

GERMANIUM STATISTICS¹

U.S. GEOLOGICAL SURVEY

[All values are in metric tons (t) germanium unless otherwise noted]

Last modification: October 25, 2007

Year	Production	Imports	Exports	Stocks	Apparent consumption	Unit value (\$/t)	Unit value (98\$/t)	World production
1945						441,000	3,990,000	
1946						397,000	3,310,000	
1947						397,000	2,900,000	
1948						507,000	3,430,000	
1949						727,000	4,970,000	
1950						397,000	2,690,000	
1951		0.145				397,000	2,490,000	
1952		0.092				484,000	2,970,000	
1953		1.00				720,000	4,390,000	
1954		1.65				650,000	3,940,000	
1955		1.92				650,000	3,960,000	
1956	11	4.54			16	535,000	3,210,000	
1957	20				32	445,000	2,580,000	40.8
1958	11				20	445,000	2,510,000	40.8
1959	20				20	350,000	1,960,000	45.3
1960	25	23.7			45	300,000	1,650,000	45.3
1961	18	13.9			34	300,000	1,630,000	40.8
1962	17	12.6			27	300,000	1,620,000	66.7
1963	9.1	2.40			23	270,000	1,440,000	70.3
1964	6.8	0.953			27	270,000	1,420,000	35.4
1965	14	3.37			41	270,000	1,400,000	30.8
1966	14	1.37			41	175,000	879,000	30.8
1967	14	1.53			23	175,000	854,000	30.8
1968	10	1.86			23	175,000	820,000	30.8
1969	14	3.56			20	185,000	823,000	85.2
1970	18	8.87			18	280,000	1,180,000	84.4
1971	16	3.04			18	293,000	1,180,000	68.0
1972	15	2.68			18	293,000	1,140,000	72.6
1973	17	6.67			20	293,000	1,070,000	74.8
1974	13	6.40			20	293,000	969,000	76.2
1975	14	7.68			20	293,000	888,000	125
1976	16	3.47			21	293,000	839,000	79.4
1977	16	2.68			22	314,000	845,000	89.8
1978	19	2.66			23	319,000	797,000	99.0
1979	23	4.03			24	398,000	894,000	109
1980	27	3.33			32	653,000	1,290,000	116
1981	28	22.4			38	911,000	1,630,000	125
1982	26	12.5			42	1,060,000	1,790,000	124
1983	20	11.6			35	1,060,000	1,730,000	85.0
1984	20	18.1			35	1,060,000	1,660,000	75.0
1985	22	11.0		0	38	1,060,000	1,610,000	80.0
1986	22	8.00		0	38	1,060,000	1,580,000	80.0
1987	25	13.0		0	40	1,060,000	1,520,000	82.0
1988	21	33.0		11.729	40	1,060,000	1,460,000	84.0
1989	20	40.1		38.282	36	1,060,000	1,390,000	82.0
1990	18	49.8		58.287	34	1,060,000	1,320,000	76.0
1991	15	26.8		68.913	33	1,060,000	1,270,000	80.0
1992	13	13.2		68.913	30	1,060,000	1,230,000	65.0
1993	10	15.5			29	1,060,000	1,200,000	50.0
1994	10	14.7		68.207	25	1,060,000	1,170,000	50.0
1995	10	16.2		68.207	27	1,380,000	1,470,000	45.0
1996	18	27.5		68.207	25	2,000,000	2,080,000	53.0

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1997	20	23.1		61.654	28	1,480,000	1,500,000	63.0
1998	22	14.6		55.228	28	1,700,000	1,700,000	56.0
1999	20	12.4		51.374	28	1,400,000	1,370,000	58.0
2000	23	8.21		48.531	28	1,250,000	1,180,000	70.0
2001	20.0	15.2	31.4	43	28	890,000	819,000	70
2002	15.0	19.9	20.1	42	28	620,000	562,000	50
2003	4.7	18.6	6.2	40	20	380,000	337,000	44
2004	4.4	23.8	13.8	33	25	600,000	518,000	87
2005	4.5	23.5	10.1	29	27	660,000	551,000	90
2006	4.6	50.0	12.4	24	55	950,000	768,000	90

¹Compiled by T.D. Kelly (retired), M.W. George, S.M. Jasinski, and P.N. Gabby.

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

Germanium Worksheet Notes

Data Sources

Sources of data for the germanium worksheet are the mineral statistics publications of the U.S. Bureau of Mines and the U.S. Geological Survey—Minerals Yearbook (MYB); Mineral Commodity Summaries (MCS) and its predecessor, Commodity Data Summaries (CDS); and Metal Prices in the United States through 1998 (MP98). 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.

Production

Production data for the years 1956–73 and 1978–2006 were recorded from the CDS and the MCS. For the years 1974–77, production data were recorded from the MYB. Production data were reported in two significant figures. Production data for the years 1956–2006 represent the estimated germanium content of germanium materials that were produced annually from domestic refineries.

Imports

Import data for the years 1951–2006 were recorded from the MYB. Imports data represent the germanium content of germanium materials that were imported into the United States for consumption purposes. Import data were not available for the years 1957–59.

Exports

Export data are not available for the years 1945–2006.

Stocks

Stock data for the years 1988–2006 were recorded from the MYB. Stocks data represent the total quantity of germanium metal that was held in the National Defense Stockpile at yearend. No data were available for changes in producer, consumer, or dealer stocks.

Apparent Consumption

Apparent consumption data for the years 1957–2006 were recorded from the CDS and MCS, in which the apparent consumption is noted to be an estimate. The apparent consumption estimate is only reported in two significant figures. For 1956, apparent consumption was estimated with the sum of production and imports. Germanium was produced in the United States as a byproduct of zinc smelting since 1942. It was used in glass for its high index of refraction and in radar and television electronics as a component of diodes. In 1948, when Bell Laboratories developed the transistor, consumption increased significantly. Several hundred pounds were reported as produced and consumed in 1946 and 1947. Production exceeded 1,000 pounds in 1948, and increases in production and consumption continued through 1955. Since amounts of production were not specified, apparent consumption is not available for the years 1945–55.

Unit Value (\$/t)

Unit value is the value of 1 metric ton (t) of germanium metal apparent consumption. The price series for annual average germanium price in MP98 were used to estimate apparent germanium unit value for the years 1945–98. For the years 1999–2006, the zone-refined prices from the MCS were used.

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 for the years 1957–2006 represent the total quantity of germanium metal that was produced annually from refineries throughout the world. Data are recorded for the MYB.

References

- U.S. Bureau of Mines, 1933–96, Minerals Yearbook, 1932–94.
- U.S. Bureau of Mines, 1962–77, Commodity Data Summaries, 1962–77.
- U.S. Bureau of Mines, 1978–95, Mineral Commodity Summaries, 1978–95.
- U.S. Geological Survey, 1997–2007, Mineral Commodity Summaries, 1997–2007.
- U.S. Geological Survey, 1997–2007, Minerals Yearbook, v. I, 1995–2006.
- U.S. Geological Survey, 1999, Metal Prices in the United States through 1998.
- U.S. Geological Survey and U.S. Bureau of Mines, 1996, Mineral Commodity Summaries, 1996.

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:

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