

Use of Raw Materials in the United States From 1900 Through 2010

Since the beginning of the 20th century, the types and quantities of raw materials used by U.S. manufacturers and consumers have changed over time. This fact sheet quantifies the amounts of those materials (other than food and fuel) that have been input into the U.S. economy annually for a period of 111 years, from 1900 through 2010. It provides a broad overview of all materials used but highlights the use and importance of raw nonfuel minerals in particular. This fact sheet supersedes U.S. Geological Survey Fact Sheet 2009–3008, which was published in April 2009 and covered the period 1900 through 2006.

These data have been compiled to help the public and policymakers understand the flow of raw materials used in the United States in physical terms. Such information can be helpful in assessing the past and potential effects of the materials on the environment, evaluating the materials' intensity of use, and examining the role that these materials play in the economy. It can also provide insight into what may happen to the materials at the end of their useful life.

The data are presented in three ways. Figure 1 lists the raw materials put into use annually in the United States from 1900 through 2010 based on the historical data available. The materials are divided into the following broad categories: agriculture, forestry, metals, minerals, and nonrenewable organics. Table 1 lists the amounts (by weight) of these raw materials put into use each year for the same time period. Figures 2 and 3 are graphical representations of the data in table 1. The graphs show how the expansions and contractions in raw materials usage have been coincident with major economic and military events of the past 11 decades. These events have included World War I, the Great Depression of the 1930s, World War II, the post-World War II expansion, the oil crisis of the 1970s, the recessions of the 1980s and early 1990s, the extended period of economic prosperity and technological growth at the end of the 20th century, and the global financial crisis that began in 2007.

For the purposes of this fact sheet, “usage” refers to the annual apparent inputs during the use phase of consumption (which is calculated as the sum of domestic production, imports, and recycling, minus exports). The usage data are for the first point of consumption only; ultimate consumption in the form of manufactured products could be significantly different. The data are also only for raw materials that were ready for use directly by the consumer or in the manufacture of products that were actually made and sold in

the United States, not for materials contained in finished goods that were imported into or exported out of the country. In an industrial economy such as that of the United States where the volume of goods flowing into and out of the country is large, tracking the flow of materials embedded in imported products is virtually impossible.

The following is a list of all the sources used to compile these data:

- National Oceanic and Atmospheric Administration, Fisheries of the United States (for fisheries statistics)
- Resources for the Future, Natural Resource Commodities—A Century of Statistics (for agriculture statistics)
- U.S. Bureau of Mines and U.S. Geological Survey (USGS), Mineral Resources of the United States, and Minerals Yearbook (for metal and mineral statistics)
- U.S. Census Bureau, Statistical Abstract of the United States (for agriculture statistics)
- U.S. Department of Agriculture, Agricultural Statistics (for agriculture statistics)
- U.S. Energy Information Administration, Annual Energy Review (for nonrenewable organics statistics)
- U.S. Forest Service, U.S. Timber Production, Trade, Consumption, and Price Statistics (for forestry and paper statistics)
- U.S. International Trade Commission, Synthetic Organic Chemicals (for nonrenewable organics statistics, and statistics on primary products made from petroleum and natural gas)

The USGS National Minerals Information Center provides statistics and information on the worldwide supply of, demand for, and flow of minerals and materials essential to the U.S. economy, the national security, and protection of the environment.

