

ZINC

(Data in thousand metric tons of contained zinc unless otherwise noted)

Domestic Production and Use: The value of zinc mined in 2021, based on zinc contained in concentrate, was about \$2.4 billion. Zinc was mined in five States at seven mining operations by five companies. Three smelter facilities, one primary and two secondary, operated by three companies, produced commercial-grade zinc metal. Of the total reported zinc consumed, most was used in galvanizing, followed by brass and bronze, zinc-based alloys, and other uses.

| Salient Statistics—United States: | 2017 | 2018 | 2019 | 2020 | 2021^e |
|--|-------------|-------------|-------------|-------------|-------------------------|
| Production: | | | | | |
| Zinc in ores and concentrates | 774 | 824 | 753 | 718 | 740 |
| Refined zinc ¹ | 132 | 116 | 115 | 180 | 220 |
| Imports for consumption: | | | | | |
| Zinc in ores and concentrates | 7 | (2) | (2) | 3 | 8 |
| Refined zinc | 729 | 775 | 830 | 700 | 700 |
| Exports: | | | | | |
| Zinc in ores and concentrates | 682 | 806 | 792 | 546 | 580 |
| Refined zinc | 33 | 23 | 5 | 2 | 5 |
| Shipments from Government stockpile | — | — | — | — | — |
| Consumption, apparent, refined zinc ³ | 829 | 868 | 939 | 878 | 920 |
| Price, average, cents per pound: | | | | | |
| North American ⁴ | 139.3 | 141.0 | 124.1 | 110.8 | 145 |
| London Metal Exchange (LME), cash | 131.2 | 132.7 | 115.6 | 102.7 | 136 |
| Stocks, reported producer and consumer, refined zinc, yearend | 114 | 119 | 116 | 120 | 110 |
| Employment, number: | | | | | |
| Mine and mill ⁵ | 2,420 | 2,630 | 2,470 | 2,360 | 2,400 |
| Smelter, primary | 240 | 250 | 250 | 220 | 220 |
| Net import reliance ⁶ as a percentage of apparent consumption | | | | | |
| Ores and concentrates | E | E | E | E | E |
| Refined zinc | 84 | 87 | 88 | 79 | 76 |

Recycling: In 2021, an estimated 60% of the refined zinc produced in the United States was recovered from secondary materials at both primary and secondary smelters. Secondary materials included galvanizing residues and crude zinc oxide recovered from electric arc furnace dust.

Import Sources (2017–20): Ores and concentrates: Peru, 89%; China, 11%; other, <1%. Refined metal: Canada, 63%; Mexico, 15%; Peru, 7%; Spain, 7%; and other, 8%. Waste and scrap (gross weight): Canada, 64%; Mexico, 34%; and other, 2%. Combined total (includes gross weight of waste and scrap): Canada, 63%; Mexico, 15%; Peru, 7%; Spain, 7%; and other, 8%.

| Tariff: | Item | Number | Normal Trade Relations 12–31–21 |
|----------------|--|---------------|--|
| | Zinc ores and concentrates, zinc content | 2608.00.0030 | Free. |
| | Zinc oxide; zinc peroxide | 2817.00.0000 | Free. |
| | Unwrought zinc, not alloyed: | | |
| | Containing 99.99% or more zinc | 7901.11.0000 | 1.5% ad valorem. |
| | Containing less than 99.99% zinc: | | |
| | Casting-grade | 7901.12.1000 | 3% ad valorem. |
| | Other | 7901.12.5000 | 1.5% ad valorem. |
| | Zinc alloys | 7901.20.0000 | 3% ad valorem. |
| | Zinc waste and scrap | 7902.00.0000 | Free. |

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Depletion Allowance: 22% (domestic), 14% (foreign).

Government Stockpile:⁷

| <u>Material</u> | <u>Inventory as of 9–30–21</u> | <u>FY 2021</u> | | <u>FY 2022</u> | |
|-----------------|------------------------------------|-----------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| | | <u>Potential acquisitions</u> | <u>Potential disposals</u> | <u>Potential acquisitions</u> | <u>Potential disposals</u> |
| Zinc | 7.25 | — | 7.25 | — | 7.25 |

Events, Trends, and Issues: Estimated global zinc mine production in 2021 increased from that in 2020, when mine production was constrained in some countries because of Government-mandated lockdowns and a decrease in zinc prices following the onset of the global COVID-19 pandemic. According to the International Lead and Zinc Study Group,⁸ estimated global refined zinc production in 2021 was forecast to increase slightly to 14.13 million tons and estimated metal consumption to increase by 6% to 14.09 million tons, resulting in a production-to-consumption surplus.

On November 9, 2021, a proposed revised U.S. critical minerals list was published in the Federal Register (86 FR 62199). The new list contained 50 individual mineral commodities; proposed changes were the addition of nickel and zinc and the removal of helium, potash, rhenium, strontium, and uranium, which were included in the 2018 critical minerals list.

World Mine Production and Reserves: Reserves for Australia, Canada, India, Mexico, Peru, Sweden, and the United States were revised based on Government or company reports.

| | <u>Mine production⁹</u> | | <u>Reserves¹⁰</u> |
|-----------------------|------------------------------------|-------------------------|------------------------------|
| | <u>2020</u> | <u>2021^e</u> | |
| United States | 718 | 740 | 9,000 |
| Australia | 1,310 | 1,300 | ¹¹ 69,000 |
| Bolivia | 360 | 490 | 4,800 |
| Canada | 211 | 260 | 5,400 |
| China | 4,060 | 4,200 | 44,000 |
| India | 720 | 810 | 9,100 |
| Kazakhstan | 222 | 220 | 12,000 |
| Mexico | 638 | 720 | 19,000 |
| Peru | 1,330 | 1,600 | 19,000 |
| Russia | 280 | 280 | 22,000 |
| Sweden | 232 | 230 | 3,700 |
| Other countries | <u>1,950</u> | <u>2,000</u> | <u>34,000</u> |
| World total (rounded) | 12,000 | 13,000 | 250,000 |

World Resources:¹⁰ Identified zinc resources of the world are about 1.9 billion tons.

Substitutes: Aluminum and plastics substitute for galvanized sheet in automobiles; aluminum alloys, cadmium, paint, and plastic coatings replace zinc coatings in other applications. Aluminum- and magnesium-base alloys are major competitors for zinc-base diecasting alloys. Many elements are substitutes for zinc in chemical, electronic, and pigment uses.

^eEstimated. E Net exporter. — Zero.

¹Includes primary and secondary zinc metal production.

²Less than ½ unit.

³Defined as refined production + refined imports – refined exports + adjustments for Government stock changes.

⁴Source: S&P Global Platts Metals Week, North American Special High Grade (SHG) zinc; based on the LME cash price plus premium.

⁵Includes mine and mill employment at all zinc-producing mines. Excludes office workers. Source: Mine Safety and Health Administration.

⁶Defined as imports – exports + adjustments for Government stock changes.

⁷See Appendix B for definitions.

⁸International Lead and Zinc Study Group, 2021, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group press release, October 12, [5] p.

⁹Zinc content of concentrates and direct shipping ores.

¹⁰See Appendix C for resource and reserve definitions and information concerning data sources.

¹¹For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 24 million tons.