

Mineral Industry Surveys

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CHROMIUM IN APRIL 2022

Stainless steel production decreased by 7% in April 2022 compared with production in March 2022 and decreased by 17% compared with production in April 2021 (table 1). Government stockpile inventories for chromium metal were unchanged compared with those in March and decreased by 5% compared with April 2021. Government stockpile inventories for high-carbon ferrochromium decreased by 5% and low-carbon ferrochromium was unchanged compared with those in March. Inventories for high-carbon ferrochromium and low-carbon ferrochromium decreased by 29% and by 3%, respectively, compared with inventories in April 2021 (table 3).

In April 2022, the leading import sources for ferrochromium into the United States were, in descending order of quantity by gross weight, South Africa, Turkey, and Kazakhstan (table 6),

whereas the leading import sources for chromium metal were Russia, China, and France (table 7).

Imports of chromite ore, chromium ferroalloys, stainless steel, and stainless steel scrap commonly fluctuate from month to month (fig. 1, table 1). In April 2022, imports of chromite ore increased by a factor of 48 compared with imports in March and more than doubled compared with imports in April 2021. Imports of all grades of chromium ferroalloys, including ferrochromium silicon, increased more than seven-fold compared with imports of chromium ferroalloys in March and more than tripled compared with imports in April 2021. Stainless steel imports in April 2022 increased by 7% compared with imports in March and were 53% more those in April 2021. Stainless steel scrap imports decreased by 10% in April 2022 compared with imports in March and decreased by

