

Mineral Industry Surveys

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CHROMIUM IN DECEMBER 2019

Reported consumption of chromium, on a gross weight basis, in December 2019 increased by 3% compared with reported consumption of chromium in November 2019, and increased by 10% compared with reported consumption in December 2018. High-carbon ferrochromium accounted for 87% of the chromium material consumed in December 2019. Stainless and heat-resisting steels were the leading end uses, consuming 90% of chromium materials. Consumer stocks increased slightly compared with those of the previous month and increased by 33% compared with those of December 2018 (tables 1, 2).

Stainless steel production decreased by 3% in December 2019 compared with production in November 2019 and

decreased by 7% compared with production in December 2018 (table 1). Government stockpile inventories for chromium metal have remained unchanged since February 2018. Government stockpiles inventories of ferroalloys were unchanged compared with November 2019 and decreased by 7% compared with those of December 2018 (table 3).

Imports of chromite ore, chromium ferroalloys, chromium metal, and stainless steel commonly fluctuate from month to month. On an annual basis, stainless steel imports have decreased overall since December 2017 and stainless steel scrap imports have decreased since March 2018 (table 1). Imports of all grades of chromium ferroalloys decreased by 37% in December 2019 compared with imports of chromium

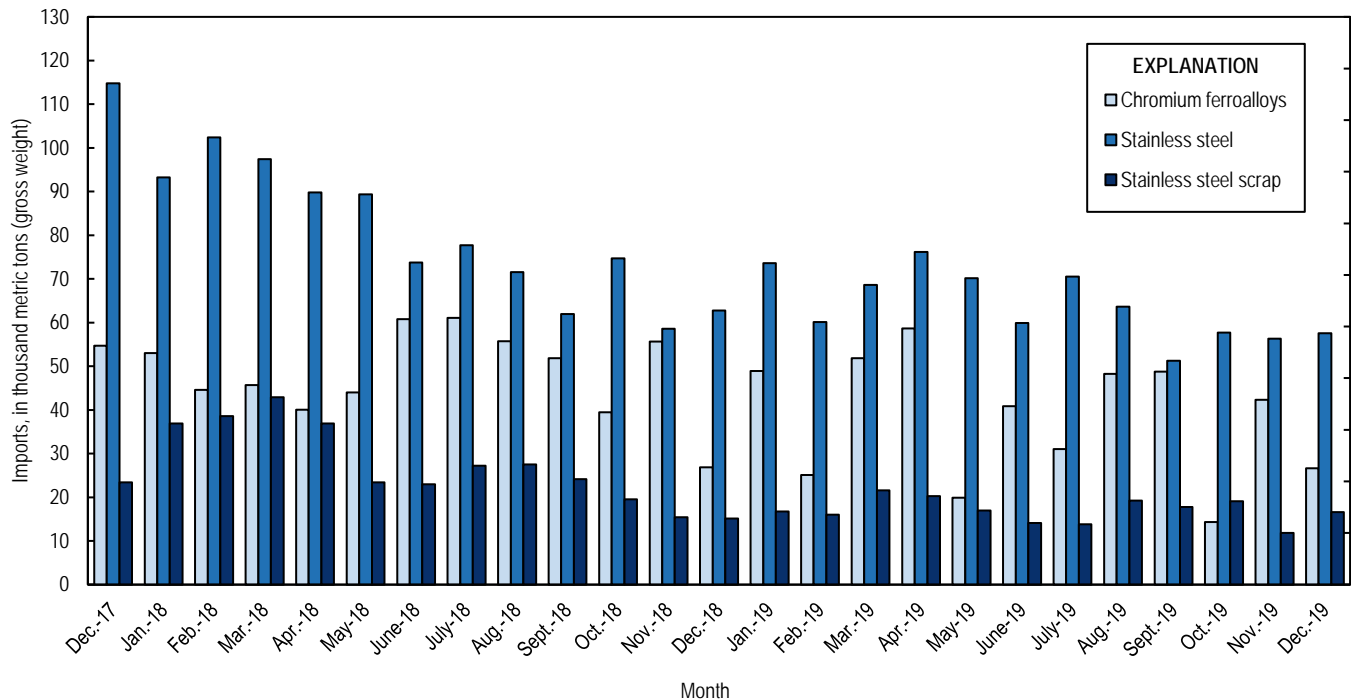


Figure 1. Chromium ferroalloys and stainless steel imports from December 2017 through December 2019. Source: U.S. Census Bureau.

