

Mineral Industry Surveys

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CHROMIUM IN DECEMBER 2006

On the basis of gross weight, consumption of chromium ferroalloys and metal in December 2006 decreased 7% compared with revised consumption in November 2006; consumption in the fourth quarter 2006 decreased 6% compared with consumption in the third quarter 2006 and decreased slightly compared with consumption in the fourth quarter 2005, 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 December 2006, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of December 2006, and U.S. foreign trade data for selected chromium-containing materials in November 2006.

Update

The Defense National Stockpile Center (DNSC) announced that combined sales of ferrochromium in January and February 2007 were 25,802 metric tons (t) (14,490 t high-carbon ferrochromium and 11,313 t low-carbon ferrochromium) at a value of \$29.9 million or \$0.526 per pound gross weight (Defense National Stockpile Center, 2007a, b).

References Cited

- Defense National Stockpile Center, 2007a, Stockpile announces BOA sales for February 2007: Defense National Stockpile Center, News Release DNSC-07-2834, March 5, 1 p.
- Defense National Stockpile Center, 2007b, Stockpile announces BOA sales for January 2007: Defense National Stockpile Center, News Release DNSC-07-2831, February 6, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2005	2006				January-December ²
	January-December	Third quarter ²	October	November	December	
Production:						
Stainless steel production ³	2,240,000	629,000	212,000	199,000	154,000	2,460,000 ⁴
Components of U.S. supply:						
Stainless steel scrap receipts	731,000	NA	NA	NA	NA	474,000 ⁵
Stainless steel scrap consumption	1,060,000	NA	NA	NA	NA	699,000 ⁵
Imports for consumption:						
Chromite ore	165,000	40,100	21,700	5,060	NA	124,000 ⁶
Ferrochromium:						
More than 4% carbon	398,000	93,200	38,200	30,900	NA	365,000 ⁶
More than 0.5%, but not more than 3% carbon	3,530	--	--	--	NA	10 ⁶
Not more than 0.5% carbon	43,000	6,140	1,170	1,980	NA	25,700 ⁶
Ferrochromium silicon	33,700	14,100	1,040	4,860	NA	37,500 ⁶
Total ferroalloy imports	478,000	113,000	40,400	37,800	NA	428,000 ⁶
Chromium metal ⁷	11,000	2,510	1,090	856	NA	9,380 ⁶
Stainless steel	770,000	228,000	80,000	74,000	NA	799,000 ⁶
Stainless steel scrap	111,000	57,400	14,100	11,700	NA	167,000 ⁶
Distribution of U.S. supply:						
Consumption, industry, chromium ferroalloys and metal	439,000	107,000 ^r	34,300 ^r	34,400 ^r	32,000	422,000
Exports:						
Chromite ore	42,600	18,000	445	22,700	NA	53,600 ⁶
Chromium ferroalloys:						
High-carbon ferrochromium	30,700	7,700	614	421	NA	16,800 ⁶
Low-carbon ferrochromium	5,460	4,680	1,440	2,110	NA	11,300 ⁶
Ferrochromium silicon	147	21	--	25	NA	248 ⁶
Total ferroalloy exports	36,300	12,400	2,050	2,560	NA	28,300 ⁶
Chromium metal	1,020	313	95	85	NA	953 ⁶
Stainless steel	371,000	95,800	32,000	30,800	NA	380,000 ⁶
Stainless steel scrap	585,000	984,000	35,100	41,900	NA	1,310,000 ⁶
Stocks at end of period:						
Consumer, industry, chromium ferroalloys and metal	XX	XX	11,700	12,600 ^r	12,800	XX
Government stockpile:						
Chromium ferroalloys	XX	XX	395,000	387,000	347,000	XX
Chromium metal	XX	XX	5,280	5,280	5,280	XX

^rRevised. NA Not available. XX Not applicable. -- Zero.

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

²May include revised data.

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 revised data that are not broken out by specific month.

⁵Includes January to August data only; September to December data were not available at time of publication.

⁶Includes January to November data only; December data were not available at time of publication.

