

Mineral Industry Surveys

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CHROMIUM IN JULY 2008

On the basis of gross weight, consumption of chromium ferroalloys and metal in July 2008 increased slightly compared with consumption in June 2008, according to the U.S. Geological Survey.

Included in this Mineral Industry Surveys are U.S. salient chromium statistics, U.S. Government stockpile inventory of

chromium materials in July 2008, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of July 2008, U.S. foreign trade data for selected chromium-containing materials in June 2008, and chromium ferroalloys and metal prices.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2007	2008			
	January-December	May	June	July	January-July ²
Production:					
Stainless steel production ³	2,170,000	203,000	164,000	173,000	1,360,000
Components of U.S. supply:					
Stainless steel scrap receipts	953,000	75,700	71,600	69,900	532,000
Stainless steel scrap consumption	1,430,000	115,000	111,000	108,000	809,000
Imports for consumption:					
Chromite ore	145,000	5,050	11,600	(4)	85,400 ⁵
Ferrochromium:					
More than 4% carbon	384,000	43,900	58,800	(4)	272,000 ⁵
More than 3% carbon but not more than 4% carbon	267	--	--	(4)	160 ⁵
More than 0.5%, but not more than 3% carbon	7,110	34	--	(4)	1,820 ⁵
Not more than 0.5% carbon	31,700	4,260	3,960	(4)	19,900 ⁵
Ferrochromium silicon	37,300	4,280	3,430	(4)	15,300 ⁵
Total ferroalloy imports	460,000	52,500	66,200	(4)	309,000 ⁵
Chromium metal ⁶	11,700	1,210	1,390	(4)	7,140 ⁵
Stainless steel	809,000	71,100	69,000	(4)	430,000 ⁵
Stainless steel scrap	118,000	19,700	15,800	(4)	87,000 ⁵
Distribution of U.S. supply:					
Consumption, industry, chromium ferroalloys and metal	447,000	37,600	36,500	37,600	254,000
Exports:					
Chromite ore	37,600	369	325	(4)	3,190 ⁵
Chromium ferroalloys:					
High-carbon ferrochromium	24,700	1,770	635	(4)	7,630 ⁵
Low-carbon ferrochromium	16,200	2,600	2,100	(4)	10,600 ⁵
Ferrochromium silicon	328	12	--	(4)	104 ⁵
Total ferroalloy exports	41,100	4,370	2,740	(4)	18,300 ⁵
Chromium metal	1,210	129	128	(4)	595 ⁵
Stainless steel	476,000	42,800	57,600	(4)	253,000 ⁵
Stainless steel scrap	882,000	75,200	109,000	(4)	516,000 ⁵
Stocks at end of period:					
Consumer, industry, chromium ferroalloys and metal	XX	11,800	11,800	11,900	XX
Government stockpile:					
Chromium ferroalloys	XX	139,000	139,000	206,000	XX
Chromium metal	XX	4,930	4,930	4,890	XX

XX Not applicable. -- 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.

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.

⁴Data to be published in a subsequent issue.

⁵January through June data only.

⁶Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN
2008^{1,2}

(Metric tons, gross weight unless otherwise noted)

	June	July	January- July ³
Consumption by end use:			
Alloy uses:			
Steel:			
Carbon steel	326	325	2,170
High-strength low-alloy steel	305	286	1,980
Stainless and heat-resisting steel	30,300	30,700	211,000
Full alloy steel	1,850	W	9,990
Tool steel	416	416	2,910
Steel end use, not reported by grade	2,140	4,600	17,500
Superalloys	494	468	3,310
Other alloys and uses ⁴	702 ^f	710	4,940
Total	36,500	37,600	254,000
Total, chromium content	21,600	21,900	148,000
Consumption by material:			
Low-carbon ferrochromium	2,620	3,240	18,400
High-carbon ferrochromium	30,600	31,100	213,000
Ferrochromium silicon	W	W	W
Chromium metal ⁵	287 ^f	245	1,790
Chromite ore	W	W	W
Chromium-aluminum alloy	W	W	W
Other chromium materials	W	W	W
Total	36,500	37,600	254,000
Total, chromium content	21,600	21,900	148,000
Consumer stocks:			
Low-carbon ferrochromium	1,840	1,800	XX
High-carbon ferrochromium	8,650	8,860	XX
Ferrochromium silicon	1,140	1,040	XX
Chromium metal	122 ^f	115	XX
Chromium-aluminum alloy	W	W	XX
Other chromium materials	W	W	XX
Total	11,800	11,900	XX
Total, chromium content	6,990	6,930	XX

^fRevised. W Withheld to avoid disclosing company proprietary data; included in "Total."
XX Not applicable.