ferroalloys in November 2019 and decreased slightly compared with those in December 2018. Stainless steel imports in December 2019 increased slightly compared with imports in November 2019 and decreased by 8% compared with those in December 2018 (fig. 1, table 1).

Exports of chromite ore, chromium ferroalloys, chromium metal, and stainless steel also frequently fluctuate from month to month (table 1, table 4). Exports of chromium ferroalloys decreased by 53% in December 2019 compared with exports in November 2019 and decreased by 8% compared with exports in December 2018. Stainless steel exports in December 2019 decreased by 21% compared with exports in November 2019 (table 1) and decreased by 24% compared with those of December 2018.

In December 2019, the leading import sources for ferrochromium (FeCr) into the United States were, in descending order of quantity by gross weight and chromium content, South Africa, Kazakhstan, and Russia (table 6), whereas the leading import sources for chromium metal were the United Kingdom, Russia, and France (table 7).

The U.S. chromium metal (99% Cr) average price decreased by 4% to \$3.275 per pound in December 2019 compared with the average price in November 2019 and decreased by 39% compared with the average price in December 2018 (CRU Group, 2020). The U.S. high-carbon FeCr (62%–70% chromium) average price was 83.667 cents per pound of contained chromium in December 2019, a slight increase from the average price in November 2019, and a 22% decrease from the average price in December 2018 (fig. 2) (CRU Group,

2020).

Industry News

Cleveland-Cliffs Inc. and AK Steel Holding Corp. (AK Steel) announced a definitive merger agreement, which added flat-rolled carbon, stainless and electrical steel products to Cleveland-Cliffs’ capabilities. After completion of the merger, Cleveland-Cliffs’ shareholders would own 68% of the combined company and AK Steel shareholders would own 32% (Cleveland-Cliffs Inc., 2019).

References Cited

Cleveland-Cliffs Inc., 2019, Cleveland-Cliffs to acquire AK Steel: Cleveland & West Chester, OH, Cleveland-Cliffs Inc. press release, December 3. (Accessed February 3, 2020, at http://s1.q4cdn.com/345331386/files/doc_news/Cleveland-Cliffs-to-Acquire-AK-Steel-2019.pdf.)
 CRU Group, 2020, CRU prices_chrome_historical data_02-jan-2020-dec-avg: CRU Group, January 2. (Accessed February 3, 2020, via <http://www.crugroup.com/>.)