⁷Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN 2006^{1,2}

(Metric tons, gross weight unless otherwise noted)

	November	December	January- December ³
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	298	301	3,650
High-strength low-alloy steel	517 ^r	528	6,420
Stainless and heat-resisting steel	29,800	27,700	366,000
Full alloy steel	1,640	1,560	19,300
Electrical steel	W	W	W
Tool steel	424	374	4,870
Unspecified steel	W	W	W
Cast irons	W	W	W
Superalloys	656 ^r	601	9,620
Other alloys ⁴	57	50	635
Total	34,400 ^r	32,000	422,000
Total, chromium content	20,300	18,800	248,000
Consumption by material:			
Low-carbon ferrochromium	1,900 ^r	1,870	22,900
High-carbon ferrochromium	29,100 ^r	26,900	357,000
Ferrochromium silicon	2,990	2,830	36,200
Chromium metal	337 ^r	329	4,870
Chromite ore	W	W	W
Chromium-aluminum alloy	W	22	275
Other chromium materials	W	W	W
Total	34,400 ^r	32,000	422,000
Total, chromium content	20,300	18,800	248,000
Consumer stocks:			
Low-carbon ferrochromium	1,990	1,990	XX
High-carbon ferrochromium	9,280 ^r	9,440	XX
Ferrochromium silicon	1,100	1,140	XX
Chromium metal	181 ^r	197	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	22 ^r	23	XX
Other chromium materials	W	W	XX
Total	12,600 ^r	12,800	XX
Total, chromium content	7,560 ^r	7,650	XX

^rRevised. 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.

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

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	
2005, December	318,000	171,000	6,190
2006:			
January	312,000	169,000	6,190
February	308,000	166,000	5,590
March	276,000	145,000	5,590
April	275,000	145,000	5,590
May	271,000	139,000	5,280
June	270,000	139,000	5,280
July	270,000	137,000	5,280
August	267,000	137,000	5,280
September	265,000	135,000	5,280
October	263,000	133,000	5,280
November	255,000	132,000	5,280
December	229,000	118,000	5,280

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 R-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 R-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 R-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)
2005:							
November	835	\$435	1,310	877	\$1,490	120	\$2,120
December	515	203	671	408	923	125	1,930
January-December	42,600	9,940	36,300	23,700	38,900	1,020	16,900
2006:							
January	462	199	1,100	676	1,300	69	1,600
February	1,830	344	739	447	893	85	2,100
March	618	285	733	447	936	140	2,350
April	331	163	708	403	982	43	1,370
May	1,080	277	1,710	937	1,670	58	1,440
June	8,160	825	6,300	3,750	5,660	66	1,380
July	8,780	725	8,570	5,170	7,060	95	1,800
August	6,940	5,550	2,380	1,410	3,000	109	2,270
September	2,280	309	1,440	801	2,060	109	1,910
October	445	157	2,050	1,240	2,360	95	1,830
November	22,700	1,240	2,560	1,610	3,650	85	1,720
January-November	53,600	10,100	28,300	16,900	29,600	953	19,800

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

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

³Includes chromium metal waste and scrap and unwrought powders.

Source: U.S. Census Bureau.

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

(Metric tons)

	2005	2006			January- November ²
	January- December	September	October	November	
Chromite ore:					
Not more than 40%:					
Gross weight	36	--	46	--	54
Chromic oxide content	11	--	18	--	20
More than 40% but less than 46% chromic oxide:					
Gross weight	29,700	27	24	48	3,740
Chromic oxide content	13,700	12	11	22	1,710
46% or more chromic oxide:					
Gross weight	135,000	362	21,700	5,010	120,000
Chromic oxide content	63,600	178	10,500	2,320	64,000
Total, all grades:					
Gross weight	165,000	389	21,700	5,060	124,000
Chromic oxide content	77,300	190	10,600	2,340	65,700
Ferrochromium:					
Low-carbon: ³					
Not more than 0.5%:					
Gross weight	43,000	2,430	1,170	1,980	25,700
Chromium content	29,300	1,710	816	1,370	17,700
More than 0.5% but not more than 3%:					
Gross weight	3,530	--	--	--	10
Chromium content	2,300	--	--	--	7
Total, low-carbon:					
Gross weight	46,600	2,430	1,170	1,980	25,700
Chromium content	31,600	1,710	816	1,370	17,700
High-carbon: ⁴					
Gross weight	398,000	39,200	38,200	30,900	365,000
Chromium content	232,000	23,500	20,300	18,600	214,000
Total, all grades:					
Gross weight	444,000	41,600	39,300	32,900	391,000
Chromium content	264,000	25,200	21,100	20,000	232,000
Chromium metal:					
Unwrought powders	1,050	230	163	108	1,140
Waste and scrap	57	--	--	5	68
Other than waste and scrap and unwrought powders	9,850	523	927	743	8,170
Total, all grades	11,000	753	1,090	856	9,380

