

Mineral Industry Surveys

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CHROMIUM IN MAY 2004

On the basis of gross weight, consumption of chromium ferroalloys and metal in May 2004 increased slightly compared with revised consumption in April 2004, 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 May 2004, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of May 2004, and U.S. foreign trade data for selected chromium-containing materials in April 2004, and chromite ore prices.

Update

The Defense National Stockpile Center (DNSC) announced the sale of 6,985 tons (t) ferrochromium, in May, of which 6,078 t were high-carbon ferrochromium, and 907 t were low-carbon

Ferrochromium, to 4 companies for \$7.24 million or \$0.470 per pound-gross weight (Defense National Stockpile Center, 2004b).

The DNSC announced the sale of 7,530 t of ferrochromium in June, all of which was high-carbon ferrochromium, for \$7.1 million or \$0.471 per pound-gross weight (Defense National Stockpile Center, 2004a).

References Cited

- Defense National Stockpile Center, 2004a, Stockpile announces ferrochromium sales for June 2004: Defense National Stockpile Center, news release DNSC-04-2486, June 7, 1 p.
Defense National Stockpile Center, 2004b, Stockpile announces ferrochromium sales for May 2004: Defense National Stockpile Center, news release DNSC-04-2478, June 7, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2003		2004			
	January-December ²	March	First quarter ²	April	May	January-May ²
Production:						
Stainless steel production ³	2,210,000	223,000	584,000	201,000	196,000	981,000 ⁴
Components of U.S. supply:						
Stainless steel scrap receipts	757,000	80,500	209,000	78,500	78,400	366,000
Stainless steel scrap consumption	1,070,000	101,000	281,000	102,000	104,000	487,000
Imports for consumption:						
Chromite ore	173,000	11,300	37,100	13,400	NA	50,500 ⁵
Ferrochromium:						
More than 4% carbon	366,000	5,180	55,800	47,900	NA	104,000 ⁵
More than 0.5%, but not more than 3% carbon	5,340	--	22	963	NA	985 ⁵
Not more than 0.5% carbon	19,500	4,290	5,840	2,970	NA	8,820 ⁵
Ferrochromium silicon	38,700	174	5,050	6,120	NA	11,200 ⁵
Total ferroalloy imports	429,000	9,640	66,700	58,000	NA	125,000 ⁵
Chromium metal ⁶	8,570	807	2,400	1,230	NA	3,620 ⁵
Stainless steel	639,000	53,900	160,000	58,500	NA	218,000 ⁵
Stainless steel scrap	89,200	22,200	48,100	12,100	NA	60,200 ⁵
Distribution of U.S. supply:						
Industry consumer, chromium ferroalloys and metal	420,000	37,300 ^r	105,000 ^r	36,900 ^r	37,400	179,000
Exports:						
Chromite ore	103,000	938	3,670	1,340	NA	5,020 ⁵
Chromium ferroalloys:						
High-carbon ferrochromium	3,180	2,070	2,930	423	NA	3,360 ⁵
Low-carbon ferrochromium	1,230	135	458	81	NA	538 ⁵
Ferrochromium silicon	481	227	314	119	NA	433 ⁵
Total ferroalloy exports	4,890	2,440	3,700	623	NA	4,330 ⁵
Chromium metal	941	54	206	69	NA	276 ⁵
Stainless steel	327,000	33,300	91,900	27,200	NA	119,000 ⁵
Stainless steel scrap	505,000	50,600	116,000	35,400	NA	152,000 ⁵
Stocks at end of period:						
Industry consumer, chromium ferroalloys and metal	16,700	23,000 ^r	XX	22,800 ^r	20,800	XX
Government stockpile:						
Chromite ore	154,000	82,100	XX	--	--	XX
Chromium ferroalloys	683,000	665,000	XX	645,000	638,000	XX
Chromium metal	6,660	6,660	XX	6,660	6,660	XX

^rRevised. NA Not available. XX Not applicable.

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

²May contain 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.

⁴May include revised data that is not broken out by specific month.

⁵Includes January through April data; May data not available.