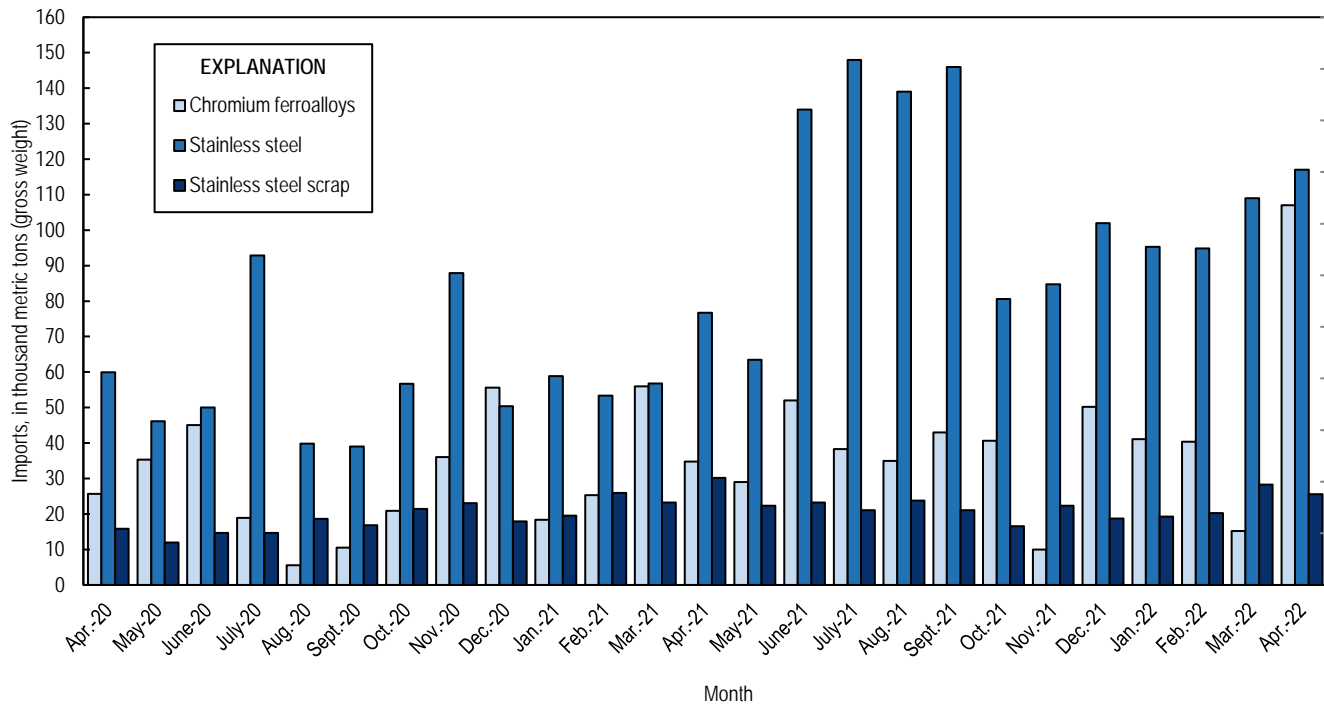


Figure 1. Chromium ferroalloys, stainless steel, and stainless steel scrap imports from April 2020 through April 2022. Source: U.S. Census Bureau.

15% compared with those in April 2021 (table 1).

The U.S. chromium metal (99% chromium) average price was \$8.72 per pound in April 2022, a 26% increase from the average price in March, and more than double the average price in April 2021. The U.S. high-carbon ferrochromium (62%–70% chromium) average price was 377.50 cents per pound of contained chromium in April 2022, a 19% increase from the average price in March 2022, and more than double the average price in April 2021 (fig. 2). Chromium metal price increases were attributed to increased duty rates of material from Russia and concerns regarding supply constraints. High-carbon ferrochromium prices increases were attributed to logistical challenges and increased production costs as well as continued increases in demand and tightening supply (CRU Group, 2022a, b, c).

Industry News

Tharisa Plc (Cyprus) reported production at its mine near Rustenburg, South Africa, contained lower grades of chromite concentrate owing to a breakdown of its secondary mill. The secondary mill had been calibrated for the recovery of platinum group metals and thus reduced the chromite grade from 18.1% to 17.1%. As a result, chromite concentrate production guidance was lowered to 1.75 Mt for the year ending in September (CRU Group, 2022d).

Meltshop production was suspended at Universal Stainless and Alloy Products, Inc.’s stainless steel mill in Bridgeville, PA, in April. The suspension followed a liquid metal spill caused by a breakthrough at the bottom of a furnace shell.

Universal Stainless anticipated the disruption would last six to eight weeks and would not impact production delivery schedules. No injuries were reported (Universal Stainless and Alloy Products, Inc., 2022).

References Cited

CRU Group, 2022a, Chrome price weekly—April 22: CRU Group, April 22, 12 p. (Accessed June 9, 2022, via <http://www.crugroup.com/>.)
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 CRU Group, 2022c, CRU prices: CRU Group, April 29. (Accessed May 26, 2022, via <http://www.crugroup.com/>.)
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 Universal Stainless and Alloy Products, Inc., 2022, Universal Stainless reports liquid metal spill in Bridgeville, PA melt shop: Bridgeville, PA, Universal Stainless and Alloy Products, Inc. news release, April 11. (Accessed June 9, 2022, at <https://investors.univstainless.com/news-releases/news-release-details/universal-stainless-reports-liquid-metal-spill-bridgeville-pa>.)