-- Zero.

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

²May include revised data.

³Ferrochromium containing not more than 3% carbon.

⁴Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2006, BY GRADE AND BY COUNTRY¹

Grade and country	November			January-November 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						
India	--	--	--	42	34	\$34
Kazakhstan	15,400	10,700	\$13,600	98,700	68,800	85,200
Russia	1,900	1,220	1,400	41,600	26,800	28,000
South Africa	13,600	6,630	8,210	176,000	89,800	105,000
Sweden	--	--	--	557	374	633
Tajikistan	18	13	25	119	82	166
Zimbabwe	--	--	--	48,300	28,300	34,600
Total	30,900	18,600	23,200	365,000	214,000	254,000
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3%, China	--	--	--	10	7	16
Not more than 0.5% carbon:						
Brazil	--	--	--	19	14	47
China	60	40	121	650	433	1,100
Germany	400	279	857	5,600	3,920	12,100
Japan	180	125	617	2,540	1,760	8,110
Kazakhstan	750	517	1,170	3,330	2,310	4,730
Mexico	--	--	--	20	13	65
Russia	590	405	801	11,600	8,120	16,100
South Africa	--	--	--	1,800	1,060	1,410
Sweden	--	--	--	35	25	121
Turkey	2	1	7	102	65	276
Total	1,980	1,370	3,580	25,700	17,700	44,000
All grades:						
Brazil	--	--	--	19	14	47
China	60	40	121	660	440	1,110
Germany	400	279	857	5,600	3,920	12,100
India	--	--	--	42	34	34
Japan	180	125	617	2,540	1,760	8,110
Kazakhstan	16,200	11,300	14,800	102,000	71,100	89,900
Mexico	--	--	--	20	13	65
Russia	2,490	1,620	2,200	53,200	34,900	44,100
South Africa	13,600	6,630	8,210	177,000	90,900	107,000
Sweden	--	--	--	592	399	754
Tajikistan	18	13	25	119	82	166
Turkey	2	1	7	102	65	276
Zimbabwe	--	--	--	48,300	28,300	34,600
Total	32,900	20,000	26,800	391,000	232,000	298,000

-- Zero.

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

²May include revised data.

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 2006, BY GRADE AND BY COUNTRY¹

Grade and country	November		January-November ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
Canada	--	--	3	\$22
China	32	\$375	221	2,940
France	--	--	4	30
Germany	--	--	29	350
Japan	4	136	135	5,370
Netherlands	--	--	6	31
Russia	43	347	600	5,740
Spain	--	--	19	96
Sweden	--	--	1	4
United Kingdom	30	348	123	1,490
Total	108	1,210	1,140	16,100
Waste and scrap:				
Germany	5	13	11	236
Japan	--	--	12	217
Singapore	--	--	43	315
Taiwan	--	--	1	29
Total	5	13	68	796
Other than waste and scrap and unwrought powders:				
China	333	2,220	2,240	14,600
France	171	1,670	2,270	20,000
Germany	12	357	48	906
Japan	--	--	24	100
Malaysia	--	--	6	24
Netherlands	--	--	24	131
Russia	121	862	1,940	12,900
Singapore	--	--	(4)	7
Spain	--	--	236	1,290
Taiwan	--	--	1	5
United Kingdom	105	851	1,380	10,800
Total	743	5,960	8,170	60,800
All grades:				
Canada	--	--	3	22
China	365	2,590	2,460	17,500
France	171	1,670	2,270	20,100
Germany	17	370	88	1,490
Japan	4	136	172	5,690
Malaysia	--	--	6	24
Netherlands	--	--	30	162
Russia	164	1,210	2,540	18,700
Singapore	--	--	43	322
Spain	--	--	255	1,390
Sweden	--	--	1	4
Taiwan	--	--	2	34
United Kingdom	135	1,200	1,500	12,300
Total	856	7,180	9,380	77,700

-- Zero.