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.

⁴Includes cast irons, welding and alloy hard-facing rods and materials, wear- and corrosion-resistant alloys, and aluminum, copper, magnetic, nickel, and other alloys.

⁵Includes waste and scrap and other.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY OF
CHROMIUM MATERIALS ^{1,2}

(Metric tons)

Period	Chromium ferroalloys		Chromium metal
	High-carbon ferro-chromium	Low-carbon ferro-chromium	
2007:			
July	177,000	86,700	5,150
August	170,000	92,200	5,150
September	113,000	61,000	5,150
October	108,000	60,500	5,090
November	104,000	57,800	5,030
December	99,400	55,400	4,970
2008:			
January	98,200	54,700	4,970
February	95,000	50,800	4,940
March	93,600	48,100	4,940
April	93,600	46,900	4,940
May	93,500	45,800	4,930
June	93,600	45,100	4,930
July	140,000	66,700	4,890

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

²These Government stocks are reported by the Defense National Stockpile Center in Inventory of Stockpile Materials D-1, which reports uncommitted inventory. Uncommitted inventory is that inventory for which there is no sales contract. Committed inventory is that inventory for which there is a sales contract, however, the material has not yet been shipped. For chromium materials, the D-1 report includes chromium materials that (1) meet specifications and are held in excess of goal and (2) do not meet specifications and are held in excess of goal. The D-1 report excludes chromium materials that are committed and awaiting shipment.

Source: Defense National Stockpile Center.

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

Period	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)
2007:							
June	790	\$308	1,830	1,040	\$2,680	75	\$1,520
July	844	350	1,130	657	1,760	102	1,760
August	874	364	1,270	747	1,960	123	2,690
September	406	231	4,030	2,470	6,760	95	1,670
October	6,340	812	933	568	1,620	74	1,390
November	525	400	1,580	831	2,600	125	3,850
December	534	284	1,440	737	2,680	67	1,170
January-December ⁴	37,600	5,560	41,100	25,800	51,200	1,210	23,200
2008:							
January	482	255	2,040	957	4,470	96	1,600
February	657	424	2,210	905	3,650	30	845
March	582	282	2,260	946	3,600	131	1,940
April	778	411	4,680	1,810	6,500	80	1,610
May	369	242	4,370	2,040	10,800	129	2,040
June	325	197	2,740	1,180	6,020	128	2,540
January-June	3,190	1,810	18,300	7,850	35,100	595	10,600

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.

Source: U.S. Census Bureau.

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

(Metric tons)

	2007	2008		
	January-December	May	June	January-June ²
Chromite ore:				
Not more than 40%:				
Gross weight	52	--	--	--
Chromic oxide content	19	--	--	--
More than 40% but less than 46% chromic oxide:				
Gross weight	26,400	460	4,310	7,390
Chromic oxide content	12,100	370	1,950	3,520
46% or more chromic oxide:				
Gross weight	119,000	4,590	7,290	78,000
Chromic oxide content	55,600	2,120	3,410	37,800
Total, all grades:				
Gross weight	145,000	5,050	11,600	85,400
Chromic oxide content	67,800	2,490	5,360	41,300
Ferrochromium:				
Low-carbon: ³				
Not more than 0.5%:				
Gross weight	31,700	4,260	3,960	19,900
Chromium content	21,000	2,870	2,720	13,600
More than 0.5% but not more than 3%:				
Gross weight	7,110	34	--	1,820
Chromium content	4,020	23	--	1,150
Total, low-carbon:				
Gross weight	38,800	4,300	3,960	21,800
Chromium content	25,100	2,890	2,720	14,700
Medium-carbon: ⁴				
Gross weight	267	--	--	160
Chromium content	144	--	--	90
High-carbon: ⁵				
Gross weight	384,000	43,900	58,800	272,000
Chromium content	217,000	26,900	33,100	155,000
Total, all grades:				
Gross weight	423,000	48,200	62,800	294,000
Chromium content	242,000	29,800	35,800	169,000
Chromium metal:				
Unwrought powders	822	50	132	460
Waste and scrap	357	49	38	354
Other than waste and scrap and unwrought powders	10,500	1,110	1,220	6,320
Total, all grades:	11,700	1,210	1,390	7,140

-- 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.