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Agriculture	Forestry	Metals (includes recycled material)	Minerals	Nonrenewable organics
Cotton Cottonseed Fishery Flax seed Fur Leather hides Mohair Natural rubber Raw wool Silk, raw and waste Tobacco	Paper and paperboard, all grades: Paper and paperboard, primary: Insulating board Hardboard Wet machine board Recycled paper, secondary, 1960–2010: Recovered paper at paper and paperboard mills Recovered paper for other uses Plywood and veneer Other forestry: Cooperage Fence posts Hewn ties Poles and piling Other miscellaneous products Wood	Aluminum Antimony Arsenic Beryllium Bismuth Cadmium Cesium Chromium Cobalt Copper Gallium Germanium Gold Indium Iron and steel Lead Magnesium Manganese Mercury Molybdenum Nickel Niobium (columbium) Platinum group Rare earths Rhenium Selenium Silicon Silver Tantalum Tellurium Thallium Tin Titanium Tungsten Vanadium Zinc	Abrasives, manufactured Asbestos Barite Boron Bromine Cement Clays Diamond, industrial Diatomite Feldspar Fluorspar Garnet, industrial Gemstones Graphite, natural Gypsum Hafnium Helium Iron oxide pigments Kyanite and related materials Lime Lithium Magnesium compounds Mica Nitrogen Peat Perlite Phosphate Potash Pumice and pumicite Quartz crystal Salt Sand and gravel, construction Sand and gravel, industrial Soda ash Sodium sulfate Stone, crushed Stone, dimension Strontium Sulfur Talc and pyrophyllite Thorium Titanium dioxide Vermiculite Wollastonite Zirconium	Asphalt and road oil: All asphalts All road oils (grades 0 to 5) Coal (1977–2010) Coal for chemical use (1900–1976) Liquefied petroleum gases (1980–2010) Lubricants: All lubricating oils Lubricants in greases Miscellaneous oils, waxes, and other products: All waxes Absorption oil All other nonfuel oils Petrolatum Natural gas for carbon black Pentanes plus (1984–2010) Petrochemicals feedstock (1980–2010) Petroleum coke Primary products from petroleum and natural gas (1900–1979): 1,3-butadiene for rubber 1-butene Acetylene All other aromatics All other C4 hydrocarbons All other C5 hydrocarbons Alpha olefins, C6–C10 Benzene Butadiene and butylene fractions Dodecene Ethane, propane, butane Ethylene Hexane Higher alpha olefins Isobutane Isobutylene Isoprene n-Heptane Nonene n-paraffins Pentenes, mixed Piperylene Propylene Toulene Xylenes All others Special naphthas (1980–2010)

Figure 1. Chart showing U.S. raw materials put into use annually from 1900 through 2010, by category.

Table 1. U.S. raw materials put into use annually from 1900 through 2010, by category. Materials embedded in imported goods are not included.

[In thousand metric tons. Data are rounded to three significant digits. --, negligible or no data]

