# NATURAL GRAPHITE STATISTICS<sup>1</sup> U.S. GEOLOGICAL SURVEY

 $[All\ values\ in\ metric\ tons\ (t)\ natural\ graphite\ unless\ otherwise\ noted]$ 

Last modification: October 17, 2007

Year   Production   Shipments   Imports   Exports   Consumption   (\$\frac{\( \)}{\( \)}\) (98\( \)\)	<b>production</b> 0 81,600 0 77,100 0 81,600 0 77,100 0 77,100
1900	0 81,600 0 77,100 0 81,600 0 77,100 0 77,100
1901	0 77,100 0 81,600 0 77,100 0 77,100
1902	0 81,600 0 77,100 0 77,100
1903         17,100         16,300         33,400         74.00         1,30           1904         17,900         12,900         30,800         70.00         1,30           1905         22,700         15,800         38,500         62.00         1,10           1906         18,000         23,100         41,100         67.00         1,20           1907         26,600         20,800         47,400         85.00         1,50           1908         2,350         10,400         12,700         73.00         1,30           1909         7,480         19,300         26,800         96.00         1,70           1910         3,810         22,900         26,700         82.00         1,44           1911         3,280         3,280         18,800         22,100         80.00         1,44           1911         3,280         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12	0 77,100 0 77,100
1904	0 77,100
1905   22,700	
1906         18,000         23,100         41,100         67.00         1,20           1907         26,600         20,800         47,400         85.00         1,50           1908         2,350         10,400         12,700         73.00         1,30           1909         7,480         19,300         26,800         96.00         1,70           1910         3,810         22,900         26,700         82.00         1,40           1911         3,280         3,280         18,800         22,100         80.00         1,40           1912         3,480         3,480         23,300         2,110         24,600         74.00         1,22           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,75           1917         12,300         38,600         2,330         48	
1907         26,600         20,800         47,400         85.00         1,50           1908         2,350         10,400         12,700         73.00         1,30           1909         7,480         19,300         26,800         96.00         1,70           1910         3,810         22,900         26,700         82.00         1,40           1911         3,280         3,280         18,800         22,100         80.00         1,40           1912         3,480         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,75           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865<	
1908         2,350         10,400         12,700         73.00         1,36           1909         7,480         19,300         26,800         96.00         1,70           1910         3,810         22,900         26,700         82.00         1,40           1911         3,280         3,280         18,800         22,100         80.00         1,40           1912         3,480         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,75           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200 <td></td>	
1909         7,480         19,300         26,800         96.00         1,70           1910         3,810         22,900         26,700         82.00         1,40           1911         3,280         3,280         18,800         22,100         80.00         1,40           1912         3,480         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,14           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,79           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630	
1910	
1911         3,280         3,280         18,800         22,100         80.00         1,44           1912         3,480         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,75           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,86           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89,40         72           1921         2,210         7,420         836         8,800         60.90         55	_
1912         3,480         3,480         23,300         2,110         24,600         74.00         1,20           1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,14           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,75           1917         12,300         38,600         2,330         48,600         232         2,99           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923	
1913         4,330         4,330         26,200         2,440         28,100         80.50         1,32           1914         3,930         3,930         19,900         1,780         22,100         70.10         1,14           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,79           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510 <td></td>	
1914         3,930         3,930         19,900         1,780         22,100         70.10         1,12           1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,79           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89,40         72           1921         2,210         7,420         836         8,800         60,90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100	
1915         4,280         20,900         480         24,700         107         1,72           1916         7,340         38,900         724         45,600         187         2,79           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         32           1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367	
1916         7,340         38,900         724         45,600         187         2,79           1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26.90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1928         5,090         15,900         2,000	
1917         12,300         38,600         2,330         48,600         232         2,95           1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26.90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000	
1918         11,800         17,700         865         28,600         175         1,89           1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26.90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460	
1919         6,730         24,200         571         30,300         123         1,16           1920         8,630         19,100         551         27,200         89,40         72           1921         2,210         7,420         836         8,800         60,90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800	
1920         8,630         19,100         551         27,200         89.40         72           1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26.90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70	
1921         2,210         7,420         836         8,800         60.90         55           1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26.90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         35           1932         5,770         717         5,050         26.10         31 <td></td>	
1922         2,840         11,300         516         13,600         41.80         40           1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1923         5,480         17,600         824         22,300         34.80         33           1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	-
1924         4,510         14,900         927         18,400         26,90         25           1925         4,230         16,100         857         19,500         51,30         47           1926         4,960         14,700         367         19,300         62,80         57           1927         4,720         15,800         1,650         18,900         45,70         42           1928         5,090         15,900         2,000         19,000         50,30         47           1929         5,860         21,800         1,460         26,200         48,90         46           1930         15,200         1,410         13,800         41,20         40           1931         7,670         1,080         6,590         34,70         37           1932         5,770         717         5,050         26,10         31           1933         6,660         829         5,830         31,70         39	
1925         4,230         16,100         857         19,500         51.30         47           1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1926         4,960         14,700         367         19,300         62.80         57           1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1927         4,720         15,800         1,650         18,900         45.70         42           1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1928         5,090         15,900         2,000         19,000         50.30         47           1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1929         5,860         21,800         1,460         26,200         48.90         46           1930         15,200         1,410         13,800         41.20         40           1931         7,670         1,080         6,590         34.70         37           1932         5,770         717         5,050         26.10         31           1933         6,660         829         5,830         31.70         39	
1930     15,200     1,410     13,800     41.20     40       1931     7,670     1,080     6,590     34.70     37       1932     5,770     717     5,050     26.10     31       1933     6,660     829     5,830     31.70     39	-
1931     7,670     1,080     6,590     34.70     37       1932     5,770     717     5,050     26.10     31       1933     6,660     829     5,830     31.70     39	
1932     5,770     717     5,050     26.10     31       1933     6,660     829     5,830     31.70     39	
1933 6,660 829 5,830 31.70 39	
1935 14,900 1,340 13,600 35.30 41	
1936 20,400 740 19,700 27.70 32	
1937 26,100 1,370 24,700 28.80 32	
1938   15,000   892   14,100   24.90   28	
1939 19,500 885 18,700 21.80 25	
1940 28,200 1,480 26,700 31.60 36	_
1941 2,490 37,300 1,560 38,300 54.20 60	
1942 6,460 39,700 3,720 42,400 63.00 63	
1943 9,020 27,000 2,730 33,200 35.60 33	
1944 4,910 23,600 2,020 26,500 53.80 49	
1945 4,430 32,800 1,190 36,000 43.30 39	
1946 5,060 30,100 2,100 33,000 44.20 36	
1947 3,980 39,600 1,400 42,200 38.20 27	
1948 9,030 47,400 950 55,400 43.20 29	
1949 5,540 28,800 1,230 33,100 43.80 29	
1950 4,630 39,400 1,270 42,800 52.70 35	