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

²May include revised data.

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 2006¹

Stainless steel product	November		January-November	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	1,030	\$5,600	10,600	\$50,900
Flat-rolled (width > 600 mm)	15,800	50,600	164,000	466,000
Flat-rolled (width < 600 mm)	7,310	31,800	88,700	361,000
Bars and rods in irregular coils	465	2,410	10,100	43,200
Other bars and rods	2,510	17,700	30,100	197,000
Wire	578	4,270	6,580	47,300
Tubes, pipes, hollow profiles	3,150	24,800	69,800	259,000
Total	30,800	137,000	380,000	1,420,000
Stainless steel scrap	41,900	67,800	1,310,000 ³	646,000
Grand total	72,700	205,000	1,690,000	2,070,000
Imports:				
Ingot	7,770	34,000	117,000	362,000
Flat-rolled (width > 600 mm)	33,800	115,000	377,000	1,070,000
Flat-rolled (width < 600 mm)	3,920	18,700	41,300	166,000
Bars and rods in irregular coils	3,120	11,900	25,500	80,300
Other bars and rods	9,980	47,900	91,300	387,000
Wire	3,630	19,700	40,400	188,000
Tubes, pipes, hollow profiles	11,800	73,900	106,000	637,000
Total	74,000	322,000	799,000	2,880,000
Stainless steel scrap	11,700	15,900	167,000	197,000
Grand total	85,700	338,000	965,000	3,080,000

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

²Export value is free alongside ship (f.a.s.). 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.

³Submitted to the U.S. Census Bureau for investigation.

Source: U.S. Census Bureau.

TABLE 9
2006 CHROMITE ORE PRICES AVERAGE MONTHLY AND ANNUAL PRICES¹

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

Month	Turkey ²		South Africa ³						Philippines ⁴	Sand ⁵
	1	2	1	2	3	4	5	6		
2006:										
January	103	105	NA	NA	100 - 120	170 - 190	100 - 120	60 - 90	125 - 145	NA
February	119	126	NA	NA	90 - 110	155 - 170	100 - 120	60 - 80	125 - 145	NA
March	143	153	NA	NA	140 - 160	195 - 210	210 - 230	100 - 120	125 - 145	NA
April	178	185	NA	NA	140 - 160	195 - 210	210 - 230	100 - 120	125 - 145	NA
May	185	198	NA	NA	140 - 160	195 - 210	210 - 230	100 - 120	125 - 145	NA
June	193	203	117 - 122	114 - 120	150 - 165	195 - 225	210 - 230	100 - 145	125 - 145	170 - 175
July	200	210	138 - 145	135 - 144	150 - 165	195 - 225	210 - 230	100 - 145	125 - 145	170 - 175
August	190	200	115 - 124	114 - 119	175 - 188	145 - 175	210 - 230	100 - 145	125 - 145	170 - 175
September	187	197	114 - 119	110 - 115	175 - 188	195 - 225	215 - 240	100 - 145	125 - 145	170 - 175
October	178	188	111 - 116	110 - 114	175 - 188	195 - 225	215 - 240	100 - 145	125 - 145	170 - 175
November	177	183	108 - 113	109 - 114	175 - 183	195 - 220	215 - 235	100 - 145	125 - 140	170
December	208	218	123 - 129	123 - 131	175 - 183	195 - 220	215 - 235	100 - 145	125 - 140	170
Yearly avg.	172	181	NA	NA	149 - 164	185 - 209	193 - 214	93 - 129	125 - 144	NA

NA Not available.

¹Data obtained from Ryan's Notes refer to monthly averages of weekly reports; data obtained from Industrial Minerals refer to monthly reports.