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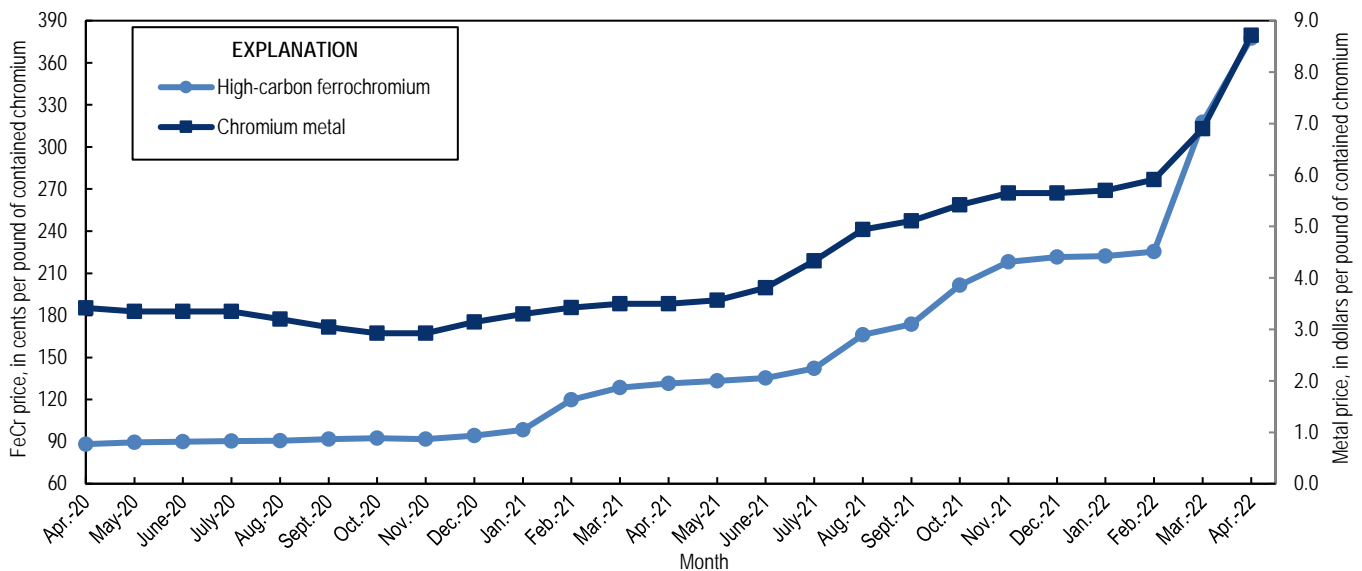


Figure 2. Average monthly prices for U.S. high-carbon ferrochromium (FeCr) and chromium metal from April 2020 through April 2022. Source: CRU Group.

NOTICE

The U.S. Geological Survey plans to discontinue reporting industry consumption of ferroalloys and chromium metal in tables 1 and 2 of this Mineral Industry Surveys report. The last published report that will include tables 1 and 2 will be Chromium in June 2022. Information in these tables will still be available on an annual basis in the chromium chapters of the Mineral Commodity Summaries and the Minerals Yearbook, Volume I, Metals and Minerals. Prior to the proposed discontinuation date, please direct any comments or concerns to Elizabeth Sangine, Chief, Mineral Commodities Section, escottsangine@usgs.gov.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2021	2022			
	January– December	February	March	April	January– April ²
Production, stainless steel ³	2,370,000	169,000	197,000	183,000	752,000
Components of U.S. supply:					
Stainless steel scrap receipts	672,000	45,900 ^e	53,500 ^e	49,700 ^e	204,000 ^e
Stainless steel scrap consumption	1,010,000	69,400 ^e	80,900 ^e	75,100 ^e	308,000 ^e
Imports for consumption:					
Chromite ore	146,000	4,780	852	41,500	48,400
Ferrochromium:					
More than 4% carbon	347,000	38,200	7,350	101,000	178,000
More than 3% but not more than 4% carbon	6,700	--	--	--	--
More than 0.5% but not more than 3% carbon	1,810	27	252	--	279
Not more than 0.5% carbon	57,700	2,130	6,140	2,230	15,800
Ferrochromium silicon	19,800	--	1,500	3,500	9,130
Total ferroalloy imports	433,000	40,400	15,200	107,000	203,000
Chromium metal ⁴	12,100	1,210	1,260	1,490	4,890
Stainless steel	1,140,000	94,800	109,000	117,000	417,000
Stainless steel scrap	268,000	20,300	28,300	25,600	93,500
Distribution of U.S. supply:					
Consumption, industry, chromium ferroalloys and metal	314,000	W	W	W	W
Exports:					
Chromite ore	2,110	170	262	255	777
Chromium ferroalloys:					
High-carbon ferrochromium	1,690 ^f	214	96	213	633
Low-carbon ferrochromium	1,580	18	61	32	302
Ferrochromium silicon	134 ^f	20	--	--	40
Total ferroalloy exports	3,410 ^f	252	157	245	975
Chromium metal	456	39	66	45	213
Stainless steel	355,000	27,100	31,600	35,300	119,000
Stainless steel scrap	293,000 ^f	18,200	23,200	20,200	76,700
Stocks at end of period:					
Consumer, industry, chromium ferroalloys and metal	7,730	W	W	W	W
Government stockpile:					
Chromium ferroalloys ⁵	49,900	49,000	47,400	46,400	46,400
Chromium metal	3,560	3,560	3,520	3,520	3,520

