

## ZINC

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

**Domestic Production and Use:** The estimated value of zinc mined in 2024 was \$2.4 billion. Zinc was mined in five States at six mining operations by five companies. Two smelter facilities, one primary and one secondary, operated by two companies, accounted for most of the commercial-grade zinc metal produced in the United States. Of the total reported zinc consumed, most was used to produce galvanized steel, followed by brass and bronze, zinc-base alloys, and other uses.

| <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, zinc in concentrates  | 723         | 704         | 763         | 767         | 750                     |
| Refined zinc <sup>e, 1</sup>  | 180         | 220         | 220         | 220         | 220                     |
| Imports for consumption:  |             |             |             |             |                         |
| Ores and concentrates   | 3           | 13          | 5           | 18          | 15                      |
| Refined zinc  | 700         | 701         | 762         | 705         | 600                     |
| Exports:  |             |             |             |             |                         |
| Ores and concentrates   | 546         | 644         | 644         | 641         | 580                     |
| Refined zinc  | 2           | 13          | 8           | 3           | 2                       |
| Shipments from Government stockpile <sup>2</sup>                          | —           | —           | 1           | NA          | NA                      |
| Consumption, apparent, refined zinc <sup>3</sup>                          | 878         | 908         | 974         | 921         | 820                     |
| Price, average, cents per pound:  |             |             |             |             |                         |
| North American <sup>4</sup>   | 110.8       | 145.8       | 190.2       | 151.3       | 144                     |
| London Metal Exchange (LME), cash   | 102.7       | 136.3       | 158.1       | 120.1       | 126                     |
| Stocks, reported producer and consumer, refined zinc, yearend             | 120         | 115         | 134         | 120         | 120                     |
| Employment, number:   |             |             |             |             |                         |
| Mine and mill <sup>5</sup>  | 2,360       | 2,480       | 2,500       | 2,630       | 2,500                   |
| Smelter, primary  | 220         | 220         | 220         | 340         | 340                     |
| Net import reliance <sup>6</sup> as a percentage of apparent consumption: |             |             |             |             |                         |
| Ores and concentrates   | E           | E           | E           | E           | E                       |
| Refined zinc  | 79          | 76          | 77          | 76          | 73                      |

**Recycling:** Refined zinc produced in the United States was recovered from secondary materials at both primary and secondary smelters. These secondary materials included galvanizing residues and crude zinc oxide recovered from electric arc furnace dust.

**Import Sources (2020–23):** Ores and concentrates: Peru, 42%; Turkey, 25%; Canada, 16%; Republic of Korea, 10%; and other, 7%. Refined metal: Canada, 59%; Mexico, 16%; Republic of Korea, 7%; Peru, 7%; and other, 11%. Waste and scrap (gross weight): Canada, 64%; Mexico, 34%; and other, 2%. Combined total (includes gross weight of waste and scrap): Canada, 58%; Mexico, 16%; Republic of Korea, 7%; Peru, 7%; and other, 12%.

| <b>Tariff:</b> | <b>Item</b>                              | <b>Number</b> | <b>Normal Trade Relations<br/>12–31–24</b> |
|----------------|--|---------------|--|
|                | Zinc ores and concentrates, zinc content | 2608.00.0030  | Free.                                      |
|                | Zinc oxide; zinc peroxide                | 2817.00.0000  | Free.                                      |
|                | Zinc sulfate                             | 2833.29.4500  | 1.6% ad valorem.                           |
|                | 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.                                      |

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

### **Government Stockpile:<sup>7</sup>**

| <b>Material</b> | <b>FY 2024</b>                |                            | <b>FY 2025</b>                |                            |
|-----------------|-------------------------------|----------------------------|-------------------------------|----------------------------|
|                 | <b>Potential acquisitions</b> | <b>Potential disposals</b> | <b>Potential acquisitions</b> | <b>Potential disposals</b> |
| Zinc            | —                             | 2.27                       | —                             | 2.27                       |

