### **LEAD**

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

<u>Domestic Production and Use</u>: The value of recoverable mined lead in 1996, based on the average U.S. producer price, was \$445 million. Seven lead mines in Missouri plus lead-producing mines in Alaska, Colorado, Idaho, and Montana yielded most of the total. Primary lead was processed at two smelter-refineries in Missouri, a smelter in Montana, and a refinery in Nebraska. Of the 30 smelters that produced secondary lead, 17 had annual capacities of 10,000 tons or more and accounted for more than 90% of secondary production. Lead was consumed at about 170 manufacturing plants. The transportation industries were the principal users of lead, consuming 65% of it for batteries, fuel tanks, solder, seals, and bearings. Electrical, electronic, and communications uses (including batteries), ammunition, television glass, construction (including radiation shielding), and protective coatings accounted for approximately 28% of consumption. The balance was used in ballast and weights, ceramics and crystal glass, tubes and containers, type metal, foil, wire, and specialized chemicals.

Primary refinery: From domestic ore 284 310 328 374 34	30 40 W 70 5 25				
From domestic ore 284 310 328 374 34	W 70 5				
·	W 70 5				
For the control of the 1	70 5				
From imported materials <sup>1</sup> 21 25 23 W	5				
Secondary refinery, old scrap 861 838 877 926 97	-				
Imports for consumption, lead in concentrates 5 1 1 3	25				
Exports, lead in concentrates 72 42 39 66 2					
Imports for consumption, metal, wrought and unwrought 198 202 237 271 250 Exports, metal, wrought and unwrought 70 59 54 57 60					
and unwrought 198 202 237 271 25	50				
Exports, metal, wrought and unwrought 70 59 54 57 6	60				
Shipments from Government stockpile					
excesses, metal — 19 65 34	40				
Consumption: Reported 1,240 1,290 1,450 1,600 1,55	50				
Apparent 1,270 1,340 1,490 1,540 1,56	60				
Price, average, cents per pound: U.S. 35.1 31.7 37.2 42.3 48	.8				
London 24.5 18.4 24.8 28.6 36	.0				
Stocks, metal, producers, consumers, yearend 103 95 78 90 7	75				
Employment: Mine and mill (peak), number 1,700 1,500 1,300 1,200 1,200	00				
Primary smelter, refineries 600 600 600 600 600	00				
Secondary smelters, refineries 1,700 1,800 1,800 1,800 1,800	00				
Net import reliance <sup>2</sup> as a percent of					
apparent consumption 10 15 19 17	17				

**Recycling:** About 1 million tons of secondary lead was produced, an amount equivalent to 64% of domestic lead consumption. Nearly all of it was recovered from old (post-consumer) scrap. About 880,000 tons (equivalent to 57% of domestic lead consumption) was recovered from used batteries alone.

<u>Import Sources (1992-95)</u>: Lead in concentrates: Mexico, 54%; Peru, 28%; Canada, 6%; and other, 12%. Metal, wrought and unwrought: Canada, 68%; Mexico, 21%; Peru, 9%; Australia, 1%; and other, 1%. Total lead content: Canada, 67%; Mexico, 21%; Peru, 9%; Australia, 1%; and other, 2%.

 Tariff:
 Item
 Number
 Most favored nation (MFN)³
 Non-MFN⁴

 12/31/96
 12/31/96
 12/31/96

 Unwrought (Refined)
 7801.10.0000
 3.1% ad val.
 10.0% ad val.

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

## Government Stockpile:

### Stockpile Status—9-30-96

	Uncommitted	Committed	Authorized	Disposals
Material	inventory	inventory	for disposal	JanSept. 96
Lead	391	4	391	33

<u>Events, Trends, and Issues:</u> During 1996, the price for lead increased significantly in the U.S. and world markets. The average North American Producer and London Metal Exchange prices for the first 9 months of the year were

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about 16% and 28%, respectively, above the averages for the previous year, as refined lead remained in short supply and stocks in industrialized countries remained at, or below, the levels at yearend 1995. U.S. mine production rose by about 9%, but primary refinery production declined by 8%, mainly owing to the permanent closure in May of one refinery. Secondary refinery production continued to increase, rising by 4% over that of 1995. U.S. apparent consumption of lead increased slightly in 1996 as strong demand continued for both original equipment and replacement lead-acid batteries in the automotive industry. In addition, demand for industrial-type batteries, particularly in the telecommunications and computer sectors, increased appreciably.