^eEstimated. ^fRevised. W Withheld to avoid disclosing company proprietary data. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data that are not broken out by specific month(s).

³Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

⁴Includes waste and scrap and other.

⁵Includes high- and low-carbon ferrochromium.

TABLE 2
U.S. CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS

(Metric tons, gross weight unless otherwise noted)

	2022	
	March	April
Consumption by end use:		
Steel:		
Carbon steel	W	W
High-strength low-alloy steel	W	W
Stainless and heat-resisting steel	W	W
Unspecified steel ¹	W	W
Superalloys	W	W
Other alloys and uses ²	W	W
Total	W	W
Total, chromium content	W	W
Consumption by material:		
Low-carbon ferrochromium	W	W
High-carbon ferrochromium	W	W
Ferrochromium silicon	W	W
Chromium metal	W	W
Chromium-aluminum alloy	W	W
Other chromium materials ³	W	W
Total	W	W
Total, chromium content	W	W
Consumer stocks:		
Low-carbon ferrochromium	W	W
High-carbon ferrochromium	W	W
Ferrochromium silicon	W	W
Chromium metal	W	W
Chromium-aluminum alloy	W	W
Other chromium materials ³	W	W
Total	W	W
Total, chromium content	W	W

W Withheld to avoid disclosing company proprietary data.

¹Includes electrical, full alloy, tool, and unspecified steel end uses.

²Includes cast irons, welding and alloy hard-facing rods and materials, wear- and corrosion-resistant alloys, and aluminum, copper, magnetic, nickel, and other alloys.

³Includes chromite ore as foundry sand.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY OF
CHROMIUM MATERIALS¹

(Metric tons)

	Chromium ferroalloys		Chromium metal
	High-carbon ferro- chromium	Low-carbon ferro- chromium	
<u>2021:</u>			
April	27,700	27,500	3,690
May	27,700	27,500	3,690
June	27,500	27,500	3,690
July	27,300	27,500	3,690
August	26,200	27,500	3,620
September	25,600	27,400	3,620
October	25,600	27,400	3,620
November	24,700	27,200	3,560
December	22,900	27,000	3,560
<u>2022:</u>			
January	22,000	27,000	3,560
February	22,000	27,000	3,560
March	20,700	26,800	3,520
April	19,600	26,800	3,520

¹Data are rounded to no more than three significant digits.

Source: Defense Logistics Agency, DLA Strategic Materials.

TABLE 4
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL¹

	Chromite ore		Chromium ferroalloys ²			Chromium metal ³	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
2021:							
April	157	\$128	28	17	\$54	25	\$659
May	115	106	94	59	155	66	1,200
June	155	86	82	43	142	86	1,200
July	156	104	274	147	529	15	406
August	116	81	435	212	600	47	1,000
September	302	191	354	167	484	25	773
October	142	95	752	403	2,260	21	584 ^r
November	219	135	465	254	947	21	418 ^r
December	50	37	558	179	676	29	924
January–December ⁴	2,110	1,430	3,410 ^r	1,670 ^r	6,510 ^r	456	9,660
2022:							
January	90	88	321	124	414	63	1,030
February	170	144	252	52	259	39	1,080
March	262	206	157	44	172	66	1,360
April	255	227	245	129	282	45	867
January–April ⁴	777	664	975	349	1,130	213	4,330

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes low- and high-carbon ferrochromium and ferrochromium silicon.

