CADMIUM

(Data in metric tons of cadmium content unless otherwise noted)

Domestic Production and Use: Only two companies produced cadmium in the United States in 2004. One company produced primary cadmium in Tennessee as a byproduct of smelting and refining zinc metal from sulfide ore, while the other company produced cadmium from scrap in Pennsylvania, mainly from spent nickel-cadmium (NiCd) batteries. Based on the average New York dealer price, the combined output of primary and secondary metal was valued at about $790,000 in 2004. During the past 4 years, consumption of cadmium declined by about 70% in response to environmental concerns. About 78% of total apparent consumption was for batteries. The remaining 22% was distributed as follows: pigments, 12%; coatings and plating, 8%; stabilizers for plastics, 1.5%; and nonferrous alloys and other, 0.5%.

Salient Statistics—United States:	2000	2001	2002	2003	2004[e]
Production, refinery[1]	1,890	680	700	670	600
Imports for consumption, metal	425	107	25	18	10
Exports of metal, alloys, scrap	314	272	168	558	400
Shipments from Government stockpile excesses	323	34	693	80	—
Consumption, apparent	2,010	659	561	530	500
Price, metal, dollars per pound[2]	0.16	0.23	0.52	0.50	0.60
Stocks, yearend, producer and distributor	1,200	1,090	1,750	1,430	1,140
Employment, smelter and refinery	NA	NA	NA	NA	NA
Net import reliance[3] as a percentage of apparent consumption	6	E	E	E	E

Recycling: Cadmium recycling thus far has been practical only for NiCd batteries, some alloys, and dust from electric arc furnaces (EAF). The exact amount of recycled cadmium is unknown. In 2004, the U.S. steel industry generated about 0.7 million ton of EAF dust, typically containing 0.003% to 0.07% cadmium.

Import Sources (2000-03): Metal: Australia, 47%; Belgium, 29%; Canada, 18%; and other, 6%.

Tariff: Item	Number	Normal Trade Relations[4] 12-31-04
Cadmium sulfide	2830.30.0000	3.1% ad val.
Pigments and preparations based on cadmium compounds	3206.30.0000	3.1% ad val.
Unwrought cadmium and powders	8107.20.0000	Free.
Cadmium waste and scrap	8107.30.0000	Free.

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

Government Stockpile: None.

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CADMIUM

Events, Trends, and Issues: During the past decade, regulatory pressure to reduce or even eliminate the use of cadmium has gained momentum in many developed countries. In the United States, Federal and State environmental agencies regulate the production and use of heavy metals such as cadmium. To help unify various standards used by these agencies, the U.S. Environmental Protection Agency (EPA) created a list of persistent and bioaccumulative toxic pollutants. Cadmium is 1 of 11 metals on the list, and its use in the United States is targeted by the EPA for a 50% reduction by 2005. The European Union is evaluating a proposal to ban all NiCd batteries containing more than 0.002% cadmium beginning on January 1, 2008, and to increase the collection rate for all spent industrial and automotive batteries. Declining production in developed countries was offset by increased production in developing countries, mainly in China, where higher production was driven by increased consumption by the battery manufacturing industry.

World Refinery Production, Reserves, and Reserve Base:

	Refinery production		Reserves[5]	Reserve base[5]
	2003	2004[e]		
United States	670	600	90,000	270,000
Australia	350	350	110,000	300,000
Belgium	120	100	—	—
Canada	1,400	1,400	55,000	100,000
China	2,500	2,600	90,000	380,000
Germany	450	450	6,000	8,000
India	480	490	3,000	5,000
Japan	2,500	2,600	10,000	15,000
Kazakhstan	1,350	2,000	50,000	100,000
Korea, Republic of	1,850	2,200	—	—
Mexico	1,400	1,400	35,000	40,000
Russia	950	1,000	16,000	30,000
Other countries	2,880	2,010	140,000	550,000
World total (rounded)	16,900	17,200	600,000	1,800,000

World Resources: Zinc-bearing coals of the central United States and Carboniferous-age coals of other countries also contain large subeconomic resources of cadmium.

Substitutes: NiCd batteries are being replaced in some applications with lithium-ion and nickel-metal hydride batteries. However, the higher cost of these substitutes restricts their use. Except where the surface characteristics of a coating are critical (e.g., fasteners for aircraft), coatings of zinc or vapor-deposited aluminum can substitute for cadmium in many plating applications. Cerium sulfide is used as a replacement for cadmium pigments, mostly in plastics.

[e]Estimated. E Net exporter. NA Not available. — Zero.

[1]Primary and secondary metal.

[2]Average New York dealer price for 99.95% purity in 5-short-ton lots. Source: Platts Metals Week.

[3]Defined as imports – exports + adjustments for Government and industry stock changes.

[4]No tariff for Canada and Mexico for items shown.

[5]See Appendix C for definitions.