²Source for Turkey 1 is Ryan's Notes; Turkey 1 is called 38% - 40% Cr₂O₃ before 07/07/06 and 40% - 42%, cost and freight (cfr) China on and after 07/07/06 by Ryan's Notes. Source for Turkey 2 is Ryan's Notes; Turkey 2 is called 44% Cr₂O₃, cfr China by Ryan's Notes.

³Source for South Africa 1 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 is Ryan's Notes; South Africa 2 is called 44% Cr₂O₃, f.o.b. South Africa by Ryan's Notes. Source for South Africa 3 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 is Industrial Minerals; Africa 5 is called refractory grade, 46% Cr₂O₃, wet bulk, f.o.b. by Industrial Minerals. Source for South Africa 6 is Industrial Minerals; South Africa 6 is called Northwest, metallurgical grade, friable lumpy, basis 40% Cr₂O₃, f.o.b. by Industrial Minerals.

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

⁵Source for Sand is Industrial Minerals; Sand is called molding grade, 98% < 30 mesh, delivered UK 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
2006:					
January	59.25 - 62.00	53.50 - 55.50	57.00 - 59.00	52.19 - 54.25	53 - 57
February	60.75 - 62.75	57.25 - 60.25	57.00 - 59.00	56.63 - 58.50	57 - 60
March	61.00 - 63.20	59.80 - 62.80	57.00 - 59.00	59.60 - 62.00	59 - 61
April	66.50 - 71.25	62.31 - 65.88	62.00 - 64.00	60.63 - 62.50	62 - 64
May	67.00 - 72.00	63.19 - 66.50	62.00 - 64.00	62.25 - 63.56	63 - 65
June	67.80 - 72.80	64.20 - 67.40	62.00 - 64.00	63.00 - 64.70	64 - 66
July	71.00 - 76.00	63.13 - 65.75	62.75 - 64.50	62.88 - 64.50	65 - 68
August	71.00 - 76.00	63.88 - 66.00	63.50 - 65.00	63.25 - 64.50	65 - 68
September	71.00 - 76.00	63.80 - 66.60	63.50 - 65.00	62.00 - 64.30	66 - 68
October	71.00 - 76.00	63.00 - 66.00	63.50 - 65.00	61.13 - 63.63	66 - 68
November	71.00 - 76.00	63.00 - 65.88	65.38 - 68.75	71.50 - 64.00	63 - 65
December	71.00 - 76.00	64.40 - 67.20	63.38 - 65.13	62.98 - 65.25	63 - 65
Yearly avg.	67.38 - 71.69	61.88 - 64.75	61.54 - 63.48	61.30 - 62.68	62 - 65

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	1	2	
2006:									
January	60 - 64	57 - 60	63 - 65	53 - 56	50.00 - 56.50	68	53 - 57	60 - 63	4,925 - 5,200
February	60 - 64	57 - 60	62 - 64	55 - 58	54.25 - 56.50	68	53 - 57	60 - 63	5,075 - 5,250
March	60 - 64	57 - 60	62 - 64	57 - 60	56.80 - 58.60	68	57 - 61	NA	5,480 - 5,640
April	60 - 64	57 - 60	69 - 71	59 - 62	60.00 - 62.00	75	63 - 65	NA	5,625 - 6,050
May	67 - 71	57 - 60	69 - 71	60 - 62	60.00 - 62.00	75	68 - 70	NA	5,700 - 6,200
June	67 - 71	57 - 60	70 - 72	63 - 65	64.00 - 65.00	75	68 - 70	NA	6,100 - 6,460
July	67 - 71	57 - 60	74 - 76	65 - 67	64.00 - 65.00	78	68 - 70	NA	6,375 - 6,675
August	67 - 71	57 - 60	74 - 76	65 - 67	64.00 - 65.00	80	68 - 70	NA	6,075 - 6,388
September	67 - 71	57 - 60	74 - 76	64 - 66	64.00 - 65.00	80	68 - 70	NA	6,040 - 6,230
October	67 - 71	57 - 60	75 - 77	64 - 66	63.00 - 64.75	80	68 - 70	NA	5,913 - 6,200
November	67 - 71	57 - 60	77 - 79	65 - 68	60.00 - 64.00	82	68 - 70	NA	6,025 - 6,250
December	67 - 71	57 - 60	77 - 79	65 - 68	64.80 - 67.40	83	68 - 70	NA	6,340 - 6,540
Yearly avg.	65 - 69	57 - 60	71 - 73	61 - 64	60.56 - 62.75	76	64 - 67	NA	5,820 - 6,100

NA Not available.