³Includes chromium metal, waste and scrap, and unwrought powders.

⁴May include revised data that are not broken out by specific month(s).

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND
CHROMIUM METAL¹

(Metric tons)

	2021	2022		
	January– December	March	April	January– April ²
Chromite ore:				
Not more than 40% chromic oxide:				
Gross weight	15,800	160	535	1,820
Chromic oxide content	3,490	61	209	597
More than 40% but less than 46% chromic oxide:				
Gross weight	21,400	692	538	2,430
Chromic oxide content	9,270	303	232	1,060
46% or more chromic oxide:				
Gross weight	108,000	--	40,400	44,200
Chromic oxide content	94,300	--	36,800	38,700
Total, all grades:				
Gross weight	146,000	852	41,500	48,400
Chromic oxide content	107,000	364	37,300	40,300
Ferrochromium:				
Low-carbon: ³				
Not more than 0.5% carbon:				
Gross weight	57,700	6,140	2,230	15,800
Chromium content	40,400	4,140	1,590	10,900
More than 0.5% but not more than 3% carbon:				
Gross weight	1,810	252	--	279
Chromium content	1,250	174	--	191
Total, low-carbon:				
Gross weight	59,500	6,400	2,230	16,100
Chromium content	41,600	4,320	1,590	11,100
Medium-carbon: ⁴				
Gross weight	6,700	--	--	--
Chromium content	3,420	--	--	--
High-carbon: ⁵				
Gross weight	347,000	7,350	101,000	178,000
Chromium content	191,000	4,010	54,800	99,900
Total, all grades:				
Gross weight	413,000	13,700	103,000	194,000
Chromium content	236,000	8,330	56,400	111,000
Chromium metal:				
Unwrought powders	10,300	1,150	1,160	4,170
Waste and scrap	112	19	1	119
Other than waste and scrap and unwrought powders	1,710 ^r	93	329	600
Total, all grades	12,100	1,260	1,490	4,890

^rRevised. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data that are not broken out by specific month(s).

³Ferrochromium containing not more than 3% carbon.

⁴Ferrochromium containing more than 3% carbon but not more than 4% carbon.

⁵Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2021, BY GRADE AND COUNTRY OR LOCALITY¹

Grade and country or locality	April			January–April ²		
	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)
High-carbon ferrochromium:⁴						
Albania	6,480	4,370	\$22,000	7,890	5,370	\$25,500
Finland	500	340	714	3,500	1,920	4,510
India	260	166	359	260	166	359
Kazakhstan	9,650	6,620	36,700	27,100	18,600	91,900
Russia	--	--	--	17,900	11,200	36,200
South Africa	64,900	31,700	92,600	92,800	45,400	129,000
Sweden	491	336	1,440	2,190	1,490	5,660
Turkey	12,100	7,820	41,100	13,300	8,620	43,700
Zimbabwe	6,400	3,480	7,880	13,000	7,120	15,600
Total	101,000	54,800	203,000	178,000	99,900	353,000
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3% carbon						
Brazil	--	--	--	27	17	93
Kazakhstan	--	--	--	252	174	374
Total	--	--	--	279	191	467
Not more than 0.5% carbon:						
Belgium	40	28	127	40	28	127
Brazil	--	--	--	189	121	680
China	--	--	--	9	6	34
Germany	723	504	2,300	2,540	1,830	8,190
Japan	140	98	738	659	463	2,970
Kazakhstan	1,170	851	7,890	3,710	2,680	22,200
Russia	162	114	1,240	8,640	5,790	43,500
Sweden	--	--	--	14	10	59
Total	2,230	1,590	12,300	15,800	10,900	77,800
All grades:						
Albania	6,480	4,370	22,000	7,890	5,370	25,500
Belgium	40	28	127	40	28	127
Brazil	--	--	--	216	138	773
China	--	--	--	9	6	34
Finland	500	340	714	3,500	1,920	4,510
Germany	723	504	2,300	2,540	1,830	8,190
India	260	166	359	260	166	359
Japan	140	98	738	659	463	2,970
Kazakhstan	10,800	7,470	44,600	31,100	21,500	114,000
Russia	162	114	1,240	26,500	17,000	79,700
South Africa	64,900	31,700	92,600	92,800	45,400	129,000
Sweden	491	336	1,440	2,200	1,500	5,710
Turkey	12,100	7,820	41,100	13,300	8,620	43,700
Zimbabwe	6,400	3,480	7,880	13,000	7,120	15,600
Total	103,000	56,400	215,000	194,000	111,000	431,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data that are not broken out by specific month(s).