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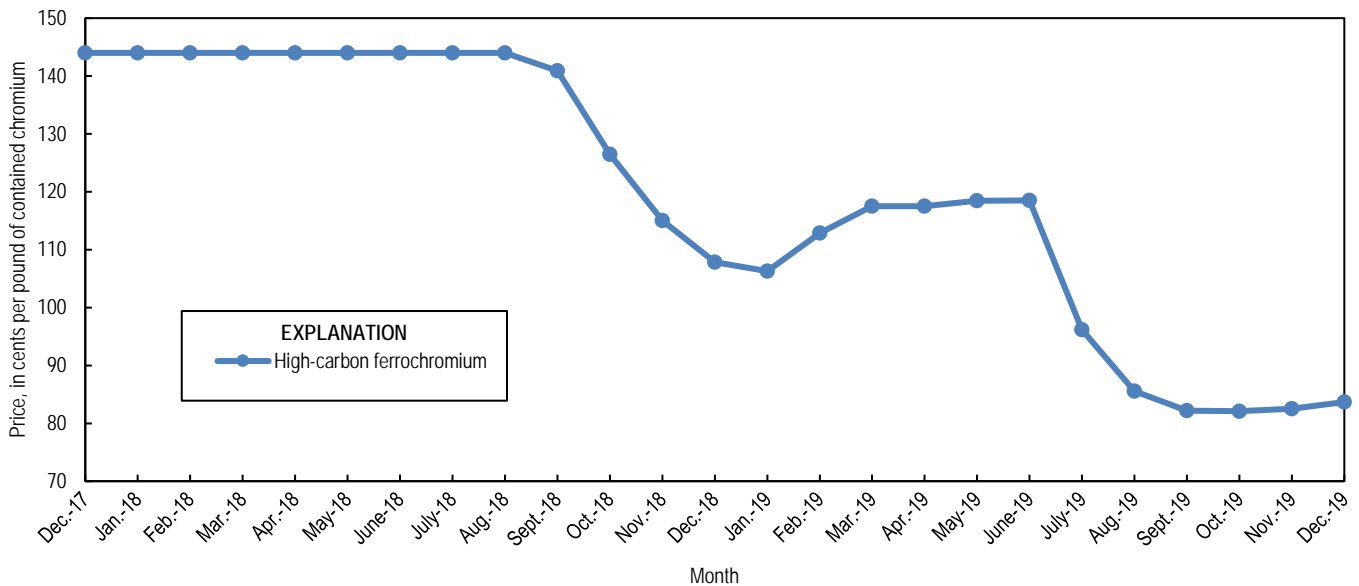


Figure 2. Average monthly prices for U.S. high-carbon ferrochromium from December 2017 through December 2019. Source: CRU Group.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2018	2019			January– December ²
	January– December ^p	October	November	December	
Production, stainless steel ³	2,810,000	204,000	188,000	183,000	2,590,000
Components of U.S. supply:					
Stainless steel scrap receipts	818,000	66,200	65,600 ^r	67,400	810,000
Stainless steel scrap consumption	1,230,000	103,000	102,000 ^r	103,000	1,240,000
Imports for consumption:					
Chromite ore	197,000	5,570	6,770	37,200	152,000
Ferrochromium:					
More than 4% carbon	495,000	5,870	40,200	20,100	393,000
More than 3% but not more than 4% carbon	8,610	140	--	900	1,210
More than 0.5% but not more than 3% carbon	4,130	182	113	259	2,090
Not more than 0.5% carbon	53,100	3,710	2,010	4,110	42,900
Ferrochromium silicon	18,000	4,420	--	1,350	17,600
Total ferroalloy imports	579,000	14,300	42,300	26,700	457,000
Chromium metal ⁴	15,500	1,150	1,280	1,510	14,400
Stainless steel	953,000	57,700	56,300	57,500	766,000
Stainless steel scrap	331,000	19,100	11,800	16,600	204,000
Distribution of U.S. supply:					
Consumption, industry, chromium ferroalloys and metal	439,000 ^r	35,400 ^r	35,200 ^r	36,100	424,000
Exports:					
Chromite ore	6,280	61	141	120	2,300
Chromium ferroalloys:					
High-carbon ferrochromium	731	283	144	82	1,170
Low-carbon ferrochromium	1,740	41	35	1	437
Ferrochromium silicon	60	4	--	--	22
Total ferroalloy exports	2,530	328	179	83	1,630
Chromium metal	514	39	23	31	430
Stainless steel	668,000	36,200	29,100	22,900	434,000
Stainless steel scrap	653,000	45,500	33,000	74,500	474,000
Stocks at end of period:					
Consumer, industry, chromium ferroalloys and metal	15,400	13,800 ^r	14,800	15,000	15,000
Government stockpile:					
Chromium ferroalloys	71,200	66,900	66,100	66,100	66,100
Chromium metal	3,850	3,850	3,850	3,850	3,850

^pPreliminary. ^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).