¹Source for United States 1 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 is Platts Metals Week; United States 2 is called United States 60% - 65% chromium, imported, by Platts Metals Week. Source for United States 3 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 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 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 is Platts Metals Week; Europe 1 is called high-carbon 52% chromium, by Platts Metals Week. Source for Europe 2 is Platts Metals Week; Europe 2 is called high-carbon 62% chromium, by Platts Metals Week. Source for Europe 3 is Metal Bulletin; Europe 3 is called lumpy chromium charge, basis 52% chromium, quarterly by Metal Bulletin. Source for Europe 4 is Metal Bulletin; Europe 4 is called 6% - 8% carbon, basis 60% chromium, max. 1.5% silicon, by Metal Bulletin.

³Source for Japan 1 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 is Platts Metals Week; Japan 2 is called 50% - 55% chromium, regular, c.i.f., by Platts Metals Week.

⁴Source for Hong Kong 1 is Platts Metals Week; Hong Kong 1 is called high-carbon 60% chromium, by Platts Metals Week. Source for Hong Kong 2 is Metal Bulletin; Hong Kong 2 is called 8% carbon, 50% chromium, free on board main Chinese ports, by Metal Bulletin.

⁵Source for China is Metal Bulletin; China is called 6% - 8% carbon, basis 60% chromium, delivered duty paid China RMB/tonne (metric ton), by Metal Bulletin.

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
2006:					
January	1.11 - 1.16	0.90 - 0.92	0.90 - 0.92	1.09 - 1.11	0.88 - 0.90
February	1.14 - 1.16	0.91 - 0.94	0.90 - 0.93	1.09 - 1.11	0.89 - 0.91
March	1.13 - 1.16	0.91 - 0.94	0.90 - 0.93	1.09 - 1.11	0.91 - 0.93
April	1.14 - 1.17	0.93 - 0.96	0.92 - 0.95	1.11 - 1.14	0.91 - 0.93
May	1.14 - 1.17	0.93 - 0.96	0.92 - 0.95	1.12 - 1.14	0.91 - 0.94
June	1.14 - 1.17	0.97 - 1.00	0.95 - 0.99	1.13 - 1.15	0.98 - 1.00
July	1.14 - 1.19	1.00 - 1.04	0.99 - 1.02	1.13 - 1.16	0.99 - 1.02
August	1.14 - 1.19	1.03 - 1.08	1.01 - 1.05	1.13 - 1.16	0.99 - 1.01
September	1.14 - 1.19	1.03 - 1.06	1.02 - 1.05	1.13 - 1.16	1.01 - 1.03
October	1.15 - 1.19	1.05 - 1.07	1.04 - 1.06	1.13 - 1.16	1.05 - 1.08
November	1.15 - 1.17	1.06 - 1.09	1.04 - 1.07	1.14 - 1.16	1.03 - 1.06
December	1.15 - 1.18	1.07 - 1.10	1.06 - 1.09	1.15 - 1.17	1.04 - 1.07
Yearly avg.	1.14 - 1.17	0.98 - 1.01	0.97 - 1.00	1.12 - 1.14	0.96 - 0.99