Year	Agriculture	Forestry			Metals and minerals				Nonrenewable organics	Total of materials
		Wood	Paper and paperboard	Recycled paper	Primary metals	Recycled metals	Industrial minerals	Construction materials		
1900	3,040	60,300	2,640	--	10,300	--	10,800	55,300	1,590	144,000
1901	3,460	62,800	2,670	--	13,100	--	11,300	61,000	1,670	156,000
1902	3,660	65,600	2,690	--	14,800	--	13,300	70,000	1,760	172,000
1903	3,300	67,100	2,720	--	14,100	--	14,000	67,000	1,880	170,000
1904	3,560	69,000	2,750	--	12,900	--	20,100	70,100	1,900	180,000
1905	3,680	70,600	2,720	--	17,800	--	23,000	81,200	1,960	201,000
1906	3,740	75,800	2,690	--	20,800	12	27,400	95,200	2,040	228,000
1907	3,310	80,800	2,670	--	21,100	44	28,700	90,000	2,130	229,000
1908	3,570	74,200	2,640	--	12,900	29	25,400	81,900	2,180	203,000
1909	3,500	78,800	3,720	--	20,900	83	31,000	109,000	2,260	249,000
1910	3,380	78,800	3,680	--	23,000	123	34,900	125,000	2,370	271,000
1911	3,710	75,900	3,650	--	20,400	133	35,500	122,000	2,590	264,000
1912	4,090	77,700	3,610	--	26,200	184	38,300	124,000	2,930	277,000
1913	3,810	76,200	3,580	--	26,400	180	39,300	141,000	3,310	294,000
1914	3,890	72,400	4,890	--	18,700	152	37,300	130,000	3,560	271,000
1915	4,000	69,300	4,840	--	23,300	219	38,800	131,000	4,230	276,000
1916	4,140	73,000	4,800	--	29,800	295	43,800	132,000	4,870	293,000
1917	4,120	69,200	5,490	--	30,500	297	45,400	114,000	5,360	274,000
1918	4,050	65,200	5,690	--	29,200	277	40,600	93,300	5,260	244,000
1919	3,860	67,400	5,670	--	23,300	290	38,900	97,600	5,530	243,000
1920	3,750	67,200	6,900	--	30,400	307	48,200	115,000	5,790	277,000
1921	3,520	58,200	5,470	--	14,100	243	36,500	104,000	5,160	228,000
1922	4,180	64,100	7,130	--	26,800	382	47,800	125,000	6,380	282,000
1923	4,220	70,100	8,340	--	34,100	486	57,900	173,000	8,390	357,000
1924	4,260	67,200	8,420	--	29,000	495	59,500	194,000	10,000	373,000
1925	4,560	66,300	9,450	--	34,600	558	65,900	214,000	10,400	406,000
1926	4,600	65,100	10,500	--	36,600	653	67,100	232,000	10,600	427,000
1927	4,860	61,300	10,800	--	33,800	653	66,000	255,000	11,200	444,000
1928	4,750	59,500	11,300	--	38,400	715	68,200	249,000	12,900	445,000
1929	4,940	61,700	12,200	--	41,900	750	69,600	282,000	14,400	487,000
1930	4,410	49,500	11,200	--	30,600	619	60,000	255,000	13,900	425,000
1931	4,280	36,200	10,300	--	20,300	506	46,800	193,000	12,300	324,000
1932	3,640	27,500	8,830	--	11,300	387	32,000	149,000	10,600	243,000
1933	4,180	31,200	9,900	--	17,600	506	33,100	143,000	11,100	250,000
1934	3,620	32,900	10,200	--	19,400	540	37,100	168,000	12,500	284,000
1935	4,070	38,000	11,600	--	25,100	657	42,100	165,000	13,200	300,000
1936	4,360	44,500	13,300	--	35,600	682	54,500	249,000	15,900	418,000
1937	5,010	46,800	14,500	--	39,300	739	59,800	259,000	17,400	442,000
1938	4,040	41,300	12,300	--	25,000	520	48,300	250,000	17,200	398,000
1939	5,280	46,000	14,500	--	39,300	573	58,600	304,000	18,900	487,000
1940	6,420	48,700	15,200	--	44,900	660	65,000	319,000	19,200	519,000
1941	7,280	56,300	18,500	--	61,200	922	84,100	380,000	22,400	631,000
1942	6,410	56,300	17,900	--	59,300	936	89,500	402,000	22,300	655,000
1943	6,640	52,100	17,600	--	59,100	1,040	95,900	325,000	21,700	579,000

Table 1. U.S. raw materials put into use annually from 1900 through 2010, by category. Materials embedded in imported goods are not included.—Continued

[In thousand metric tons. Data are rounded to three significant digits. --, negligible or no data]