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.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS^{1,2}

(Metric tons, gross weight unless otherwise noted)

	2019		
	November	December	January– December ³
Consumption by end use:			
Steel:			
Carbon steel	W	W	W
High-strength low-alloy steel	146	146	1,750
Stainless and heat-resisting steel	31,600 ^r	32,400	380,000
Unspecified steel ⁴	2,720	2,720	32,600
Superalloys	423	422	5,090
Other alloys and uses ⁵	W	W	W
Total	35,200 ^r	36,100	424,000
Total, chromium content	20,100 ^r	20,600	242,000
Consumption by material:			
Low-carbon ferrochromium	2,000 ^r	2,090	24,700
High-carbon ferrochromium	30,500 ^r	31,400	367,000
Ferrochromium silicon	W	W	W
Chromium metal	162	162	2,220
Chromium-aluminum alloy	W	W	W
Other chromium materials ⁶	W	W	W
Total	35,200 ^r	36,100	424,000
Total, chromium content	20,100 ^r	20,600	242,000
Consumer stocks:			
Low-carbon ferrochromium	1,570 ^r	1,560	1,560
High-carbon ferrochromium	8,170 ^r	8,390	8,390
Ferrochromium silicon	823	814	814
Chromium metal	44	44	44
Chromium-aluminum alloy	49	51	51
Other chromium materials ⁶	4,100	4,100	4,100
Total	14,800	15,000	15,000
Total, chromium content	7,990 ^r	8,080	8,080

^rRevised. W Withheld to avoid disclosing company proprietary data; included in "Total."

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

²Includes estimates.

³May include revised data that are not broken out by specific month(s).

⁴Includes electrical, full alloy, tool, and unspecified steel end uses.

⁵Includes cast irons, welding and alloy hard-facing rods and materials, wear- and corrosion-resistant alloys, and aluminum, copper, magnetic, nickel, and other alloys.

⁶Includes 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	
2018, December	43,800	27,400	3,850
2019:			
January	43,800	27,400	3,850
February	43,300	27,400	3,850
March	42,400	27,400	3,850
April	41,000	27,400	3,850
May	39,900	27,400	3,850
June	39,900	27,400	3,850
July	39,900	27,400	3,850
August	39,900	27,400	3,850
September	39,600	27,400	3,850
October	39,600	27,400	3,850
November	38,700	27,400	3,850
December	38,700	27,400	3,850

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)
2018:							
December	741	\$368	90	42	\$111	29	\$674
January–December ⁴	6,280	3,810	2,530	1,400	3,590	514	12,300
2019:							
January	169	124	204	64	188	25	644
February	158	134	48	29	111	44	1,220
March	113	106	322	175	667	26	848
April	199	226	169	78	256	28	1,190
May	251	192	47	28	87	70	2,460
June	220	177	90	54	158	37	844
July	269	217	95	53	160	42	971
August	382	356	38	23	78	44	1,370
September	218	152	30	18	40	25	649
October	61	56	328	184	525	39	1,340
November	141	110	179	107	319	23	889
December	120	86	83	50	107	31	718
January–December ⁴	2,300	1,940	1,630	864	2,690	430	13,100

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)

	2018	2019		
	January– December	November	December	January– December ²
Chromite ore:				
Not more than 40% chromic oxide:				
Gross weight	462	53	95	973
Chromic oxide content	173	21	19	360
More than 40% but less than 46% chromic oxide:				
Gross weight	14,600	1,030	524	4,170
Chromic oxide content	6,590	442	227	1,810
46% or more chromic oxide:				
Gross weight	181,000	5,690	36,500	147,000
Chromic oxide content	85,800	3,300	34,300	90,400
Total, all grades:				
Gross weight	197,000	6,770	37,200	152,000
Chromic oxide content	92,600	3,760	34,500	92,500
Ferrochromium:				
Low-carbon: ³				
Not more than 0.5% carbon:				
Gross weight	53,100	2,010	4,110	42,900
Chromium content	37,100	1,400	2,820	29,900
More than 0.5% but not more than 3% carbon:				
Gross weight	4,130	113	259	2,090
Chromium content	2,570	64	185	1,330
Total, low-carbon:				
Gross weight	57,300	2,120	4,370	45,000
Chromium content	39,700	1,460	3,000	31,300
Medium-carbon: ⁴				
Gross weight	8,610	--	900	1,210
Chromium content	4,560	--	621	802
High-carbon: ⁵				
Gross weight	495,000	40,200	20,100	393,000
Chromium content	269,000	20,400	11,000	215,000
Total, all grades:				
Gross weight	561,000	42,300	25,300	439,000
Chromium content	314,000	21,900	14,600	247,000
Chromium metal:				
Unwrought powders	7,920	1,050	1,330	11,500
Waste and scrap	177	2	12	221
Other than waste and scrap and unwrought powders	7,440	227	169	2,680
Total, all grades	15,500	1,280	1,510	14,400

