

## COPPER

(Data in thousand metric tons, copper content, unless otherwise specified)

**Domestic Production and Use:** In 2024, the recoverable copper content of U.S. mine production was an estimated 1.1 million tons, a decrease of 3% from that in 2023, and was valued at an estimated \$10 billion, slightly greater than \$9.83 billion in 2023. Arizona was the leading copper-producing State and accounted for approximately 70% of domestic output; copper was also mined in Michigan, Missouri, Montana, Nevada, New Mexico, and Utah. Copper was recovered or processed at 25 mines (17 of which accounted for more than 99% of mine production), 2 primary smelters, 1 secondary smelter, 2 primary electrolytic refineries, 14 electrowon refineries, and 3 secondary fire refineries. A new secondary smelter and secondary refinery were expected to start up by yearend. Refined copper and scrap were consumed at about 30 brass mills, 14 rod mills, and several hundred foundries and miscellaneous manufacturers. According to the Copper Development Association, copper and copper alloy products were used in building construction, 42%; electrical and electronic products, 23%; transportation equipment, 18%; consumer and general products, 10%; and industrial machinery and equipment, 7%.

<b>Salient Statistics—United States:</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024<sup>e</sup></b>
Production:					
Mine, recoverable	1,200	1,230	1,230	1,130	1,100
Refinery:					
Primary (from ore)	872	922	930	843	850
Secondary (from scrap)	43	49	40	39	40
Copper recovered from old (post-consumer) scrap <sup>1</sup>	161	169	152	<sup>e</sup> 150	150
Imports for consumption:					
Ore and concentrates	2	11	12	3	(2)
Refined	676	919	732	771	810
Exports:					
Ore and concentrates	383	344	351	339	320
Refined	41	48	27	33	60
Consumption:					
Reported, refined copper	1,680	1,750	1,720	1,570	1,600
Apparent, primary refined copper and copper from old scrap <sup>3</sup>	1,660	1,960	1,820	1,690	1,800
Price, annual average, cents per pound:					
U.S. producer, cathode (COMEX + premium)	286.7	432.3	410.8	395.3	430
COMEX, high-grade, first position	279.9	424.3	400.7	385.7	420
London Metal Exchange, grade A, cash	279.8	422.5	399.8	384.8	420
Stocks, refined, held by U.S. producers, consumers, and metal exchanges, yearend	118	117	84	127	70
Employment, mine and plant, number	11,000	11,400	12,000	12,600	13,000
Net import reliance <sup>4</sup> as a percentage of apparent consumption	38	44	41	41	45

**Recycling:** Old (post-consumer) scrap, converted to refined metal, alloys, and other forms, provided an estimated 150,000 tons of copper in 2024, and an estimated 720,000 tons of copper was recovered from new (manufacturing) scrap derived from fabricating operations. Brass and wire-rod mills accounted for approximately 85% of the total copper recovered from scrap. Copper recovered from scrap contributed about 35% of the U.S. copper supply.<sup>5</sup>

**Import Sources (2020–23):** Copper content of blister and anodes: Finland, 92%; Malaysia, 3%; and other, 5%. Copper content of matte, ash, and precipitates: Canada, 48%; Belgium, 23%; Japan, 13%; Spain, 6%; and other, 10%. Copper content of ore and concentrates: Canada, >99%; and other, <1%. Copper content of scrap: Canada, 46%; Mexico, 42%; Dominican Republic, 3%; and other, 9%. Refined copper: Chile, 65%; Canada, 17%; Mexico, 9%; Peru, 6%; and other, 3%. Refined copper accounted for 88% of all unmanufactured copper imports.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations 12–31–24</b>
	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% ad valorem.
	Copper scrap	7404.00.0000	Free.
	Copper wire rod	7408.11.0000	1% or 3% ad valorem.