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Ferrochromium containing more than 4% carbon.

⁵Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2021,
BY GRADE AND BY COUNTRY OR LOCALITY¹

Grade and country or locality	April		January–April ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
China	411	\$4,400	1,010	\$10,300
France	266	3,430	774	9,800
Germany	7	232	101	1,630
India	--	--	21	496
Korea, South	16	228	16	228
Russia	241	2,270	1,190	12,000
Spain	5	26	29	138
United Kingdom	212	3,510	1,040	16,400
Total	1,160	14,100	4,170	51,000
Waste and scrap:				
China	--	--	20	190
Japan	--	--	(4)	4
United Kingdom	1	6	99	968
Total	1	6	119	1,160
Other than waste and scrap and unwrought powders:				
Canada	--	--	(4)	3
China	1	115	3	288
France	(4)	9	(4)	18
Germany	7	55	13	312
Italy	--	--	(4)	30
Japan	(4)	10	3	142
Russia	320	3,630	549	6,040
South Africa	--	--	7	69
United Kingdom	--	--	25	332
Total	329	3,820	600	7,230
All grades:				
Canada	--	--	(4)	3
China	412	4,520	1,030	10,700
France	266	3,440	774	9,820
Germany	14	287	114	1,950
India	--	--	21	496
Italy	--	--	(4)	30
Japan	(4)	10	3	146
Korea, South	16	228	16	228
Russia	561	5,890	1,740	18,100
South Africa	--	--	7	69
Spain	5	26	29	138
United Kingdom	213	3,520	1,160	17,700
Total	1,490	17,900	4,890	59,400

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data that are not broken out by specific month(s).

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2021¹

Stainless steel product	April		January–April ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Exports:				
Ingot	1,230	\$7,990	5,030	\$32,400
Flat-rolled (width > 600 mm)	21,500	100,000	69,600	311,000
Flat-rolled (width < 600 mm)	5,560	36,900	19,700	133,000
Bars and rods in irregular coils	285	1,690	743	4,360
Other bars and rods	2,280	31,200	8,790	112,000
Wire	658	12,900	2,590	51,400
Tubes, pipes, hollow profiles	3,790	38,400	12,600	129,000
Total	35,300	229,000	119,000	773,000
Stainless steel scrap	20,200	29,200	76,700	116,000
Grand total	55,500	258,000	196,000	890,000
Imports:				
Ingot	17,200	46,500	60,300	182,000
Flat-rolled (width > 600 mm)	58,100	201,000	197,000	667,000
Flat-rolled (width < 600 mm)	7,270	37,600	23,000	107,000
Bars and rods in irregular coils	4,440	19,200	16,900	72,000
Other bars and rods	10,900	57,100	44,600	223,000
Wire	5,240	28,000	19,900	104,000
Tubes, pipes, hollow profiles	14,200	101,000	55,400	377,000
Total	117,000	491,000	417,000	1,730,000
Stainless steel scrap	25,600	52,000	93,500	170,000
Grand total	143,000	543,000	510,000	1,900,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data that are not broken out by specific month(s).

³Export value is free alongside ship. Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.