-- 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).

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 2019, BY GRADE AND COUNTRY OR LOCALITY¹

Grade and country or locality	December			January–December 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	328	217	\$310	11,800	7,810	\$15,600
Finland	--	--	--	280	147	178
Germany	--	--	--	3	2	11
India	405	223	314	26,900	16,600	28,000
Kazakhstan	4,950	3,440	5,260	50,700	35,300	71,500
Oman	--	--	--	7,620	4,490	8,360
Russia	--	--	--	14,000	9,440	17,300
South Africa	14,400	7,130	11,500	257,000	127,000	224,000
Sweden	--	--	--	1,410	953	1,990
Turkey	--	--	--	2,110	1,330	2,850
Zimbabwe	--	--	--	21,500	11,900	19,800
Total	20,100	11,000	17,400	393,000	215,000	390,000
Medium-carbon ferrochromium:⁵						
Kazakhstan	900	621	980	1,040	717	1,140
South Africa	--	--	--	54	24	20
Turkey	--	--	--	114	61	61
Total	900	621	980	1,210	802	1,220
Low-carbon ferrochromium:⁶						
More than 0.5% but not more than 3% carbon						
Brazil	--	--	--	810	489	1,690
Kazakhstan	259	185	651	806	569	2,060
Russia	--	--	--	54	37	141
South Africa	--	--	--	423	239	718
Total	259	185	651	2,090	1,330	4,610
Not more than 0.5% carbon:						
Belgium	274	179	931	274	179	931
Brazil	486	300	795	994	616	1,870
China	10	7	29	57	35	143
Germany	191	115	710	6,870	4,760	22,900
India	100	66	204	535	343	1,210
Japan	120	86	486	1,830	1,300	7,430
Kazakhstan	1,680	1,210	4,420	13,800	9,920	38,500
Russia	1,150	789	2,590	14,900	10,200	36,000
South Africa	--	--	--	40	22	69
Sweden	--	--	--	20	14	77
Turkey	98	68	220	3,660	2,550	10,100
Total	4,110	2,820	10,400	42,900	29,900	119,000
All grades:						
Albania	328	217	310	11,756	7,813	15,588
Belgium	274	179	931	274	179	931
Brazil	486	300	795	1,804	1,105	3,560
China	10	7	29	57	35	143
Finland	--	--	--	280	147	178
Germany	191	115	710	6,876	4,763	22,932
India	505	288	517	27,479	16,938	29,213
Japan	120	86	486	1,834	1,302	7,429
Kazakhstan	7,790	5,451	11,309	66,359	46,532	113,184
Oman	--	--	--	7,623	4,491	8,363
Russia	1,148	789	2,589	28,882	19,675	53,381
South Africa	14,372	7,128	11,497	257,067	126,956	225,242
Sweden	--	--	--	1,434	967	2,071
Turkey	98	68	220	5,879	3,936	12,981
Zimbabwe	--	--	--	21,453	11,899	19,804
Total	25,322	14,628	29,392	439,056	246,739	514,999

(See footnotes at end of table)

TABLE 6—Continued
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2019, BY GRADE AND COUNTRY OR LOCALITY¹

-- 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 more than 3% carbon but not more than 4% carbon.