**Depletion Allowance:** 15% (domestic), 14% (foreign).

**Government Stockpile:** None.

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**Events, Trends, and Issues:** In 2024, production decreased at a majority of copper mines in the United States, and domestic mined copper output declined by an estimated 3% from that in 2023. At the Bingham Canyon Mine in Utah, changes to the mine plan required to mitigate geotechnical risks resulted in lower ore grades and copper recoveries. Production at the Eagle Mine in Michigan was affected by decreased copper ore grades and reduced mill throughput rates owing to a fall of ground along an ore access ramp. Output also decreased at multiple mines in Arizona and New Mexico because of lower ore grades and mining rates. These decreases were partially offset by a significant increase in mined copper production at the Robinson Mine in Nevada owing to planned mine sequencing that yielded higher ore grades and copper recovery rates. At U.S. refineries, copper production increased slightly in 2024 compared with that in 2023. The Kennecott smelter and electrolytic refinery near Salt Lake City, UT, returned to normal operations in the first quarter of 2024 following major rebuilds in 2023. A new secondary copper refinery in Kentucky and a new secondary copper smelter in Georgia were expected to begin operating by yearend 2024.

The COMEX copper price reached a record high in May 2024 and was projected to average \$4.20 per pound in full year 2024, an increase of 9% from the annual average price in 2023. Analysts attributed the higher price to multiple factors, such as expectations for reduced global copper supply in the near future, optimistic sentiment regarding world copper demand, strong manufacturing production in China, and decreasing inflation in the United States.

**World Mine and Refinery Production and Reserves:** Reserves for Canada, Indonesia, Peru, and the United States were revised based on company, Government, and (or) industry association reports.

	Mine production		Refinery production		Reserves <sup>6</sup>
	2023	2024 <sup>e</sup>	2023	2024 <sup>e</sup>	
United States	1,130	1,100	882	890	47,000
Australia	778	800	442	460	<sup>7</sup> 100,000
Canada	500	450	315	320	8,300
Chile	5,250	5,300	2,080	1,900	190,000
China	1,820	1,800	12,000	12,000	41,000
Congo (Kinshasa)	2,930	3,300	2,170	2,500	80,000
Germany	—	—	609	630	—
India	27	30	509	510	2,200
Indonesia	907	1,100	225	350	21,000
Japan	—	—	1,490	1,600	—
Kazakhstan	<sup>e</sup> 740	740	458	470	20,000
Korea, Republic of	—	—	604	620	—
Mexico	699	700	509	350	53,000
Peru	2,760	2,600	403	390	100,000
Poland	395	410	592	590	34,000
Russia	<sup>e</sup> 890	930	<sup>e</sup> 1,000	960	80,000
Zambia	712	680	222	170	21,000
Other countries	<u>3,020</u>	<u>2,700</u>	<u>2,460</u>	<u>2,500</u>	<u>180,000</u>
World total (rounded)	22,600	23,000	27,000	27,000	980,000

**World Resources:**<sup>6</sup> The most recent U.S. Geological Survey assessment of global copper resources indicated that, as of 2015, identified resources contained 1.5 billion tons of unextracted copper (2.1 billion tons when past production of 0.6 billion tons is included) and undiscovered resources contained an estimated 3.5 billion tons of copper.<sup>8</sup>

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

<sup>e</sup>Estimated. — Zero.

<sup>1</sup>Copper converted to refined metal, alloys, and other forms by brass and wire-rod mills, foundries, refineries, and other manufacturers.

<sup>2</sup>Less than ½ unit.

<sup>3</sup>Primary refined production + copper recovered from old scrap + refined imports – refined exports ± adjustments for refined copper stock changes.

<sup>4</sup>Defined as refined imports – refined exports ± adjustments for refined copper stock changes.

<sup>5</sup>Primary refined production + copper from old and new scrap + refined imports – refined exports ± adjustments for refined copper stock changes.

<sup>6</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>7</sup>For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 27 million tons.

<sup>8</sup>Source: Hammarstrom, 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. 1.2, December 2021): U.S. Geological Survey Scientific Investigations Report 2018–5160, 619 p. (Accessed November 18, 2024, at <https://doi.org/10.3133/sir20185160>.)