Year	Agriculture	Forestry			Metals and minerals				Nonrenewable organics	Total of materials
		Wood	Paper and paperboard	Recycled paper	Primary metals	Recycled metals	Industrial minerals	Construction materials		
1944	6,260	50,400	17,600	--	59,000	1,090	88,800	281,000	23,100	527,000
1945	6,070	44,500	17,800	--	56,300	1,090	90,100	279,000	25,600	521,000
1946	6,800	51,400	20,400	--	48,700	1,020	107,000	353,000	27,500	616,000
1947	6,800	53,000	22,400	--	60,500	1,280	131,000	394,000	28,900	698,000
1948	7,310	54,500	23,700	--	68,600	30,700	140,000	437,000	29,500	791,000
1949	6,630	47,700	22,400	--	60,400	23,800	132,000	438,000	28,300	759,000
1950	7,100	56,200	26,300	--	76,800	32,600	151,000	501,000	31,500	883,000
1951	6,860	53,600	27,700	--	84,500	31,700	166,000	555,000	34,600	959,000
1952	6,720	53,800	26,300	--	70,400	32,600	163,000	600,000	33,100	986,000
1953	6,820	53,500	28,400	--	84,800	31,700	171,000	605,000	34,700	1,020,000
1954	6,680	52,900	28,500	--	65,600	24,600	173,000	813,000	35,300	1,200,000
1955	6,880	54,700	31,500	--	88,000	33,700	194,000	881,000	38,700	1,330,000
1956	6,840	55,100	33,100	--	86,400	38,600	202,000	942,000	41,500	1,410,000
1957	5,990	48,700	32,000	--	81,600	29,500	191,000	976,000	40,900	1,410,000
1958	5,800	49,800	31,900	--	63,500	22,200	185,000	1,030,000	42,700	1,430,000
1959	6,390	54,600	35,100	--	77,600	27,600	212,000	1,100,000	46,300	1,560,000
1960	6,380	49,100	27,200	8,400	76,500	24,900	207,000	1,120,000	47,300	1,560,000
1961	6,740	48,500	28,200	8,400	72,600	24,100	206,000	1,100,000	48,600	1,540,000
1962	7,220	50,600	30,000	8,460	78,500	24,400	218,000	1,140,000	51,800	1,610,000
1963	7,400	54,200	30,700	8,970	84,800	28,300	231,000	1,270,000	52,800	1,770,000
1964	7,650	57,000	33,000	9,190	94,200	30,600	245,000	1,340,000	55,500	1,870,000
1965	7,120	60,700	31,700	9,560	108,000	34,400	259,000	1,420,000	59,400	1,990,000
1966	7,540	61,000	34,900	9,880	107,000	35,300	273,000	1,480,000	64,000	2,070,000
1967	8,020	58,600	34,900	9,280	101,000	38,300	271,000	1,430,000	64,500	2,010,000
1968	9,100	60,900	37,200	9,600	114,000	38,300	282,000	1,460,000	70,600	2,080,000
1969	6,930	61,000	38,200	11,200	101,000	42,000	291,000	1,520,000	75,700	2,140,000
1970	6,560	60,200	36,800	11,400	96,000	38,100	287,000	1,530,000	80,400	2,150,000
1971	6,750	64,700	37,300	11,700	101,000	38,900	290,000	1,510,000	81,800	2,150,000
1972	7,540	66,900	40,500	12,400	106,000	46,600	309,000	1,540,000	85,400	2,220,000
1973	5,410	66,700	42,100	13,800	122,000	53,000	322,000	1,730,000	92,600	2,440,000
1974	4,770	57,900	40,900	14,200	118,000	57,100	316,000	1,650,000	91,500	2,350,000
1975	5,840	53,500	34,900	11,900	84,900	44,100	277,000	1,420,000	79,900	2,020,000
1976	5,880	60,300	39,700	14,000	102,000	47,200	297,000	1,500,000	89,200	2,160,000
1977	5,610	66,100	40,800	14,800	104,000	46,600	314,000	1,590,000	97,000	2,280,000
1978	5,340	68,800	43,100	15,200	116,000	48,300	332,000	1,730,000	99,100	2,450,000
1979	5,790	67,500	44,200	16,300	85,400	55,300	340,000	1,750,000	106,000	2,470,000
1980	5,040	58,800	42,500	16,300	94,600	49,800	312,000	1,500,000	113,000	2,190,000
1981	4,940	54,700	44,000	16,100	103,000	46,600	295,000	1,330,000	101,000	2,000,000
1982	5,330	55,300	41,800	15,500	85,400	34,100	258,000	1,180,000	91,300	1,770,000
1983	5,260	66,400	46,100	17,000	83,200	40,400	275,000	1,300,000	90,800	1,920,000
1984	5,650	71,500	49,500	18,600	97,200	44,000	311,000	1,480,000	95,500	2,170,000
1985	6,550	72,900	48,800	18,500	94,900	47,100	310,000	1,540,000	97,000	2,240,000
1986	6,170	77,900	50,200	20,400	89,200	47,900	301,000	1,630,000	97,300	2,320,000
1987	6,480	82,700	52,700	21,800	93,500	53,000	309,000	1,800,000	107,000	2,530,000

