other, 31%. Copper content of ore and concentrates: Mexico, >99%; and other, <1%. Copper content of scrap: Canada, 55%; Mexico, 33%; and other, 12%. Refined copper: Chile, 59%; Canada, 24%; Mexico, 11%; and other, 6%. Refined copper accounted for 85% of all unmanufactured copper imports.

<u>Tariff:</u>	<u>Item</u>	<u>Number</u>	<u>Normal Trade Relations</u>
			<u>12–31–20</u>
	Copper ore and concentrates, copper content	2603.00.0010	1.7¢/kg on lead content.
	Unrefined copper anodes	7402.00.0000	Free.
	Refined copper 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: In 2020, U.S. mine production of copper decreased by an estimated 5%, primarily owing to reduced output from the Bingham Canyon Mine in Utah and the Chino Mine in New Mexico. At Bingham Canyon, ore grades were lower than those in 2019 because of planned pit sequencing and optimization of molybdenum production during an extended shutdown of the smelter. In April, operations at the Chino Mine were suspended after multiple workers tested positive for COVID-19; the mine was expected to restart in 2021 at about 50% of capacity. Production at the Pumpkin Hollow Mine began in December 2019, was suspended in April 2020 owing to restrictions implemented by the State of Nevada in response to the COVID-19 pandemic, and restarted in August. Output of refined copper in the United States decreased by an estimated 13% as a result of strikes, ongoing since October 2019, at a smelter in Arizona and electrolytic refinery in Texas. Refined copper production was also affected by maintenance at the smelter in Utah, which closed for several months for a complete furnace rebuild after an earthquake in March.

Global mine production of copper declined slightly to an estimated 20 million tons in 2020 from 20.4 million tons in 2019, owing primarily to COVID-19 lockdowns in April and May. These disruptions significantly affected output in Peru, the second-ranked mine producer of copper, where production through July 2020 fell by nearly 250,000 tons (23%) from that in the same period of 2019. Global refined copper production increased slightly to an estimated 25 million tons in 2020 from 24.5 million tons in 2019, when output in multiple countries was affected by temporary smelter shutdowns for maintenance and upgrades.

World Mine and Refinery Production and Reserves: Reserves for multiple countries were revised based on company and Government information.

	Mine production		Refinery production		Reserves ⁷
	2019	2020 ^e	2019	2020 ^e	
United States	1,260	1,200	1,030	910	48,000
Australia	934	870	426	380	⁸ 88,000
Canada	573	570	281	290	9,000
Chile	5,790	5,700	2,270	2,400	200,000
China	1,680	1,700	9,780	9,800	26,000
Congo (Kinshasa)	1,290	1,300	1,080	1,100	19,000
Germany	—	—	632	670	2,000
Japan	—	—	1,500	1,600	—
Kazakhstan	562	580	512	540	20,000
Korea, Republic of	—	—	665	680	—
Mexico	715	690	477	470	53,000
Peru	2,460	2,200	308	330	92,000
Poland	399	400	566	550	32,000
Russia	801	850	1,050	1,060	61,000
Zambia	797	830	262	360	21,000
Other countries	<u>3,100</u>	<u>3,300</u>	<u>3,640</u>	<u>3,500</u>	<u>200,000</u>
World total (rounded)	20,400	20,000	24,500	25,000	870,000

World Resources:⁷ A U.S. Geological Survey study of global copper deposits indicated that, as of 2015, identified resources contained 2.1 billion tons of copper, and undiscovered resources contained an estimated 3.5 billion tons.⁹

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.

^eEstimated. — Zero.

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

²Copper converted to refined metal and alloys by brass and wire-rod mills, foundries, refineries, and other manufacturers.

³Less than ½ unit.

⁴Primary refined production + copper in old scrap converted to refined metal and alloys + refined imports – refined exports ± refined stock changes.

⁵Defined as refined imports – refined exports ± adjustments for refined copper stock changes.

⁶Primary refined production + copper recovered from old and new scrap + refined imports – refined exports ± refined stock changes.

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

⁸In Australia, Joint Ore Reserves Committee-compliant reserves were 22 million tons.

⁹Hammarstrom, J.M., Zientek, M.L., Parks, H.L., Dicken, C.L., and the U.S. Geological Survey Global Copper Mineral Resource Assessment Team, 2019, Assessment of undiscovered copper resources of the world, 2015 (ver.1.1, May 24, 2019): U.S. Geological Survey Scientific Investigations Report 2018–5160, 619 p., <https://doi.org/10.3133/sir20185160>.