Domestic Production and Use: In 2021, the recoverable copper content of U.S. mine production was an estimated 1.2 million tons, unchanged from that in 2020, and was valued at an estimated $12 billion, 58% greater than $7.61 billion in 2020. Arizona was the leading copper-producing State and accounted for an estimated 71% of domestic output; copper was also mined in Michigan, Missouri, Montana, Nevada, New Mexico, and Utah. Copper was recovered or processed at 25 mines (19 of which accounted for 99% of mine production), 2 smelters, 2 electrolytic refineries, and 14 electrowinning facilities. An additional smelter and electrolytic refinery have been temporarily closed since October 2019. Refined copper and scrap were used at about 30 brass mills, 14 rod mills, and 500 foundries and miscellaneous consumers. Copper and copper alloy products were used in building construction, 46%; electrical and electronic products, 21%; transportation equipment, 16%; consumer and general products, 10%; and industrial machinery and equipment, 7%.

Salient Statistics—United States:

Production:
- Mine, recoverable copper content
- Refinery:
  - Primary (from ore)
  - Secondary (from scrap)
Copper recovered from old (post-consumer) scrap:
Imports for consumption:
- Ore and concentrates
- Refined
Exports:
- Ore and concentrates
- Refined
Consumption:
- Reported, refined metal
- Apparent, primary refined and old scrap:
Price, annual average, cents per pound:
- U.S. producer, cathode (COMEX + premium)
- COMEX, high-grade, first position
- London Metal Exchange, grade A, cash
Stocks, refined, held by U.S. producers, consumers, and metal exchanges, yearend
- Employment, mine and plant, number
  - 2017: 10,500, 2018: 11,700, 2019: 12,000, 2020: 11,000, 2021a: 11,000
- Net import reliance as a percentage of apparent consumption

Recycling: Old (post-consumer) scrap, converted to refined metal and alloys, provided an estimated 160,000 tons of copper. Purchased new (manufacturing) scrap, derived from fabricating operations, yielded an estimated 710,000 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 32% of the U.S. copper supply.

Import Sources (2017–20): Copper content of blister and anodes: Finland, 81%; Malaysia, 13%; and other, 6%. Copper content of matte, ash, and precipitates: Canada, 28%; Mexico, 20%; Belgium, 14%; Spain, 11%; and other, 27%. Copper content of ore and concentrates: Mexico, 97%; and other, 3%. Copper content of scrap: Canada, 54%; Mexico, 34%; and other, 12%. Refined copper: Chile, 62%; Canada, 23%; Mexico, 11%; and other, 4%. Refined copper accounted for 85% of all unmanufactured copper imports.

Tariff: Item | Number | Normal Trade Relations
--- | --- | ---
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 valorem.
Copper wire rod | 7408.11.0000 | 1.0% or 3.0% ad valorem.

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

Government Stockpile: None.

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**Events, Trends, and Issues:** In the United States, mined copper production remained unchanged in 2021 from that in 2020. Production increased significantly at the Safford Mine in Arizona owing to the rampup of the Lone Star expansion that was completed in the second half of 2020. Operations at the Chino Mine in New Mexico, which had been suspended since April 2020 after multiple workers tested positive for COVID-19, restarted in the first quarter of 2021. At the Pinto Valley Mine in Arizona, optimization projects completed in 2020 and 2021 resulted in higher copper recovery and throughput rates. Production also increased at other domestic copper mines because of higher ore grades, but the increases were offset by significant decreases in output at several major mines in Arizona. The rampup of the Gunnison Mine in Arizona, which commenced production in late 2020, was delayed because of technical complications with the injection wells. Production at the Pumpkin Hollow Mine in Nevada, which started in late 2019 and was halted for several months in 2020 because of the COVID-19 pandemic, was expected to reach capacity in the third quarter of 2022. Refined copper production in the United States increased by an estimated 9% in 2021 compared with that in 2020, when operations at the smelter in Utah were affected by a rebuild of the flash converting furnace after an earthquake and a delayed restart following planned maintenance.

Based on data through October, the annual average COMEX copper price was projected to be about $4.20 per pound in 2021, an increase of 50% from that in 2020 and 5% greater than the previous all-time high of $4.01 per pound in 2011. Strong global manufacturing activity, constrained growth in world copper production, low stockpiles, and supply constraints owing to shipping delays contributed to the increased copper price.

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

<table>
<thead>
<tr>
<th>Mine production</th>
<th>Refinery production</th>
<th>Reserves6</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>2021*</td>
<td>2020</td>
</tr>
<tr>
<td>United States</td>
<td>1,200</td>
<td>1,200</td>
</tr>
<tr>
<td>Australia</td>
<td>885</td>
<td>900</td>
</tr>
<tr>
<td>Canada</td>
<td>585</td>
<td>590</td>
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<tr>
<td>Chile</td>
<td>5,730</td>
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<tr>
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<td>Congo (Kinshasa)</td>
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<tr>
<td>Germany</td>
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<td>—</td>
</tr>
<tr>
<td>Indonesia</td>
<td>505</td>
<td>810</td>
</tr>
<tr>
<td>Japan</td>
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<td>—</td>
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<tr>
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<tr>
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<tr>
<td>Poland</td>
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<tr>
<td>Russia</td>
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<td>820</td>
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<tr>
<td>Zambia</td>
<td>853</td>
<td>830</td>
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<tr>
<td>Other countries</td>
<td>2,840</td>
<td>2,800</td>
</tr>
<tr>
<td>World total (rounded)</td>
<td>20,600</td>
<td>21,000</td>
</tr>
</tbody>
</table>

**World Resources:** 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.

**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.

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*Estimated. — 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.
3Primary refined production + copper in old scrap converted to refined metal and alloys + refined imports – refined exports ± refined stock changes.
4Defined as refined imports – refined exports ± adjustments for refined copper stock changes.
5Primary refined production + copper recovered from old and new scrap + refined imports – refined exports ± refined stock changes.
6See Appendix C for resource and reserve definitions and information concerning data sources.
7For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 23 million tons.

U.S. Geological Survey, Mineral Commodity Summaries, January 2022