LITHIUM

(Data in metric tons of contained lithium, unless otherwise noted)

Domestic Production and Use: The United States was the largest producer and consumer of lithium minerals and compounds worldwide. The value of domestic lithium production was estimated to be about $115 million in 1996. Two companies produced lithium compounds for domestic consumption as well as for export to other countries.

The use of lithium compounds in ceramics, glass, and primary aluminum production represented more than 60% of estimated domestic consumption. Other major end uses for lithium were in the manufacture of lubricants and greases and in the production of synthetic rubber.

Salient Statistics—United States:	1992	1993	1994	1995	1996[e]
Production	W	W	W	W	W
Imports for consumption	770	810	851	1,140	1,200
Exports	2,100	1,700	1,700	1,900	2,000
Consumption: Apparent	W	W	W	W	W
Estimated[1]	2,300	2,300	2,500	2,600	2,600
Price, yearend, dollars per kilogram:					
Lithium carbonate	4.32	4.21	4.41	4.34	4.34
Lithium hydroxide, monohydrate	5.53	5.71	5.62	5.62	5.62
Stocks, producer, yearend	W	W	W	W	W
Employment, mine and mill[e], number	230	230	230	230	230
Net import reliance[2] as a percent of apparent consumption	E	E	E	E	E

Recycling: Insignificant.

Import Sources (1992-95): Chile, 98%; and other, 2%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN[3] 12/31/96
Other alkali metals	2805.19.0000	6.2% ad val.	25% ad val.
Lithium oxide and hydroxide	2825.20.0000	3.7% ad val.	25% ad val.
Lithium carbonate:			
U.S.P. grade	2836.91.0010	3.7% ad val.	25% ad val.
Other	2836.91.0050	3.7% ad val.	25% ad val.

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

Government Stockpile: None.

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Events, Trends, and Issues: Two new South American lithium brine operations are expected to begin producing near yearend. The Argentine operation, a subsidiary of one of the major U.S. lithium companies, should enter the lithium carbonate and lithium chloride markets early in 1997. This operation will provide the lithium carbonate feedstock necessary for the production of value-added chemical products at the company's North American operations. Expectations are that as the Argentine production approaches design capacity, mining and lithium carbonate production in North Carolina will be phased back and eventually discontinued.

Lithium carbonate from the second lithium brine project in Chile, operated by a Chilean fertilizer producer, should enter the lithium carbonate market in early 1997. This company announced plans to offer large quantities of lithium carbonate at significantly lower prices than are currently available. The two U.S. producers reported that they will be able to compete at the announced price levels.

Another U.S. company that has been one of the only large-scale recyclers of lithium batteries announced plans to sell large quantities of lithium hydroxide monohydrate. The recycling company intended to reprocess the lithium hydroxide, if necessary, repackage all the material, and offer it at substantially lower prices than offered by other companies. These lower prices may make lithium additives to portland cement concrete more feasible for preventing the silica alkali reaction that can cause premature cracking of concrete. This is an especially serious problem in California.

The California-based company purchased 31,000 tons of the material from the Department of Energy's stockpile, while the remaining 10,000 tons was purchased by another domestic company.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[4]	Reserve base[4]
	1995	1996[e]		
United States	W	W	340,000	410,000
Argentina[e]	8	30	NA	NA
Australia[e]	1,700	1,800	150,000	160,000
Bolivia	—	—	—	5,400,00
Brazil	32	32	910	NA
Canada	660	660	180,000	360,000
Chile	2,000	2,100	1,300,000	1,400,000
China[5]	320	320	NA	NA
Namibia[e]	52	50	NA	NA
Portugal	160	160	NA	NA
Russia[e]	800	800	NA	NA
Zaire	—	—	—	320,000
Zimbabwe	520	500	23,000	27,000
World total (may be rounded)	[6]6,300	[6]6,600	[7]2,000,000	[8]8,100,000

World Resources: The identified lithium resources total 760,000 tons in the United States and 12 million tons in other countries.

Substitutes: Substitutes for lithium compounds are possible in manufactured glass, ceramics, greases, and batteries. Examples are sodic and potassic fluxes in ceramics and glass manufacture; calcium and aluminum soaps as substitutes for stearates in greases; and zinc, magnesium, calcium, and mercury as anode material in primary batteries. Lithium carbonate is not considered an essential ingredient in aluminum potlines. Substitutes for aluminum-lithium alloys as structural materials are composite materials consisting of glass, polymer, or boron fibers in engineering resins.

[e]Estimated. E Net exporter. NA Not available. W Withheld to avoid disclosing company proprietary data.

[1]Based primarily on monitoring at the concentrate stage and assuming a 15% lithium loss during conversion of concentrate into chemicals.

[2]Defined as imports - exports + adjustments for Government and industry stock changes.

[3]See Appendix B.

[4]See Appendix C for definitions.

[5]These estimates denote only an approximate order of magnitude; no basis for more exact estimates is available. Output by China and Russia has never been reported.

[6]Excludes U.S. production.

[7]Excludes Argentina, China, Namibia, Portugal, and Russia.

[8]Excludes Argentina, Brazil, China, Namibia, Portugal, and Russia.