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 2008,
BY GRADE AND BY COUNTRY¹

Grade and country	June			January-June 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						
Brazil	--	--	--	2,000	1,040	\$3,820
China	185	124	\$546	632	400	1,730
India	2,880	1,750	5,040	43,200	26,700	70,800
Italy	--	--	--	159	100	260
Kazakhstan	19,400	13,400	65,200	54,600	37,700	165,000
Mexico	--	--	--	19	14	60
Russia	496	332	784	17,600	11,400	42,300
South Africa	35,700	17,400	56,100	131,000	64,100	165,000
Sweden	137	86	255	529	326	882
Zimbabwe	--	--	--	21,900	12,800	55,100
Total	58,800	33,100	128,000	272,000	155,000	505,000
Medium-carbon ferrochromium,⁵ Russia						
	--	--	--	160	90	152
Low-carbon ferrochromium:⁶						
More than 0.5% but not more than 3%:						
China	--	--	--	340	212	1,200
Russia	--	--	--	1,080	726	3,690
South Africa	--	--	--	400	216	619
Total	--	--	--	1,820	1,150	5,510
Not more than 0.5% carbon:						
Brazil	--	--	--	37	25	116
China	436	279	1,910	1,640	1,050	6,890
Germany	488	341	3,430	2,810	1,940	12,300
Japan	160	112	716	1,940	1,290	4,790
Kazakhstan	44	29	162	331	220	639
Russia	2,760	1,910	16,700	12,700	8,760	66,200
South Africa	--	--	--	283	174	437
Sweden	74	50	339	185	128	870
Total	3,960	2,720	23,200	19,900	13,600	92,300
All grades:						
Brazil	--	--	--	2,030	1,070	3,940
China	621	403	2,460	2,610	1,670	9,820
Germany	488	341	3,430	2,810	1,940	12,300
India	2,880	1,750	5,040	43,200	26,700	70,800
Italy	--	--	--	159	100	260
Japan	160	112	716	1,940	1,290	4,790
Kazakhstan	19,400	13,400	65,400	54,900	37,900	166,000
Mexico	--	--	--	19	14	60
Russia	3,260	2,240	17,500	31,500	20,900	112,000
South Africa	35,700	17,400	56,100	132,000	64,500	166,000
Sweden	212	136	594	713	454	1,750
Zimbabwe	--	--	--	21,900	12,800	55,100
Total	62,800	35,800	151,000	294,000	169,000	603,000

-- 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.

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 2008,
BY GRADE AND BY COUNTRY¹

Grade and country	June		January-June ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
China	61	\$288	142	\$852
France	--	--	27	60
Germany	--	--	1	51
Japan	3	126	16	668
Netherlands	--	--	20	173
Russia	68	379	200	1,410
United Kingdom	(4)	66	53	911
Total	132	859	460	4,120
Waste and scrap:				
China	19	228	59	542
Germany	--	--	(4)	10
Japan	1	11	2	32
Malaysia	--	--	23	190
Mexico	18	84	259	993
Singapore	--	--	10	100
Total	38	323	354	1,870
Other than waste and scrap and unwrought powders:				
China	376	3,090	1,120	9,550
France	171	1,760	1,560	17,400
Germany	39	829	94	2,420
India	--	--	126	170
Italy	--	--	1	20
Japan	8	12	13	153
Russia	383	3,950	1,940	19,000
United Kingdom	243	2,620	1,470	15,400
Total	1,220	12,300	6,320	64,100
All grades:				
China	456	3,600	1,320	10,900
France	171	1,760	1,590	17,500
Germany	39	829	95	2,480
India	--	--	126	170
Italy	--	--	1	20
Japan	12	150	32	853
Malaysia	--	--	23	190
Mexico	18	84	259	993
Netherlands	--	--	20	173
Russia	451	4,330	2,140	20,400
Singapore	--	--	10	100
United Kingdom	243	2,680	1,520	16,300
Total	1,390	13,400	7,140	70,100

-- 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.