Table 1. U.S. raw materials put into use annually from 1900 through 2010, by category. Materials embedded in imported goods are not included.—Continued

[In thousand metric tons. Data are rounded to three significant digits. --, negligible or no data]

Year	Agriculture	Forestry			Metals and minerals				Nonrenewable organics	Total of materials
		Wood	Paper and paperboard	Recycled paper	Primary metals	Recycled metals	Industrial minerals	Construction materials		
1988	5,880	80,300	52,900	23,700	78,400	57,300	323,000	1,870,000	110,000	2,600,000
1989	5,690	81,000	51,700	24,600	93,700	55,700	319,000	1,810,000	108,000	2,550,000
1990	5,480	77,900	51,300	26,400	94,300	58,900	320,000	1,840,000	115,000	2,590,000
1991	5,460	71,000	48,000	28,300	85,200	52,800	301,000	1,620,000	116,000	2,330,000
1992	5,240	74,800	48,600	30,800	91,900	54,600	310,000	1,790,000	121,000	2,530,000
1993	7,110	76,200	50,400	32,200	79,400	58,700	316,000	1,890,000	124,000	2,640,000
1994	7,240	77,400	50,300	36,000	106,000	62,900	339,000	2,020,000	130,000	2,830,000
1995	5,650	77,100	48,900	38,300	112,000	64,000	343,000	2,070,000	131,000	2,890,000
1996	5,740	77,800	46,400	39,100	118,000	62,200	356,000	2,150,000	133,000	2,990,000
1997	6,050	78,800	50,100	39,900	123,000	64,500	361,000	2,270,000	138,000	3,130,000
1998	5,680	80,600	50,700	40,900	128,000	61,400	370,000	2,480,000	145,000	3,360,000
1999	5,770	83,100	52,700	42,500	127,000	58,600	384,000	2,530,000	151,000	3,440,000
2000	5,280	82,300	50,600	42,900	130,000	61,400	373,000	2,560,000	141,000	3,450,000
2001	4,740	80,100	45,600	42,600	115,000	59,800	365,000	2,620,000	133,000	3,460,000
2002	4,920	82,600	45,000	43,200	109,000	60,700	357,000	2,540,000	135,000	3,380,000
2003	4,440	81,600	46,300	44,700	115,000	60,600	371,000	2,590,000	132,000	3,440,000
2004	4,530	89,100	48,900	45,600	126,000	63,800	392,000	2,760,000	142,000	3,670,000
2005	4,180	91,300	45,900	46,500	122,000	62,800	403,000	2,870,000	137,000	3,780,000
2006	3,880	85,700	44,600	48,400	127,000	64,200	384,000	3,000,000	135,000	3,890,000
2007	3,850	76,700	41,300	49,300	122,000	69,900	370,000	2,800,000	134,000	3,670,000
2008	3,050	57,600	37,900	47,000	107,000	78,400	346,000	2,450,000	123,000	3,250,000
2009	3,810	48,600	28,800	45,400	67,300	74,400	277,000	1,950,000	115,000	2,610,000
2010	3,620	49,100	30,600	46,800	85,400	70,500	294,000	1,870,000	116,000	2,570,000