# NATURAL GRAPHITE STATISTICS<sup>1</sup> U.S. GEOLOGICAL SURVEY

[All values in metric tons (t) natural graphite unless otherwise noted]

Last modification: October 17, 2007

			Dust mou		Apparent	World		
Voor	Production	Shinmonte	Importe	Evnorte	consumption	(\$/t)	Unit value (98\$/t)	production
1951	6,470		49,300	_	54,500	61.00		195,000
1951	5,090		38,500		42,000			,
1952	5,700		46,300		50,600	74.30		168,000
1953	3,700		36,900			60.70		168,000
1954			-		36,100	61.90		
			44,100		42,800	54.20		272,000
1956			43,400		42,400	59.80		263,000
1957			37,600		36,500	56.00		372,000
1958			24,600		23,500	49.00		318,000
1959			33,600		32,300	45.50		372,000
1960			43,600		41,900	40.20		435,000
1961			26,900		25,400	49.60		413,000
1962			31,600		30,500	56.40		535,000
1963			47,000		46,200	42.50		679,000
1964			42,800		41,000	45.40		620,000
1965			52,700		49,800	45.30		607,000
1966			51,300		48,400	49.60		484,000
1967			51,100		47,900	45.90		358,000
1968			61,500		57,700	40.50		437,000
1969			53,000		52,600	45.60		376,000
1970			60,200		45,400	50.30		393,000
1971			52,100		54,400	52.30	211	394,000
1972			57,800		63,500	60.80	237	361,000
1973			69,900		62,600	59.20	217	395,000
1974			73,500	11,100	62,600	73.40	243	497,000
1975			58,300		50,000	92.80	281	451,000
1976			70,500	11,100	60,700	91.30	261	449,000
1977			76,500	12,500	66,900	101	271	493,000
1978			87,700	8,710	82,000	129	322	534,000
1979			75,100	7,820	70,400	169	379	626,000
1980			52,300	8,060	47,600	294	583	597,000
1981			59,600	10,300	49,300	321	575	589,000
1982			48,200	9,380	38,800	325	549	562,000
1983			39,500	8,560	31,000	302	493	604,000
1984			52,800	6,440	46,400	276	433	625,000
1985			47,800	7,580	40,300	338	513	584,000
1986			38,800	7,030	31,800	406	604	625,000
1987			43,300	11,700	31,600	407	584	643,000
1988			53,900		42,800	431	595	575,000
1989			62,300		50,900	541	711	1,010,000
1990			50,200		38,700	701	875	946,000
1991			33,500		14,200	648	775	771,000
1992			49,700		29,500	513	596	
1993			52,200		34,800	573	646	648,000
1994			53,100	, , , , , , , , , , , , , , , , , , ,	32,900	507	557	517,000
1995			60,700		23,500	496		584,000
1996			53,400		27,400	536		555,000
1997			58,100		18,400	558	566	685,000
1998			61,600	-	33,600	565		651,000
1999			55,800		26,400	624		692,000
2000			60,800		39,000	535		846,000
2001			52,100		28,200	447	412	816,000
2001	<u> </u>		52,100	23,700	20,200	++/	712	010,000