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 2008¹

Stainless steel product	June		January-June	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	2,040	\$13,200	10,000	\$68,600
Flat-rolled (width > 600 mm)	38,100	130,000	143,000	506,000
Flat-rolled (width < 600 mm)	8,260	45,100	48,200	299,000
Bars and rods in irregular coils	1,140	6,230	4,680	26,100
Other bars and rods	3,530	27,100	20,900	148,000
Wire	697	6,030	4,170	33,500
Tubes, pipes, hollow profiles	3,830	33,500	22,300	187,000
Total	57,600	261,000	253,000	1,270,000
Stainless steel scrap	109,000	136,000	516,000	644,000
Grand total	167,000	397,000	768,000	1,910,000
Imports:				
Ingot	10,200	47,500	63,800	285,000
Flat-rolled (width > 600 mm)	31,400	131,000	204,000	798,000
Flat-rolled (width < 600 mm)	4,200	21,000	23,800	122,000
Bars and rods in irregular coils	2,090	10,800	14,100	67,500
Other bars and rods	9,130	56,300	51,500	302,000
Wire	3,310	21,900	20,300	128,000
Tubes, pipes, hollow profiles	8,690	82,100	53,400	476,000
Total	69,000	371,000	430,000	2,180,000
Stainless steel scrap	15,800	26,700	87,000	160,000
Grand total	84,800	398,000	517,000	2,340,000

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

²Export 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 charges incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.

TABLE 9
CHROMITE ORE PRICES AVERAGE MONTHLY AND ANNUAL PRICES

(Dollars per metric ton, gross weight unless otherwise noted)

Month	Turkey ¹			South Africa ²							
	1	2	3	1	2	3	4	5	6	7	
2007:											
July	405 - 405	425 - 425	NA - NA	245 - 260	245 - 260	240 - 260	280 - 295	255 - 275	220 - 240	NA - NA	
August	364 - 364	392 - 392	NA - NA	218 - 232	222 - 238	240 - 260	280 - 295	255 - 275	220 - 240	NA - NA	
September	363 - 363	393 - 393	NA - NA	225 - 240	235 - 250	265 - 270	285 - 295	345 - 345	220 - 240	NA - NA	
October	390 - 390	420 - 420	NA - NA	258 - 269	258 - 269	300 - 300	320 - 320	410 - 410	220 - 240	NA - NA	
November	403 - 403	435 - 435	NA - NA	263 - 275	263 - 275	330 - 340	340 - 340	430 - 430	210 - 230	NA - NA	
December	425 - 425	450 - 450	NA - NA	268 - 278	268 - 278	270 - 350	300 - 350	455 - 455	240 - 290	NA - NA	
Yearly avg.	360 - 360	382 - 382	NA - NA	238 - 249	238 - 250	224 - 240	248 - 267	292 - 306	163 - 191	NA - NA	
2008:											
January	420 - 420	440 - 440	200 - 300	268 - 278	268 - 278	340 - 340	350 - 370	450 - 480	270 - 290	NA - NA	
February	450 - 450	470 - 470	200 - 300	298 - 308	298 - 308	360 - 370	380 - 400	460 - 480	270 - 290	NA - NA	
March	509 - 509	529 - 529	200 - 300	393 - 403	393 - 403	360 - 370	380 - 400	460 - 480	270 - 290	NA - NA	
April	588 - 588	618 - 618	200 - 300	440 - 450	440 - 450	360 - 370	380 - 400	460 - 480	270 - 290	NA - NA	
May	600 - 600	635 - 635	200 - 300	450 - 460	450 - 460	390 - 415	420 - 435	550 - 580	300 - 350	NA - NA	
June	600 - 600	635 - 635	200 - 300	393 - 413	410 - 430	450 - 480	480 - 510	550 - 580	420 - 420	NA - NA	
July	575 - 600	610 - 635	500 - 500	330 - 340	370 - 400	550 - 580	580 - 570	650 - 680	520 - 520	NA - NA	
Month	South Africa										
	8	9	Kazakhstan ³	Philippines ⁴	Sand ⁵						
2007:											
July	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
August	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
September	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
October	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
November	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
December	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
Yearly avg.	NA - NA	NA - NA	NA - NA	125 - 140	170 - 175						
2008:											
January	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
February	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
March	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
April	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
May	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
June	NA - NA	NA - NA	200 - 300	125 - 140	170 - 175						
July	NA - NA	NA - NA	500 - 500	125 - 140	400 - 400						

NA Not available.

¹Source for Turkey 1 price is Ryan's Notes. Turkey 1 is called 38-40% Cr₂O₃ before 07/07/06 and 40-42% cfr China on and after 07/07/06 by Ryan's Notes. Source for Turkey 2 price is Ryan's Notes. Turkey 2 is called 44% Cr₂O₃ cfr China by Ryan's Notes. Source for Turkey 3 price is Industrial Minerals. Turkey 3 is called 40-42% 2.5:1 (scale pro rata) by Industrial Minerals.