## ZINC

**Events, Trends, and Issues:** U.S. zinc mine production was estimated to have decreased slightly in 2024 compared with that in 2023. There was no production at the Middle Tennessee zinc mines after operations were suspended in November 2023. During the closure, drilling work was conducted to define additional zinc, germanium, and gallium resources. Domestic refined production was estimated to have remained unchanged in 2024 compared with that in the previous year, and apparent consumption decreased alongside an estimated 15% decrease in net imports of refined zinc. Galvanized steel was the leading use of refined zinc in the United States. In September, the U.S. Department of Commerce initiated antidumping and countervailing investigations on corrosion-resistant steel, including galvanized steel, imported from 10 trading partners. In October, the U.S. International Trade Commission preliminarily determined that U.S. industry was materially injured by these imports. Final determinations were expected to be made in 2025.

The annual average LME cash price for Special High Grade (SHG) zinc was projected to decrease by 5% in 2024 from that in 2023. The monthly average North American premium to the LME cash price continued to decrease during 2024 as in 2023 but remained high compared with historical levels. According to the International Lead and Zinc Study Group,<sup>8</sup> estimated global refined zinc production in 2024 was forecast to decrease by 1.8% to 13.7 million tons owing to a limited availability of concentrates, and estimated metal consumption was forecast to increase by 1.8% to 13.8 million tons, resulting in a production-to-consumption deficit of 164,000 tons.

**World Mine Production and Reserves:** Reserves for China, India, Kazakhstan, Peru, Russia, South Africa, Sweden, and the United States were revised based on company and Government reports.

|                       | Mine production <sup>9</sup> |                   | Reserves <sup>10</sup> |
|-----------------------|------------------------------|-------------------|------------------------|
|                       | 2023                         | 2024 <sup>e</sup> |                        |
| United States         | 767                          | 750               | 9,200                  |
| Australia             | 1,090                        | 1,100             | <sup>11</sup> 64,000   |
| Bolivia               | 492                          | 510               | NA                     |
| China                 | 4,060                        | 4,000             | 46,000                 |
| India                 | <sup>e</sup> 854             | 860               | 9,800                  |
| Kazakhstan            | 340                          | 370               | 7,600                  |
| Mexico                | 584                          | 700               | 14,000                 |
| Peru                  | 1,470                        | 1,300             | 20,000                 |
| Russia                | <sup>e</sup> 300             | 310               | 29,000                 |
| South Africa          | 198                          | 120               | 5,900                  |
| Sweden                | 218                          | 240               | 3,900                  |
| Other countries       | <u>1,690</u>                 | <u>1,700</u>      | <u>25,000</u>          |
| World total (rounded) | 12,100                       | 12,000            | 230,000                |

**World Resources:**<sup>10</sup> 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 substitutes for zinc-base diecasting alloys. Many elements are substitutes for zinc in chemical, electronic, and pigment uses.

<sup>e</sup>Estimated. E Net exporter. NA Not available. — Zero.

<sup>1</sup>Includes primary and secondary zinc metal production.

<sup>2</sup>Defined as changes in total inventory from prior yearend inventory. If negative, increase in inventory. Beginning in 2023, Government stock changes no longer available.

<sup>3</sup>Defined for 2020–22 as refined production + refined imports – refined exports ± adjustments for Government stock changes. Beginning in 2023, Government stock changes no longer included.

<sup>4</sup>Source: S&P Global Platts Metals Week, North American SHG zinc; based on the LME cash price plus premium.

<sup>5</sup>Includes mine and mill employment at zinc-containing deposits. Excludes office workers. Source: Mine Safety and Health Administration.

<sup>6</sup>Defined for 2020–22 as imports – exports ± adjustments for Government stock changes. Beginning in 2023, Government stock changes no longer included.

<sup>7</sup>See Appendix B for definitions.

<sup>8</sup>Source: International Lead and Zinc Study Group, 2024, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group press release, September 30, [4] p.

<sup>9</sup>Zinc content of concentrates and direct shipping ores.

<sup>10</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>11</sup>For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 21 million tons.