# NATURAL GRAPHITE STATISTICS<sup>1</sup> U.S. GEOLOGICAL SURVEY

[All values in metric tons (t) natural graphite unless otherwise noted]

Last modification: October 17, 2007

					Apparent	Unit value	Unit value	World
Year	Production	Shipments	Imports	Exports	consumption			production
2002			45,100	21,600	23,600	495	448	932,000
2003			52,300	22,200	30,000	467	413	999,000
2004			63,700	46,100	17,600	469	405	1,020,000
2005			64,500	22,100	42,400	537	448	1,040,000
2006			52,600	22,200	30,400	553	447	1,030,000

<sup>&</sup>lt;sup>1</sup>Compiled by J.L. Sznopek (retired) and D.W. Olson.

Data are calculated, estimated, or reported. See notes for more information.

# **Natural Graphite Worksheet Notes**

### **Data Sources**

The sources of data for the natural graphite worksheet are the mineral statistics publications of the U.S. Bureau of Mines and the U.S. Geological Survey—Minerals Yearbook (MYB) and its predecessor, Mineral Resources of the United States (MR). The years of publication and corresponding years of data coverage are listed in the References section below. Blank cells in the worksheet indicate that data were not available or withheld.

#### **Production**

Production data were recorded from published values in the MR and the MYB for the years 1900–14 and 1941–53. For the years 1915–40, 1954–79, 1982–84, and 1988–89, production data were withheld. For the years 1980–81, 1985–87, and 1990–2006, production data were not available. Shipment data were reported for the years 1911–29. For the years 1911–14, shipment data were reported as being equal to production data. Reported shipment data were used as an estimate in the absence of production data for the years 1915–29.

## **Imports**

For the years 1931–80, the import numbers shown in the MYB include artificial and natural graphite. Therefore, the import numbers listed in the spreadsheet were adjusted by subtracting the artificial graphite totals from the gross number. Import data were recorded from the published values in the MR and the MYB.

### **Exports**

Export data for the years 1927–35 include manufactured graphite because there was no specific data available to allow separating manufactured graphite from natural graphite. Prior to 1912, export data were not available. Data were reported in the MR and the MYR

# **Apparent Consumption**

For the years 1985–2006, apparent consumption was recorded as it appeared in the MYB. Prior to 1985, there were no entries, so apparent consumption was calculated using the formula:

#### APPARENT CONSUMPTION = PRODUCTION + IMPORTS – EXPORTS.

# Unit Value (\$/t)

Unit value is defined as the value of 1 metric ton (t) of natural graphite apparent consumption in current dollars. Apparent consumption data were not reported for the years 1900–68 and were withheld for the years 1982–84. Production and shipment data were not available or withheld for most of the century, which prevented the calculation of apparent consumption. The unit value was based solely on imports.

## Unit Value (98\$/t)

The Consumer Price Index conversion factor, with 1998 as the base year, is used to adjust unit value in current U.S. dollars to the unit value in constant 1998 U.S. dollars.

## **World Production**

World production data were reported in the MR and MYB.

### References

- U.S. Bureau of Mines, 1927–34, Mineral Resources of the United States, 1924–31.
- U.S. Bureau of Mines, 1933–96, Minerals Yearbook, 1932–94.
- U.S. Geological Survey, 1904–27, Mineral Resources of the United States, 1902–23.
- U.S. Geological Survey, 1997–2007, Minerals Yearbook, v. I, 1995–2006.

## **Recommended Citation Format:**

U.S. Geological Survey, [year of last update, e.g., 2005], [Mineral commodity, e.g., Gold] statistics, in Kelly, T.D., and Matos, G.R., comps., Historical statistics for mineral and material commodities in the United States: U.S. Geological Survey Data Series 140, available online at http://pubs.usgs.gov/ds/2005/140/. (Accessed [date].)

## For more information, please contact:

**USGS** Graphite Commodity Specialist