²Source for South Africa 1 price is Ryan's Notes. South Africa 1 is called 39% Cr₂O₃ free on board (f.o.b.) South Africa by Ryan's Notes. Source for South Africa 2 price is Ryan's Notes. South Africa 2 is called 44% chrome concentrate f.o.b. South Africa by Ryan's Notes. Source for South Africa 3 price is Industrial Minerals. South Africa 3 is called chemical grade, 46% Cr₂O₃, wet bulk, f.o.b. by Industrial Minerals. Source for South Africa 4 price is Industrial Minerals. South Africa 4 is called foundry grade, 46% Cr₂O₃, wet bulk, f.o.b. by Industrial Minerals. Source for South Africa 5 price is Industrial Minerals. South Africa 5 is called refractory grade, 46% Cr₂O₃, wet bulk, f.o.b. by Industrial Minerals. Source for South Africa 6 price is Industrial Minerals. South Africa 6 is called Northwest, metallurgical grade, friable lumpy, basis 40% Cr₂O₃, f.o.b. by Industrial Minerals. Source for South Africa 7 price is Metal Bulletin. South Africa 7 is called friable lumpy basis 35-40% chrome ore; cost, insurance and freight (c.i.f.) main Chinese ports by Metal Bulletin. Source for South Africa 8 price is Metal Bulletin. South Africa 8 is called LG6 metallurgical grade basis 42% chrome ore; cost, c.i.f. main Chinese ports by Metal Bulletin. Source for South Africa 9 price is Metal Bulletin. South Africa 9 is called UG2 metallurgical grade basis 40% chrome ore; cost, c.i.f. main Chinese ports by Metal Bulletin.

³Source for Kazakhstan price is Industrial Minerals. Kazakhstan is called 40-41% min. by Industrial Minerals.

⁴Source for Philippines price is Industrial Minerals. Philippines is called refractory grade, f.o.b. by Industrial Minerals.

⁵Source for Sand price is Industrial Minerals. Sand is called molding grade, 98% < 30 mesh, del. UK reported in British pounds by Industrial Minerals.

TABLE 10
HIGH-CARBON FERROCHROMIUM AVERAGE MONTHLY AND ANNUAL PRICES

(Cents per pound, contained chromium)

Month	United States ¹														
	1		2		3		4		5						
2007:															
July	124.00	-	130.75	132.75	-	138.00	100.00	-	112.50	127.00	-	133.25	120	-	130
August	107.00	-	115.00	125.00	-	130.70	102.00	-	115.00	120.20	-	125.60	120	-	130
September	101.25	-	107.50	130.25	-	135.25	107.50	-	116.25	126.75	-	131.00	120	-	130
October	116.25	-	125.00	142.25	-	146.25	113.75	-	120.00	137.00	-	142.75	130	-	140
November	137.90	-	142.50	162.00	-	166.10	121.25	-	132.50	155.00	-	163.75	137	-	143
December	143.00	-	148.00	168.25	-	174.13	140.00	-	155.00	162.75	-	170.50	150	-	165
Yearly avg.	101.99	-	107.70	117.56	-	121.62	97.14	-	105.55	113.31	-	118.57	104	-	112
2008:															
January	147.18	-	149.19	172.50	-	175.75	145.00	-	157.50	165.00	-	170.50	150	-	165
February	161.60	-	166.56	192.40	-	196.80	173.00	-	184.00	188.80	-	195.60	174	-	183
March	192.50	-	198.75	223.75	-	232.50	201.25	-	207.50	207.50	-	215.00	215	-	221
April	204.00	-	208.25	240.00	-	245.00	205.00	-	215.00	225.00	-	236.25	241	-	246
May	204.80	-	209.95	241.00	-	247.00	205.00	-	215.00	224.60	-	240.00	246	-	251
June	205.00	-	211.44	240.75	-	248.25	205.00	-	215.00	211.25	-	225.00	245	-	250
July	202.00	-	207.00	238.00	-	243.00	205.00	-	210.00	196.25	-	216.25	237	-	243

See footnotes at end of table.

