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

Domestic Production and Use: Six lead mines in Missouri, plus five mines in Alaska, Idaho, and Washington that produced lead as a coproduct, accounted for all domestic lead mine production. The value of the lead in concentrates mined in 2015, based on the average North American Market price for refined lead, was about $790 million. The 11 secondary lead refineries in 10 States that had capacities of at least 30,000 tons per year of refined lead accounted for more than 95% of secondary lead production in 2015. Lead was consumed at more than 70 manufacturing plants. The lead-acid battery industry accounted for about 90% of reported U.S. lead consumption during 2015. Lead-acid batteries were primarily used as starting-lighting-ignition (SLI) batteries for automobiles and trucks, as industrial-type batteries for standby power for computer and telecommunications networks, and for motive power for forklifts. During the first 9 months of 2015, 94.1 million lead-acid automotive batteries were shipped by North American producers, a slight increase from those shipped in the same period of 2014.

Production:
Mine, lead in concentrates 342 345 340 379 385
Primary refinery 118 111 114 — —
Secondary refinery, old scrap 1,130 1,110 1,150 1,130 1,120
Imports for consumption:
  Lead in concentrates (‘) (‘) (‘) (‘) (‘)
  Refined metal, wrought and unwrought 316 351 487 596 550
Exports:
  Lead in concentrates 223 214 210 356 350
  Refined metal, wrought and unwrought 47 53 48 60 50
Consumption:
  Reported 1,410 1,350 1,390 1,510 1,470
  Apparent2 1,540 1,500 1,700 1,670 1,620
Price, average, cents per pound:
  North American Producer 122 114 115 NA NA
  North American Market NA NA 110 106 93
  London Metal Exchange 109 93.5 97.2 95.0 83.0
Stocks, metal, producers, consumers, yearend 48 72 67 64 60
Employment:
  Mine and mill (average), number3 1,700 1,660 1,690 1,730 1,730
  Primary smelter, refineries 290 290 290 — —
  Secondary smelters, refineries 2,000 2,000 2,000 1,800 1,800
Net import reliance4 as a percentage of apparent consumption, refined lead 19 18 26 32 31

Recycling: In 2015, about 1.12 million tons of secondary lead was produced, an amount equivalent to 69% of apparent domestic consumption. Nearly all secondary lead was recovered from old (post-consumer) scrap.

Import Sources (2011–14): Metal, wrought and unwrought: Canada, 57%; Mexico, 20%; Peru, 5%; Australia and Kazakhstan, 4% each; and other, 10%.

Tariff: Item Number Normal Trade Relations5 12–31–15
  Lead ores and concentrates 2607.00.0020 1.1¢/kg on lead content.
  Refined lead 7801.10.0000 2.5% ad val.
  Antimonial lead 7801.91.0000 2.5% ad val.
  Alloys of lead 7801.99.9030 2.5% ad val.

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

Government Stockpile: None.

Events, Trends, and Issues: The average London Metal Exchange (LME) cash lead price declined by about 13% in 2015 from that in 2014. The LME price averaged $0.83 per pound ton in January, peaked at $0.91 in May, and declined to $0.78 per pound in October. The price decline took place despite global LME warehouse stocks decreasing to 147,225 tons at the end of October from 221,975 tons at yearend 2014, and an anticipated decrease in global refined production. Essentially all of the remaining lead stocks were held in warehouses in Asia and Europe.

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Domestic mine production in 2015 increased from that in the previous year owing to increases in all of the lead-producing States. The Pend Oreille Mine in Washington reopened in late 2014 and began producing lead in 2015. Total domestic secondary lead production was slightly lower than that in 2014. Increased production at several secondary smelters was expected to be offset by the closure of one smelter. In early 2014, a producer temporarily shut down operations of a lead smelter in Vernon, CA, owing to environmental concerns from State regulators. The company had intended to restart operations in 2015 but closed the plant instead. In March, one secondary producer announced plans to build a new secondary lead refinery in Nevada capable of producing high-purity lead for use in advanced lead-acid batteries. The plant would use an electrochemical battery recycling technology and be built in 2016. The United States has become more reliant on imported refined lead during the past few years owing to the closure of the last primary lead smelter in 2013, and increased exports of spent SLI lead-acid batteries have reduced the amount of scrap available to secondary smelters. During the first 8 months of the year, 19.3 million spent SLI lead-acid batteries, containing an estimated 167,000 tons of lead, were exported.

Global mine production of lead was expected to decline to about 4.70 million tons in 2015. The International Lead and Zinc Study Group (ILZSG) forecast global refined lead production to be 10.8 million tons, a slight decrease from that in 2014, primarily driven by decreases in China and Peru. ILZSG projected global lead consumption to be 10.8 million tons in 2015, a slight decline from that in 2014, partially owing to a decrease in China’s consumption. In 2015, global refined lead production was expected to be essentially the same as consumption.  

**World Mine Production and Reserves:** Reserve estimates for India, Peru, and Turkey were revised based on information from Government and industry sources.

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<th>Mine production</th>
<th>Reserves</th>
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|                | 2014 | 2015 | 2015  
| United States  | 379  | 385  | 5,000  
| Australia      | 728  | 633  | 35,000|
| Bolivia        | 94   | 82   | 1,600  
| China          | 2,400 | 2,300 | 15,800 |
| India          | 106 | 130  | 2,200  
| Ireland        | 41   | 33   | 600    
| Kazakhstan     | 38   | 38   | NA     
| Korea, North   | 45   | 45   | NA     
| Mexico         | 250  | 240  | 5,600  
| Peru           | 278  | 300  | 6,700  
| Poland         | 38   | 40   | 1,700  
| Russia         | 90   | 90   | 9,200  
| South Africa   | 29   | 40   | 300    
| Sweden         | 71   | 76   | 1,100  
| Turkey         | 65   | 54   | 860    
| Other countries| 214  | 225  | 3,000  
| World total (rounded) | 4,870 | 4,710 | 89,000 |

**World Resources:** Identified world lead resources total more than 2 billion tons. In recent years, significant lead resources have been identified in association with zinc and (or) silver or copper deposits in Australia, China, Ireland, Mexico, Peru, Portugal, Russia, and the United States (Alaska).

**Substitutes:** Substitution of plastics has reduced the use of lead in cable covering and cans. Tin has replaced lead in solder for potable water systems. The electronics industry has moved toward lead-free solders and flat-panel displays that do not require lead shielding. Steel and zinc are common substitutes for lead in wheel weights.

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*Estimated. NA Not available. — Zero.
Less than ¼ unit.
Defined as primary refined production + secondary refined production + refined imports – refined exports + adjustments for industry stock changes.
Includes lead and zinc-lead mines for which lead was either a principal product or significant byproduct.
Defined as imports – exports + adjustments for industry stock changes.
No tariff for Canada, Mexico, and Peru for items shown.
See Appendix C for resource/reserve definitions and information concerning data sources.