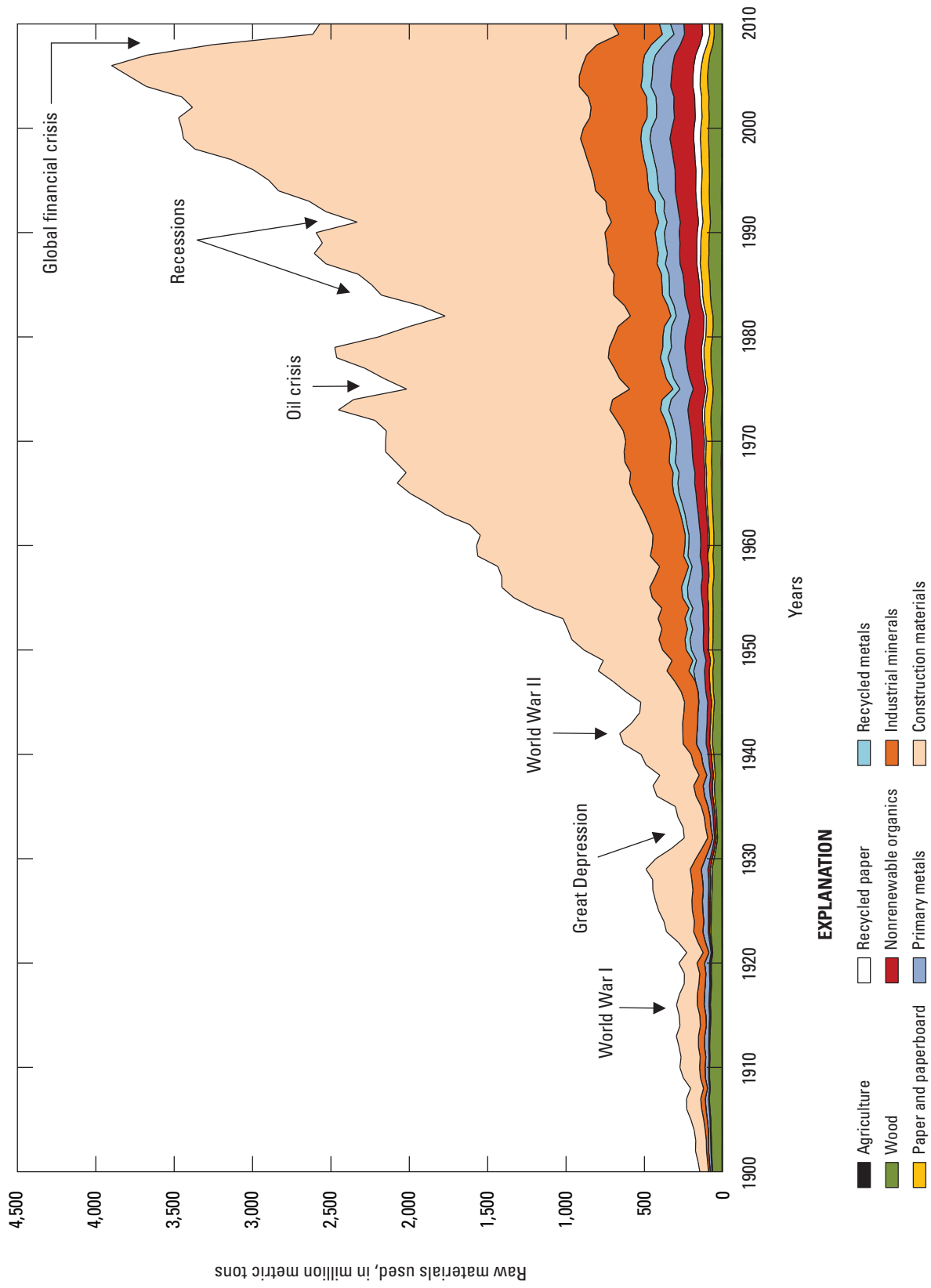


Figure 2. U.S. raw materials put into use annually from 1900 through 2010. Materials embedded in imported goods are not included. [In million metric tons]