⁶Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN 2004¹

(Metric tons, gross weight unless otherwise noted)

	April	May	January- May ²
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	302 ^r	327	1,530
High-strength low-alloy steel	629 ^r	697	3,210
Stainless and heat-resisting steel	32,200 ^r	32,600	157,000
Full alloy steel	1,530 ^r	1,570	6,960
Electrical steel	W	W	W
Tool steel	485	497	2,460
Unspecified Steel	W	W	W
Cast irons	W	W	W
Superalloys	792 ^r	765	3,580
Other alloys ³	64	71	322
Total	36,900 ^r	37,400	179,000
Total, chromium content	21,700 ^r	21,800	105,000
Consumption by material:			
Low-carbon ferrochromium	2,030 ^r	1,960	9,840
High-carbon ferrochromium	31,700 ^r	31,700	152,000
Ferrochromium silicon	2,610	3,140	14,200
Chromium metal	382	387	1,860
Chromite ore	W	W	W
Chromium-aluminum alloy	27	36	166
Other chromium materials	W	W	W
Total	36,900 ^r	37,400	179,000
Total, chromium content	21,700 ^r	21,800	105,000
Consumer stocks:			
Low-carbon ferrochromium	1,880	1,910	XX
High-carbon ferrochromium	W	W	XX
Ferrochromium silicon	1,100	1,300	XX
Chromium metal	189	183	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	28	30	XX
Other chromium materials	W	W	XX
Total	22,800 ^r	20,800	XX
Total, chromium content	13,600 ^r	12,300	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.

²May include revised data.

³Includes 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	Chromite ore		Chromium ferroalloys		Chromium metal
	Chemical	Refractory	High-carbon ferro-chromium	Low-carbon ferro-chromium	
2003:					
May	78,300	98,000	501,000	227,000	7,160
June	71,500	83,700	497,000	226,000	7,160
July	64,700	83,700	492,000	225,000	7,150
August	71,500 ³	82,100	484,000	220,000	7,150
September	70,900	82,600 ³	482,000	218,000	7,100
October	71,500 ³	82,600	477,000	218,000	7,120 ³
November	71,500	82,600	472,000	217,000	7,120
December	71,500	82,600	466,000	217,000	6,660
2004:					
January	--	82,600	462,000	215,000	6,660
February	--	82,100	453,000	212,000	6,660
March	--	82,100	453,000	212,000	6,660
April	--	--	436,000	209,000	6,660
May	--	--	430,000	208,000	6,660

-- Zero.

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.

³The increase resulted from the reclassification of physical inventory from committed to uncommitted. It did not result from the addition of chromium materials to the stockpile.

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)
2003:							
April	1,900	\$209	390	230	\$439	64	\$877
May	444	124	317	190	276	72	912
June	1,030	204	756	443	653	46	579
July	985	202	273	150	252	95	1,030
August	22,900	949	387	232	455	119	1,320
September	17,200	626	378	211	479	47	1,160
October	1,030	214	393	208	485	72	1,350
November	634	194	462	262	502	152	2,120
December	54,600	4,090	502	285	548	65	958
January-December	103,000	7,410	4,890	2,830	5,240	941	11,900
2004:							
January	223	74	583	344	767	76	1,520
February	2,510	548	685	409	1,040	76	1,660
March	938	290	2,440	1,400	2,940	54	1,710
April	1,340	359	623	348	735	69	2,230
January-April	5,020	1,270	4,330	2,500	5,480	276	7,110

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)

	2003	2004			
	January-December ²	February	March	April	January-April ²
Chromite ore:					
Not more than 40% chromic oxide:					
Gross weight	77	--	33	--	33
Chromic oxide content	24	--	13	--	13
More than 40% but less than 46% chromic oxide:					
Gross weight	7,940	140	71	146	470
Chromic oxide content	3,370	63	32	66	211
46% or more chromic oxide:					
Gross weight	165,000	254	11,200	13,200	50,000
Chromic oxide content	77,400	125	5,430	6,090	23,300
Total, all grades:					
Gross weight	173,000	394	11,300	13,400	50,500
Chromic oxide content	80,800	188	5,480	6,160	23,600
Ferrochromium:					
Low-carbon: ³					
Not more than 0.5%:					
Gross weight	19,500	516	4,290	2,970	8,820
Chromium content	13,300	365	2,940	2,030	5,950
More than 0.5% but not more than 3%:					
Gross weight	5,340	--	--	963	985
Chromium content	3,420	--	--	669	684
Total, low-carbon:					
Gross weight	24,900	516	4,290	3,940	9,800
Chromium content	16,800	365	2,940	2,700	6,630
High-carbon: ⁴					
Gross weight	366,000	31,200	5,180	47,900	104,000
Chromium content	210,000	18,100	2,880	27,200	57,700
Total, all grades:					
Gross weight	391,000	31,800	9,460	51,900	114,000
Chromium content	227,000	18,500	5,820	29,900	64,300
Chromium metal:					
Unwrought powders	1,810	199	77	131	528
Waste and scrap	284	5	2	8	27
Other than waste and scrap and unwrought powders	6,480	862	728	1,090	3,070
Total, all grades	8,570	1,070	807	1,230	3,620