TABLE 10—Continued
HIGH-CARBON FERROCHROMIUM AVERAGE MONTHLY AND ANNUAL PRICES

(Cents per pound, contained chromium)

Month	Europe ²				Japan ³		Hong Kong ⁴	China ⁵														
	1	2	3	4	1	2																
2007:																						
July	102	-	104	140	-	145	99	-	101	128	-	138	120.00	-	125.00	90	100	-	138	8,440	-	8,600
August	102	-	104	136	-	141	99	-	101	130	-	145	101.00	-	107.00	108	100	-	145	8,300	-	8,580
September	102	-	104	135	-	140	99	-	101	131	-	146	93.75	-	98.75	108	100	-	146	8,500	-	8,800
October	102	-	104	135	-	140	99	-	101	140	-	150	95.00	-	100.00	108	100	-	150	8,825	-	9,200
November	102	-	104	135	-	140	100	-	106	156	-	165	112.00	-	118.00	108	100	-	165	9,120	-	9,420
December	102	-	104	150	-	160	107	-	114	170	-	191	120.00	-	130.00	108	100	-	191	9,250	-	9,738
Yearly avg.	90	-	92	114	-	119	92	-	92	116	-	126	94.77	-	99.48	96	87	-	94	8,304	-	8,578
2008:																						
January	102	-	104	150	-	160	192	-	210	245	-	325	230.00	-	240.00	200	100	-	110	58	-	62
February	137	-	145	196	-	214	192	-	210	243	-	310	230.00	-	240.00	200	100	-	110	60	-	63
March	178	-	188	233	-	258	205	-	220	230	-	275	190.00	-	210.00	210	100	-	110	71	-	75
April	190	-	200	250	-	280	205	-	220	220	-	260	184.00	-	204.00	213	100	-	110	94	-	102
May	190	-	200	250	-	280	205	-	220	220	-	254	172.50	-	185.00	213	100	-	110	103	-	107
June	190	-	200	250	-	280	189	-	206	199	-	230	145.00	-	150.00	197	100	-	110	94	-	101
July	195	-	205	250	-	280	205	-	220	230	-	275	190.00	-	210.00	210	100	-	110	86	-	93

¹Source for United States 1 price is Platts Metals Week; United States 1 is called United States charge 50%-55% chromium, imported, by Platts Metals Week. Source for United States 2 price is Platts Metals Week; United States 2 is called United States 60%-65% chromium, imported, by Platts Metals Week. Source for United States 3 price is Ryan's Notes; United States 3 is called 50%-52% chromium, imported, North American transaction by Ryan's Notes. Source for United States 4 price is Ryan's Notes; United States 4 is called 60%-65% chromium, imported, North American transaction by Ryan's Notes. Source for United States 5 price is Metal Bulletin; United States 5 is called 6%-8% carbon, basis 60%-65% chromium, max. 2% silicon, by Metal Bulletin.

²Source for Europe 1 price is Platts Metals Week; Europe 1 is called high-carbon 52% chromium, by Platts Metals Week. Source for Europe 2 price is Platts Metals Week; Europe 2 is called high-carbon 62% chromium, by Platts Metals Week. Source for Europe 3 price is Metal Bulletin; Europe 3 is called lumpy chromium charge, basis 52% chromium, quarterly by Metal Bulletin. Source for Europe 4 price is Metal Bulletin; Europe 4 is called 6%-8% carbon, basis 60% chromium, max. 1.5% silicon, by Metal Bulletin.

³Source for Japan 1 price is Platts Metals Week; Japan 1 is called 50%-55% chromium, spot, cost insurance freight (c.i.f.), by Platts Metals Week. Source for Japan 2 price is Platts Metals Week; Japan 2 is called 50%-55% chromium, regular, c.i.f., by Platts Metals Week.

⁴Source for Hong Kong price is Platts Metals Week; Hong Kong is called high-carbon 60% chromium, by Platts Metals Week.

⁵Source for China price is Metal Bulletin; China is called 6%-8% carbon, basis 60% chromium, delivered duty paid China RMB/tonne (metric ton) in 2007, by Metal Bulletin. As a result of conversion of price reported in Yuan to U.S. dollars in 2008, variations result from changes in price and exchange rate. The University of British Columbia, Sauter School of Business, Pacific Exchange Rate Service at URL <http://fx.sauder.ubc.ca/data.html> is the source of Yuan/U.S. dollar exchange rates.