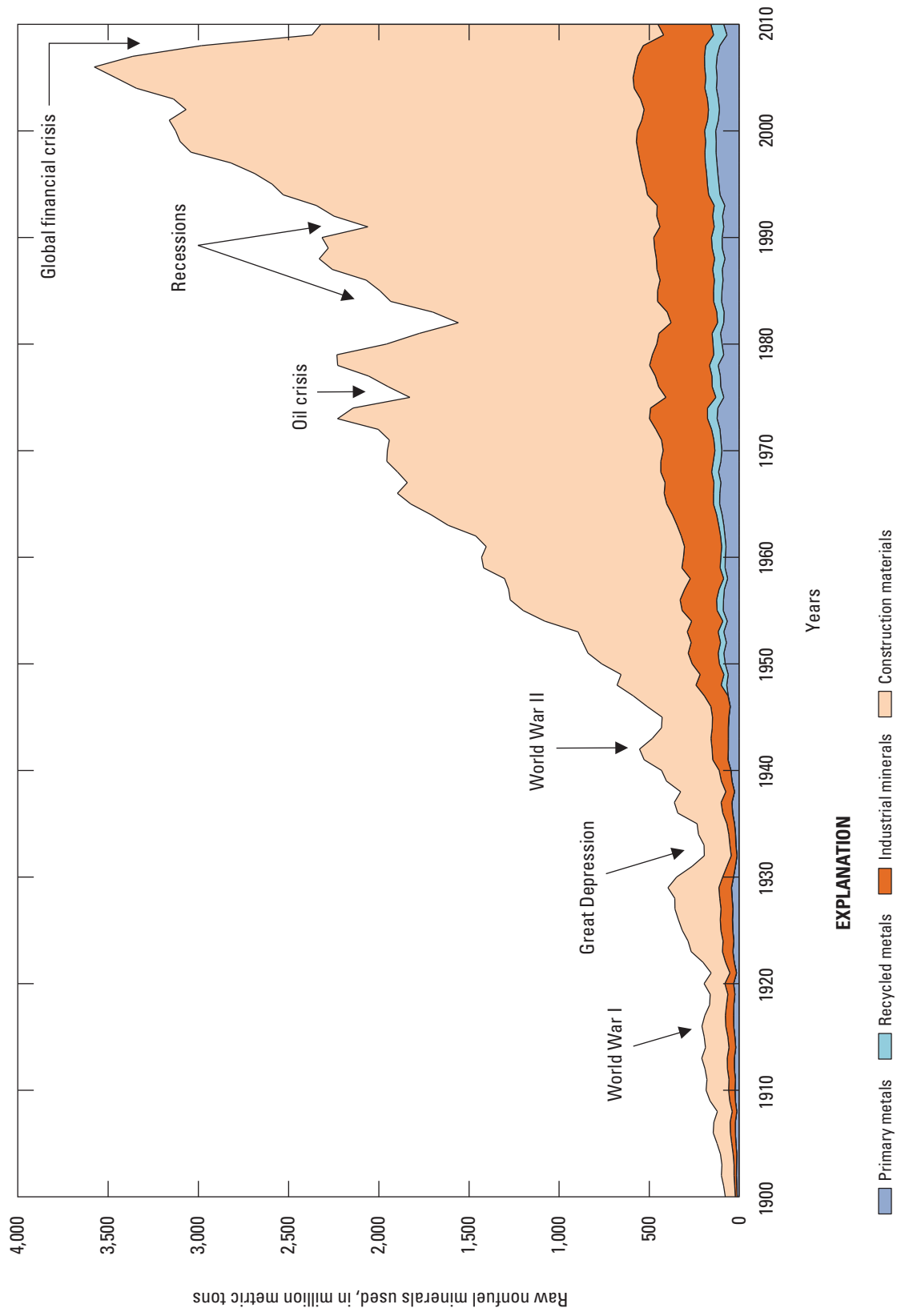


Figure 3. U.S. raw nonfuel minerals put into use annually from 1900 through 2010. Mineral materials embedded in imported goods are not included. [In million metric tons]