⁶Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2019,
BY GRADE AND BY COUNTRY OR LOCALITY¹

Grade and country or locality	December		January–December ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
Belgium	25	\$156	25	\$156
China	103	1,350	1,870	21,300
France	308	2,590	2,580	27,000
Germany	70	552	420	4,450
India	19	172	76	768
Italy	--	--	(4)	5
Japan	--	--	1	71
Korea, Republic of	--	--	1	38
Russia	335	2,270	3,070	26,800
Spain	--	--	26	171
Taiwan	--	--	2	65
United Kingdom	464	4,760	3,480	43,000
Total	1,330	11,900	11,500	124,000
Waste and scrap:				
Canada	--	--	31	128
China	--	--	4	154
Germany	--	--	9	71
Japan	(4)	10	35	293
Korea, Republic of	--	--	2	11
Taiwan	--	--	15	313
United Kingdom	12	70	125	940
Total	12	79	221	1,910
Other than waste and scrap and unwrought powders:				
Brazil	--	--	2	6
Canada	(4)	14	(4)	23
China	--	--	31	337
Czechia	--	--	1	7
France	--	--	365	4,650
Germany	8	39	14	511
Ireland	--	--	(4)	3
Israel	--	--	(4)	4
Italy	--	--	1	3
Japan	--	--	7	327
Liechtenstein	--	--	(4)	20
Lithuania	--	--	(4)	3
Malaysia	--	--	(4)	17
Netherlands	--	--	1	4
New Zealand	--	--	1	41
Russia	129	841	2,060	16,900
Serbia	--	--	(4)	4
Spain	23	129	93	584
United Kingdom	9	113	98	1,040
Total	169	1,130	2,680	24,500
All grades:				
Belgium	25	156	25	156
Brazil	--	--	2	6
Canada	(4)	14	31	151
China	103	1,350	1,900	21,800
Czechia	--	--	1	7
France	308	2,590	2,950	31,700
Germany	79	591	443	5,030
India	19	172	76	768
Ireland	--	--	(4)	3
Israel	--	--	(4)	4
Italy	--	--	1	8
Japan	(4)	10	43	692
Korea, Republic of	--	--	3	49
Liechtenstein	--	--	(4)	20
Lithuania	10	--	(4)	3

(See footnotes at end of table.)

TABLE 7—Continued
 U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2019,
 BY GRADE AND BY COUNTRY OR LOCALITY¹

Grade and country or locality	December		January–December ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Malaysia	--	--	(4)	17
Netherlands	--	--	1	4
New Zealand	--	--	1	41
Russia	464	3,110	5,130	43,700
Serbia	--	--	(4)	4
Spain	23	129	118	755
Taiwan	--	--	17	378
United Kingdom	485	4,940	3,700	45,000
Total	1,510	13,100	14,400	150,000

-- 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.

⁴Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2019¹

Stainless steel product	December		January–December ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Exports:				
Ingot	1,110	\$6,820	16,600	\$93,100
Flat-rolled (width > 600 mm)	13,500	39,900	274,000	746,000
Flat-rolled (width < 600 mm)	3,630	19,400	66,300	320,000
Bars and rods in irregular coils	136	770	2,920	13,700
Other bars and rods	1,930	23,400	30,900	323,000
Wire	539	7,940	8,530	116,000
Tubes, pipes, hollow profiles	2,060	28,200	35,500	373,000
Total	22,900	126,000	434,000	1,990,000
Stainless steel scrap	74,500	30,900	474,000	351,000
Grand total	97,300	157,000	908,000	2,340,000
Imports:				
Ingot	8,030	39,600	121,000	355,000
Flat-rolled (width > 600 mm)	20,100	53,700	244,000	610,000
Flat-rolled (width < 600 mm)	4,480	15,900	54,100	200,000
Bars and rods in irregular coils	1,850	6,760	32,500	109,000
Other bars and rods	9,610	39,000	138,000	530,000
Wire	2,380	9,690	41,600	187,000
Tubes, pipes, hollow profiles	11,100	83,100	135,000	831,000
Total	57,500	248,000	766,000	2,820,000
Stainless steel scrap	16,600	14,000	204,000	182,000
Grand total	74,200	262,000	970,000	3,000,000

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.