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
2006:							
January	0.87 - 0.90	1.12 - 1.15	0.94 - 0.96	0.95 - 0.98	1.03 - 1.13	0.95 - 0.98	1.05 - 1.15
February	0.87 - 0.90	1.12 - 1.14	0.92 - 0.95	0.95 - 0.98	1.03 - 1.13	0.95 - 0.98	1.03 - 1.13
March	0.88 - 0.91	1.15 - 1.17	0.91 - 0.93	0.90 - 0.92	1.03 - 1.13	0.95 - 0.98	1.00 - 1.10
April	0.90 - 0.92	1.15 - 1.17	0.93 - 0.95	0.91 - 0.92	1.03 - 1.13	0.97 - 0.99	1.00 - 1.10
May	0.91 - 0.93	1.15 - 1.17	0.93 - 0.96	0.91 - 0.93	1.03 - 1.13	1.00 - 1.02	1.00 - 1.10
June	0.95 - 0.98	1.15 - 1.17	0.96 - 0.97	0.91 - 0.93	1.03 - 1.13	1.04 - 1.07	1.00 - 1.10
July	0.95 - 0.99	1.15 - 1.17	0.97 - 0.98	0.91 - 0.93	1.03 - 1.13	1.08 - 1.11	1.11 - 1.17
August	0.95 - 0.99	1.15 - 1.17	0.97 - 0.98	0.91 - 0.93	1.03 - 1.13	1.10 - 1.13	1.15 - 1.20
September	0.98 - 1.01	1.16 - 1.18	0.99 - 1.03	0.94 - 0.96	1.03 - 1.13	1.12 - 1.17	1.16 - 1.22
October	1.02 - 1.05	1.16 - 1.18	1.00 - 1.04	0.95 - 0.97	1.03 - 1.13	1.12 - 1.17	1.16 - 1.22
November	1.01 - 1.04	1.16 - 1.18	1.05 - 1.08	1.01 - 1.05	1.03 - 1.13	1.15 - 1.20	1.17 - 1.23
December	1.02 - 1.05	1.16 - 1.18	1.05 - 1.08	1.02 - 1.06	1.03 - 1.13	1.15 - 1.20	1.18 - 1.24
Yearly Avg.	0.94 - 0.97	1.15 - 1.17	0.97 - 0.99	0.94 - 0.96	1.03 - 1.13	1.05 - 1.08	1.08 - 1.16

¹Source for United States 1 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 is Platts Metals Week; United States 2 called United States low-carbon, 0.10% carbon, imported, by Platts Metals Week. Source for United States 3 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 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 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 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 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 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 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 is Platts Metals Week; Europe 1 is called 0.1% carbon, by Platts Metals Week. Source for Europe 2 is Metal Bulletin; Europe 2 is called 0.1% carbon, average 68% - 70% chromium, by Metal Bulletin. Source for Europe 3 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	Ferrochromium silicon ¹	Chromium metal				
		United States		Europe		
		Electrolytic ²	Aluminothermic ³	Aluminothermic ⁴		
				1	2	
2006:						
January	0.4071	4.50	2.50 - 2.60	2.72 - 2.82	4.65 - 4.83	
February	0.4210	4.50	2.50 - 2.60	2.49 - 2.63	4.65 - 4.83	
March	0.4362	4.50	2.52 - 2.62	2.55 - 2.67	4.65 - 4.83	
April	0.4418	4.50	2.70 - 2.80	2.67 - 2.76	4.65 - 4.83	
May	0.4518	4.50	3.00 - 3.10	2.70 - 2.79	4.65 - 4.83	
June	0.4886	4.50	3.12 - 3.19	2.91 - 3.00	4.65 - 4.83	
July	0.4871	4.50	3.20 - 3.30	3.04 - 3.13	4.65 - 4.83	
August	0.4803	4.50	3.15 - 3.24	3.08 - 3.18	4.65 - 4.83	
September	0.4728	4.50	3.03 - 3.08	3.01 - 3.14	4.65 - 4.83	
October	0.4705	4.50	3.05 - 3.10	2.90 - 3.04	4.65 - 4.83	
November	0.4762	4.50	2.98 - 3.05	2.85 - 2.97	4.65 - 4.83	
December	0.4882	4.50	3.00 - 3.05	2.81 - 2.95	4.65 - 4.83	
Yearly avg.	0.4602	4.50	2.90 - 2.98	2.81 - 2.92	4.65 - 4.83	

¹Source for ferrochromium silicon, North American transaction is Ryan's Notes.

²Source for United States Electrolytic is Ryan's Notes; United States Electrolytic is called North American producer chrome metal, by Ryan's Notes.

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

⁴Source for Europe Aluminothermic 1 is Metal Bulletin; Europe Aluminothermic 1 is called alumino-thermic, min. 99% metal, by Metal Bulletin; price converted from dollars per metric ton to dollars per pound. Source for Europe Aluminothermic 2 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.