GRAPHITE (NATURAL)

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: Natural graphite was not produced domestically in 1996. Natural graphite was consumed by approximately 200 manufacturing firms, primarily in the Northeastern and Great Lakes regions. The main uses of natural graphite were estimated to be in refractories, 25%; brake linings, 22%; lubricants, 5%; dressings and molds in foundry operations, 6%; and other, 42%.

Salient Statistics—United States:	1992	1993	1994	1995	1996[e]
Production, mine	—	—	—	—	—
Imports for consumption	50	52	53	61	60
Exports	20	17	20	37	25
Consumption, apparent	30	35	33	24	35
Price, imports (average dollars per ton at foreign ports):					
Flake	708	612	629	658	675
Lump and chip (Sri Lankan)	1,070	789	709	610	600
Amorphous (Mexican)	125	127	138	143	150
Stocks, yearend	NA	NA	NA	NA	NA
Net import reliance[1] as a percent of apparent consumption	100	100	100	100	100

Recycling: Used refractory recycling is growing with the recycled market being principally in less demanding service conditions, such as safety linings and insulation.

Import Sources (1992-95): Canada, 30%; Mexico, 28%; China, 20%; Madagascar, 7%; and other, 15%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN[2] 12/31/96
Crystalline flake (not including flake dust)	2504.10.1000	Free	3.6¢/kg.
Other	2504.90.0000	Free	10% ad val.

Depletion Allowance: 22% (Domestic lump and amorphous), 14% (Domestic flake), 14% (Foreign).

Government Stockpile:

Stockpile Status—9-30-96

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 96
Sri Lanka, amorphous lump	5	—	—	—
Madagascar, crystalline flake	14	1	14	—
Other than Sri Lanka and Madagascar crystalline	2	1	2	1

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GRAPHITE (NATURAL)

Events, Trends, and Issues: Graphite was near to supply-demand balance in 1995. Demand was met largely by imports of flake from Canada, China, and Madagascar; lump and chip from Sri Lanka; and amorphous graphite from China and Mexico. Graphite electrode consumption in steelmaking has been decreasing since the late 1980's due to increased efficiency of the iron and steel producers. Applicators of natural graphite in lubrication applications are also decreasing due to changes in lubricant compositions and processing technologies.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[3]	Reserve base[3]
	1995	1996[e]		
United States	—	—	—	1,000
Brazil	36	36	500	1,000
Canada	22	22	1,500	2,700
China	350	350	5,500	310,000
India	90	90	740	740
Korea, Republic of	4	4	3,200	20,000
Madagascar	10	10	980	980
Mexico	45	45	3,100	3,100
Other countries	163	163	5,500	43,000
World total (may be rounded)	720	720	[e]21,000	380,000

World Resources: Domestic resources are relatively small, although the rest of the world's inferred reserve base exceeds 800 million tons of recoverable graphite.

Substitutes: Manufactured graphite powder, scrap from discarded machined shapes, and calcined petroleum coke compete for use in iron and steel production. Finely ground coke with olivine is a potential competitor in foundry facing operations. Molybdenum disulfide competes as a dry lubricant, but is more sensitive to oxidative conditions.

[e]Estimated. NA Not available.

[1]Defined as imports - exports + adjustments for Government and industry stock changes. Data on changes in stocks were not available and were assumed to be zero in the calculations.

[2]See Appendix B.

[3]See Appendix C for definitions.