The U.S. Environmental Protection Agency (EPA) issued a direct final rule, effective January 1, 1996, prohibiting the introduction into commerce of any gasoline for highway motor vehicle use that is produced with lead additives or contains incidental trace levels of more than 0.05 gram of lead per gallon. The rule also removed or modified resulting unnecessary requirements for gasoline recordkeeping, reporting, and automobile labeling. EPA and the U.S. Department of Housing and Urban Development also jointly issued a final rule on March 6, 1996, requiring sellers and lessors to disclose the presence of known lead-based paint and/or lead-based paint hazards as part of the sale or lease of their housing. The effective date of the rule was September 6, 1996, for owners of more than four residential dwellings, and December 6, 1996, for owners of four or fewer dwellings. On August 29, EPA also issued a final rule regulating the training and certification of individuals engaged in lead-based paint abatement activities in target housing and child-occupied facilities.

The European Environment Commissioner and Environment Ministers of member countries of the Organization for Economic Cooperation and Development, meeting in February 1996, adopted a declaration to advance national and cooperative efforts to reduce risks from exposure to lead. Highest priority was directed to actions that would effectively phase down the use of lead in gasoline, eliminate exposure of children to lead in toys and other products with which they are in contact, and eliminate the exposure to lead from solder used in food and beverage containers.

In electric vehicle (EV) developments, a major U.S. automobile manufacturer planned to build, annually, 2,000 electric cars powered by conventional lead-acid batteries. The cars, weighing about 1,360 kilograms, were expected to have a range of 130 to 145 kilometers between charges. Also, a consortium representing 80% of the global manufacturers of lead-acid batteries announced plans for a 3-year, \$17.5 million research program to develop a maintenance-free, sealed, recombinant lead-acid battery for EV applications.

#### World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves <sup>5</sup>	Reserve base <sup>5</sup>
	<u>1995</u>	<u>1996</u> <sup>e</sup>		
United States	394	430	8,000	20,000
Australia	455	490	20,000	34,000
Canada	210	260	4,000	13,000
China	430	450	7,000	11,000
Mexico	164	170	1,000	2,000
Morocco	73	70	500	1,000
Peru	233	230	2,000	3,000
South Africa	88	90	2,000	3,000
Sweden	100	100	500	1,000
Other countries	<u>560</u>	<u>510</u>	24,000	36,000
World total (may be rounded)	2,710	2,800	69,000	120,000

<u>World Resources</u>: In recent years, significant lead resources have been demonstrated in association with zinc and/or silver or copper in Alaska, Australia, Canada, China, India, Mexico, Pakistan, and South Africa. Identified lead resources of the world total more than 1.5 billion tons.

<u>Substitutes</u>: Substitution of plastics has reduced the use of lead in building construction, electrical cable covering, and cans and containers. Aluminum, tin, iron, and plastics compete with lead in other packaging and protective coatings, and tin has replaced lead in solder for new or replacement potable water systems in the United States.

<sup>&</sup>lt;sup>e</sup>Estimated. W Withheld to avoid disclosing company proprietary data; Included with "from domestic ore."

<sup>&</sup>lt;sup>1</sup>Included in imports for calculating net import reliance (see footnote 2).

<sup>&</sup>lt;sup>2</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>&</sup>lt;sup>3</sup>No tariff for Mexico and 0.6% ad val. for Canada.

<sup>&</sup>lt;sup>4</sup>See Appendix B.

<sup>&</sup>lt;sup>5</sup>See Appendix C for definitions.