

## ZINC

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

**Domestic Production and Use:** The value of zinc mined in 2019, based on zinc contained in concentrate, was about \$2.1 billion. Zinc was mined in six States at 15 mines operated by five companies. Two smelter facilities, one primary and one secondary, operated by two 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.

<b>Salient Statistics—United States:</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019<sup>e</sup></b>
Production:					
Zinc in ore and concentrate	825	805	774	824	780
Refined zinc <sup>1</sup>	172	126	132	116	120
Imports for consumption:					
Zinc in ore and concentrate	(2)	(2)	7	(2)	(2)
Refined zinc	771	713	729	775	830
Exports:					
Zinc in ore and concentrate	708	597	682	806	870
Refined zinc	13	47	33	23	5
Shipments from Government stockpile	—	—	—	—	—
Consumption, apparent, refined zinc <sup>3</sup>	931	792	829	868	950
Price, average, cents per pound:					
North American <sup>4</sup>	95.5	101.4	139.3	141.0	125.0
London Metal Exchange (LME), cash	87.6	94.8	131.2	132.7	117.0
Reported producer and consumer stocks, refined zinc, yearend	87	80	112	117	120
Employment:					
Mine and mill, number <sup>5</sup>	2,690	2,350	2,420	2,630	2,500
Smelter, primary, number	250	246	240	250	250
Net import reliance <sup>6</sup> as a percentage of apparent consumption:					
Ore and concentrate	E	E	E	E	E
Refined zinc	81	84	84	87	87

**Recycling:** In 2019, about 25% (30,000 tons) 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 (2015–18):** Ore and concentrate: Peru, 98%; and other, 2%. Refined metal: Canada, 64%; Mexico, 13%; Australia, 7%; Peru, 7%; and other, 9%. Waste and scrap (gross weight): Canada, 72%; Mexico, 28%; and other, <1%. Combined total (includes gross weight of waste and scrap): Canada, 64%; Mexico, 13%; Australia, 7%; Peru, 7%; and other, 9%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12–31–19</b>
Zinc ores and concentrates, Zn 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 val.
Containing less than 99.99% zinc:		
Casting-grade	7901.12.1000	3% ad val.
Other	7901.12.5000	1.5% ad val.
Zinc alloys	7901.20.0000	3% ad val.
Zinc waste and scrap	7902.00.0000	Free.

**Depletion Allowance:** 22% (Domestic), 14% (Foreign).

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

<b>Material</b>	<b>FY 2019</b>		<b>FY 2020</b>		
	<b>Inventory As of 9–30–19</b>	<b>Potential Acquisitions</b>	<b>Potential Disposals</b>	<b>Potential Acquisitions</b>	<b>Potential Disposals</b>
Zinc	7.25	—	7.25	—	7.25

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**Events, Trends, and Issues:** Global zinc mine production in 2019 was estimated to be 13 million tons, a 4% increase from that of 2018. Notable zinc mine production increases took place in Australia, China, and South Africa. In Australia, the Woodlawn tailings project opened in May and significant increases in production took place at the Dugald River Mine, the Lady Loretta Mine, and two tailings reprocessing projects commissioned in 2018. In South Africa, production increased at the Gamsberg Mine, which was commissioned in late 2018.

According to the International Lead and Zinc Study Group,<sup>8</sup> global refined zinc production in 2019 was estimated to be 13.49 million tons, and metal consumption was estimated to be 13.67 million tons, resulting in a production-to-consumption deficit of about 180,000 tons of refined zinc.

Domestic zinc mine production decreased in 2019, owing partially to the closure of the Pend Oreille Mine in Washington State in July after current reserves were exhausted. The mine was reopened in December 2014 after being closed since 2009. U.S. apparent consumption of refined zinc increased to a 5-year high of 950,000 tons in 2019. The estimated annual average North American Special High Grade (SHG) zinc price decreased by 11% in 2019 from that in 2018 to \$1.25 per pound.

**World Mine Production and Reserves:** Reserves for Australia, Canada, India, Kazakhstan, Mexico, Peru, Russia, and Sweden were revised based on Government or industry reports.

	Mine production <sup>9</sup>		Reserves <sup>10</sup>
	2018	2019 <sup>e</sup>	
United States	824	780	11,000
Australia	1,110	1,300	<sup>11</sup> 68,000
Bolivia	480	460	4,800
Canada	287	300	2,200
China	4,170	4,300	44,000
India	750	800	7,500
Kazakhstan	304	290	12,000
Mexico	691	690	22,000
Peru	1,470	1,400	19,000
Russia	300	300	22,000
Sweden	234	230	3,600
Other countries	1,840	1,900	34,000
World total (rounded)	12,500	13,000	250,000

**World Resources:** 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.

<sup>e</sup>Estimated. E Net exporter. — Zero.

<sup>1</sup>Includes primary and secondary refined production.

<sup>2</sup>Less than ½ unit.

<sup>3</sup>Defined as refined production + refined imports – refined exports + adjustments for Government stock changes.

<sup>4</sup>Platts Metals Week price for North American SHG zinc; based on the LME cash price plus premium.

<sup>5</sup>Includes mine and mill employment at all zinc-producing mines. Source: Mine Safety and Health Administration.

<sup>6</sup>Defined as imports – exports + adjustments for Government stock changes.

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

<sup>8</sup>International Lead and Zinc Study Group, 2019, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group press release, October 28, 7 p.

<sup>9</sup>Zinc content of concentrate and direct shipping ore.

<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 reserves were 25 million tons.