-- 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 CHROMITE ORE IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	April			January-April ²		
	Gross weight (metric tons)	Cr ₂ O ₃ (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Cr ₂ O ₃ (metric tons)	Value ³ (thousands)
Not more than 40% chromic oxide, Italy	--	--	--	33	13	\$4
More than 40% but less than 46% chromic oxide, South Africa	146	66	\$22	470	211	71
46% or more chromic oxide:						
Italy	19	9	6	19	9	6
South Africa	13,200	6,090	1,480	24,900	11,800	3,320
Switzerland	--	--	--	25,000	11,600	809
Total	13,200	6,090	1,480	50,000	23,300	4,140
All grades:						
Italy	19	9	6	52	22	10
South Africa	13,300	6,150	1,500	25,400	12,000	3,390
Switzerland	--	--	--	25,000	11,600	809
Total	13,400	6,160	1,510	50,500	23,600	4,210

-- 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.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	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						
Kazakhstan	11,300	7,820	\$10,900	25,100	17,400	\$21,700
Malta and Gozo	60	36	42	60	36	42
Russia	--	--	--	29	19	18
Saudi Arabia	20	11	16	20	11	16
South Africa	26,600	13,400	14,600	68,600	34,200	34,100
Zimbabwe	9,960	5,970	6,280	9,960	5,970	6,280
Total	47,900	27,200	31,800	104,000	57,700	62,100
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3% carbon						
Germany	63	44	72	63	44	72
Kazakhstan	800	554	1,300	800	554	1,300
Russia	100	71	165	122	86	182
Total	963	669	1,540	985	683	1,550
Not more than 0.5% carbon:						
Germany	409	287	603	1,090	766	1,690
Japan	120	84	269	561	405	1,300
Kazakhstan	--	--	--	150	106	165
Russia	2,280	1,560	3,570	5,870	4,010	6,850
South Africa	160	99	151	1,120	645	811
Turkey	--	--	--	20	13	39
Total	2,970	2,030	4,590	8,820	5,950	10,900
All grades:						
Germany	472	331	675	1,160	810	1,760
Japan	120	84	269	561	405	1,300
Kazakhstan	12,100	8,380	12,200	26,000	18,100	23,200
Malta and Gozo	60	36	42	60	36	42
Russia	2,380	1,630	3,730	6,020	4,120	7,060
Saudi Arabia	20	11	16	20	11	16
South Africa	26,700	13,500	14,700	69,700	34,900	34,900
Turkey	--	--	--	20	13	39
Zimbabwe	9,960	5,970	6,280	9,960	5,970	6,280
Total	51,900	29,900	38,000	114,000	64,300	74,500

-- 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 8
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	April		January-April ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
Canada	--	--	1	\$8
China	40	\$177	140	515
France	--	--	1	8
Germany	--	--	21	107
Japan	40	387	65	895
Russia	--	--	216	1,330
Spain	51	180	68	244
Taiwan	--	--	15	21
United Kingdom	(4)	33	1	199
Total	131	776	528	3,320
Waste and scrap:				
Germany	--	--	2	21
Japan	--	--	10	36
Singapore	8	42	8	42
Sweden	--	--	2	6
Taiwan	--	--	4	23
Total	8	42	27	128
Other than waste and scrap and unwrought powders:				
Austria	(4)	5	(4)	5
China	281	1,140	679	2,590
France	182	1,280	696	5,180
Germany	6	96	11	217
Hong Kong	4	9	11	27
Italy	--	--	(4)	3
Japan	--	--	1	45
Mexico	--	--	3	16
Netherlands	(4)	3	(4)	7
Russia	377	2,450	920	4,420
Singapore	--	--	1	22
Switzerland	(4)	7	(4)	30
Taiwan	--	--	3	5
United Kingdom	237	1,210	745	4,050
Total	1,090	6,210	3,070	16,600
All grades:				
Austria	(4)	5	(4)	5
Canada	--	--	1	8
China	321	1,320	819	3,110
France	182	1,280	697	5,190
Germany	6	96	34	345
Hong Kong	4	9	11	27
Italy	--	--	(4)	3
Japan	40	387	76	976
Mexico	--	--	3	16
Netherlands	(4)	3	(4)	7
Russia	377	2,450	1,140	5,750
Singapore	8	42	9	64
Spain	51	180	68	244
Sweden	--	--	2	6
Switzerland	(4)	7	(4)	30
Taiwan	--	--	22	50
United Kingdom	237	1,240	746	4,250
Total	1,230	7,020	3,620	20,100

-- 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 1/2 unit.

Source: U.S. Census Bureau.