TABLE 11
LOW-CARBON FERROCHROMIUM AVERAGE MONTHLY AND ANNUAL PRICES

(Dollars per pound, contained chromium, unless otherwise noted)

Month	United States ¹				
	1	2	3	4	5
2007:					
July	1.70 - 1.81	1.55 - 1.60	1.54 - 1.59	1.69 - 1.80	1.53 - 1.57
August	1.70 - 1.78	1.52 - 1.58	1.51 - 1.57	1.69 - 1.78	1.49 - 1.55
September	1.76 - 1.83	1.57 - 1.62	1.55 - 1.61	1.71 - 1.78	1.55 - 1.61
October	1.93 - 1.98	1.78 - 1.82	1.74 - 1.80	1.89 - 1.94	1.81 - 1.87
November	2.18 - 2.23	2.06 - 2.10	2.05 - 2.09	2.22 - 2.29	2.07 - 2.13
December	2.65 - 2.80	2.37 - 2.48	2.36 - 2.47	2.68 - 2.75	2.32 - 2.37
Yearly avg.	1.72 - 1.78	1.54 - 1.59	1.53 - 1.58	1.69 - 1.75	1.52 - 1.56
2008:					
January	3.15 - 3.38	2.68 - 2.75	2.67 - 2.74	3.03 - 3.11	2.69 - 2.79
February	3.54 - 3.64	3.25 - 3.38	3.14 - 3.26	3.54 - 3.67	3.34 - 3.44
March	4.45 - 4.59	4.26 - 4.41	4.16 - 4.25	4.16 - 4.40	4.26 - 4.39
April	5.00 - 5.18	4.89 - 4.96	4.88 - 4.95	5.16 - 5.29	4.95 - 5.06
May	5.45 - 5.56	5.16 - 5.26	5.09 - 5.19	5.40 - 5.45	5.18 - 5.27
June	5.54 - 5.59	5.13 - 5.28	5.12 - 5.27	5.40 - 5.45	4.99 - 5.18
July	5.45 - 5.50	4.99 - 5.06	4.98 - 5.05	5.21 - 5.30	4.85 - 5.00

See footnotes at end of table.

TABLE 11—Continued
LOW-CARBON FERROCHROMIUM AVERAGE MONTHLY AND ANNUAL PRICES

(Dollars per pound, contained chromium, unless otherwise noted)

Month	United States ¹				Europe ²		
	6	7	8	9	1	2	3
2007:							
July	1.50 - 1.55	1.70 - 1.90	1.45 - 1.60	1.30 - 1.40	1.65 - 1.75	1.63 - 1.73	1.62 - 1.75
August	1.47 - 1.52	1.70 - 1.90	1.45 - 1.60	1.30 - 1.40	1.62 - 1.72	1.66 - 1.76	1.63 - 1.76
September	1.50 - 1.56	1.70 - 1.90	1.45 - 1.60	1.30 - 1.40	1.60 - 1.70	1.71 - 1.81	1.68 - 1.78
October	1.68 - 1.75	1.85 - 1.95	1.60 - 1.70	1.60 - 1.65	1.68 - 1.80	1.80 - 1.88	1.78 - 1.85
November	1.91 - 1.98	1.86 - 1.95	1.61 - 1.70	1.61 - 1.66	1.98 - 2.10	2.09 - 2.27	2.12 - 2.26
December	2.01 - 2.08	1.94 - 2.04	1.72 - 1.82	1.64 - 1.71	2.10 - 2.22	2.18 - 2.38	2.22 - 2.42
Yearly avg.	1.47 - 1.51	1.58 - 1.69	1.40 - 1.49	1.29 - 1.36	1.50 - 1.61	1.57 - 1.66	1.59 - 1.68
2008:							
January	2.54 - 2.64	2.25 - 2.41	2.15 - 2.30	1.75 - 1.90	2.65 - 2.80	2.63 - 2.89	2.66 - 2.90
February	3.18 - 3.28	3.07 - 3.17	2.77 - 2.87	2.53 - 2.63	3.16 - 3.26	3.17 - 3.49	3.22 - 3.55
March	4.08 - 4.18	4.42 - 4.49	4.31 - 4.36	4.23 - 4.30	4.44 - 4.61	3.95 - 4.73	4.00 - 4.78
April	4.66 - 4.79	4.90 - 5.00	4.80 - 4.90	4.73 - 4.83	4.85 - 5.05	3.95 - 5.50	4.00 - 5.55
May	5.03 - 5.13	5.05 - 5.15	5.00 - 5.10	4.93 - 5.03	4.85 - 5.05	3.85 - 4.10	4.75 - 5.55
June	5.00 - 5.08	5.52 - 5.61	5.16 - 5.23	5.10 - 5.16	4.85 - 5.05	4.15 - 4.40	5.30 - 5.43
July	4.78 - 4.84	5.44 - 5.52	5.01 - 5.10	4.98 - 5.07	5.00 - 5.20	5.05 - 5.20	5.10 - 5.32