TABLE 9
U.S. TRADE OF STAINLESS STEEL, BY PRODUCT, IN 2004¹

Stainless steel product	April		January-April	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	495	\$2,480	2,390	\$11,100
Flat-rolled (width > 600 mm)	12,500	31,700	61,400	142,000
Flat-rolled (width < 600 mm)	8,500	24,500	31,400	90,500
Bars and rods in irregular coils	380	940	1,170	3,770
Other bars and rods	2,190	12,200	7,680	44,100
Wire	712	4,230	3,060	19,400
Tubes, pipes, hollow profiles	2,440	12,500	12,000	53,500
Total	27,200	88,500	119,000	365,000
Stainless steel scrap	35,400	41,200	152,000	170,000
Grand total	62,700	130,000	271,000	534,000
Imports:				
Ingot	7,860	18,100	40,900	82,900
Flat-rolled (width > 600 mm)	26,600	65,100	94,600	206,000
Flat-rolled (width < 600 mm)	3,180	10,800	12,500	39,700
Bars and rods in irregular coils	3,550	8,590	11,500	25,500
Other bars and rods	6,150	18,100	19,800	55,700
Wire	3,820	14,300	12,800	43,900
Tubes, pipes, hollow profiles	7,350	29,500	26,100	108,000
Total	58,500	164,000	218,000	562,000
Stainless steel scrap	12,100	14,200	60,200	73,200
Grand total	70,600	179,000	278,000	635,000

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.

Source: U.S. Census Bureau.

TABLE 10
CHROMITE ORE PRICES

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

Week ending	Turkey ¹		South Africa ²				Philippines ³
	1	2	1	2	3	4	
2003:							
04/04	75	85	40 - 50	50 - 70	100 - 120	40 - 50 ^r	125 - 145
04/11	75	85					
04/18	75	85					
04/25	75	85					
05/02	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
05/09	75	85					
05/16	75	85					
05/23	75	85					
05/30	75	85					
06/06	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
06/13	75	85					
06/20	75	85					
06/27	75	85					
07/04	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
07/11	75	85					
07/18	75	85					
07/25	75	85					

See footnotes at end of table.

TABLE 10--Continued
CHROMITE ORE PRICES

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

Week ending	Turkey ¹		South Africa ²				Philippines ³
	1	2	1	2	3	4	
2003:							
08/01	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
08/08	83	93					
08/15	83	93					
08/22	83	93					
08/29	85	95					
09/05	85	95	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
09/12	85	95					
09/19	85	95					
09/26	90	100					
10/03	90	100	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
10/10	90	100					
10/17	90	100					
10/24	90	100					
10/31	90	105					
11/07	95	110	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
11/14	95	110					
11/21	95	110					
11/28	NA	NA					
12/05	100	120	50 - 65	80 - 90	100 - 120	50 - 60	125 - 145
12/12	100	120					
12/19	120	140					
12/26	NA	NA					
2004:							
01/02	NA	NA	50 - 60	80 - 90	100 - 120	50 - 60	125 - 145
01/09	125	150					
01/16	125	150					
01/23	135	155					
01/30	135	155					
02/06	135	155	50 - 65	80 - 90	100 - 120	50 - 60	125 - 145
02/13	135	155					
02/20	135	155					
02/27	135	155					
03/05	135	155	60 - 80	80 - 100	100 - 120	50 - 60	125 - 145
03/12	135	155					
03/19	135	155					
03/26	135	155					
03/05	135	155	60 - 80	80 - 100	100 - 120	50 - 60	125 - 145
03/12	135	155					
03/19	135	155					
03/26	135	155					
04/02	135	155	75 - 100	100 - 120	100 - 120	65 - 70	125 - 145
04/09	135	155					
04/16	135	155					
04/23	130	150					
04/30	130	150					
05/07	130	150	75 - 100	100 - 120	100 - 120	65 - 70	125 - 145
05/14	125	145					
05/21	120	140					
05/28	120	140					
06/04	120	140					
06/11	120	140					
06/18	115	130					
06/25	NA	NA					

NA Not available.

¹Turkish 1 (T1) is called 38%-40% Cr₂O₃ by Ryan's Notes (RN); T2 is called 44% Cr₂O₃ by RN.

²South African 1 (SA1) is called chemical grade, 46% Cr₂O₃, wet bulk, free-on-board (f.o.b.) by Industrial Minerals (IM); SA2 is called foundry grade, 46% Cr₂O₃, wet bulk, f.o.b. by IM; SA3 is called refractory grade, 46% Cr₂O₃, wet bulk, f.o.b. by IM; SA4 is called metallurgical grade, friable lumpy, 40% Cr₂O₃ by IM.

³Philippines is called refractory grade, concentrates, f.o.b. by IM.