¹Source for United States 1 price is Platts Metals Week; United States 1 is called United States low-carbon, 0.05% carbon, imported, by Platts Metals Week. Source for United States 2 price is Platts Metals Week; United States 2 is called United States low-carbon, 0.10% carbon, imported, by Platts Metals Week. Source for United States 3 price is Platts Metals Week; United States 3 is called United States low-carbon, 0.15% carbon, imported, by Platts Metals Week. Source for United States 4 price is Ryan's Notes; United States 4 is called 0.05% carbon, imported, North American transaction by Ryan's Notes. Source for United States 5 price is Ryan's Notes; United States 5 is called 0.1% carbon, imported, North American transaction by Ryan's Notes. Source for United States 6 price is Ryan's Notes; United States 6 is called 0.15% carbon, imported, North American transaction by Ryan's Notes. Source for United States 7 price is Metal Bulletin; United States 7 is called United States free market, low carbon, duty paid free on board (f.o.b.) Pittsburgh, 0.05% carbon, 65% min. chromium by Metal Bulletin. Source for United States 8 price is Metal Bulletin; United States 8 is called United States free market, low-carbon, duty paid f.o.b. Pittsburgh, 0.10% carbon, 62% min. chromium by Metal Bulletin. Source for United States 9 price is Metal Bulletin; United States 9 is called United States free market, low-carbon, duty paid f.o.b. Pittsburgh, 0.15% carbon, 60% min. chromium by Metal Bulletin.

²Source for Europe 1 price is Platts Metals Week; Europe 1 is called 0.1% carbon, by Platts Metals Week. Source for Europe 2 price is Metal Bulletin; Europe 2 is called 0.1% carbon, average 68%-70% chromium, by Metal Bulletin. Source for Europe 3 price is Metal Bulletin; Europe 3 is called European low-carbon, in warehouse, 0.06% carbon max., 65% chromium, by Metal Bulletin.

TABLE 12
FERROCHROMIUM SILICON AND CHROMIUM METAL AVERAGE MONTHLY AND ANNUAL PRICES

(Dollars per pound, gross weight, unless otherwise noted)

Month	Ferro-chromium silicon ²	Chromium metal					
		United States, aluminothermic ³		Europe, aluminothermic ¹			
				1		2	
2007:							
July	0.7955	3.65	- 3.75	3.45	- 3.63	4.65	- 4.83
August	0.7584	3.65	- 3.74	3.45	- 3.63	4.65	- 4.83
September	0.7810	3.65	- 3.70	3.44	- 3.61	4.65	- 4.83
October	0.8213	3.65	- 3.70	3.45	- 3.59	4.65	- 4.83
November	0.9120	3.83	- 3.94	3.49	- 3.61	4.65	- 4.83
December	0.9473	4.59	- 4.71	3.86	- 4.02	4.65	- 4.83
Yearly avg.	0.7197	3.62	- 3.70	3.34	- 3.48	4.56	- 4.83
2008:							
January	0.9703	4.65	- 4.75	4.38	- 4.54	4.65	- 4.83
February	1.0896	4.68	- 4.75	4.51	- 4.68	4.65	- 4.83
March	1.2125	4.90	- 5.00	4.51	- 4.65	4.65	- 4.83
April	1.3075	5.05	- 5.13	4.74	- 5.03	4.65	- 4.83
May	1.4040	5.17	- 5.25	4.97	- 5.21	4.65	- 4.83
June	1.4518	5.53	- 5.71	5.36	- 5.53	4.65	- 4.83
July	1.3813	5.75	- 5.90	5.95	- 6.13	4.65	- 4.83

¹Source for Europe aluminothermic 1 price is Metal Bulletin; Europe aluminothermic 1 is called aluminothermic, min. 99% metal by Metal Bulletin; price converted from dollars per metric ton to dollars per pound. Source for Europe aluminothermic 2 price is Metal Bulletin; Europe aluminothermic 2 is called western un-degassed AT, min. 99.4% metal by Metal Bulletin; price converted from dollars per kilogram to dollars per pound.

²Source for ferrochromium silicon price is Ryan's Notes; ferrochromium silicon is called North American transaction by Ryan's Notes.

³Source for United States aluminothermic price is Ryan's Notes; United States aluminothermic is called aluminothermic imported chrome metal by Ryan's Notes.