

Mineral Industry Surveys

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CHROMIUM IN AUGUST 2003

On the basis of gross weight, consumption of chromium ferroalloys and metal in August 2003 increased slightly compared with consumption in July 2003, 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 August 2003, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of August 2003, U.S. foreign trade data for selected chromium-containing materials in July 2003, and chromite ore prices.

Update

The Defense National Stockpile Center (DNSC) announced the sale of 4,385 metric tons of ferrochromium in September valued at \$2.74 million. The sale comprised 3,478 tons of high-carbon ferrochromium and 907 tons of low-carbon ferrochromium (Defense National Stockpile Center, 2003).

Reference Cited

Defense National Stockpile Center, 2003, Stockpile announces ferrochromium sales for September 2003: Defense National Stockpile Center, News Release DNSC-03-2358, June 5, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2002	2003				
	January-December ²	June	Second quarter	July	August	January-August ²
Production:						
Stainless steel production ³	2,180,000 ⁴	179,000	570,000	163,000	184,000	1,460,000 ⁴
Components of U.S. supply:						
Stainless steel scrap receipts	815,000	52,500	191,000	61,100	62,300	511,000
Stainless steel scrap consumption	1,190,000	79,100	267,000	83,700	88,100	719,000
Imports for consumption:						
Chromite ore	112,000	5,240	41,200	36,200	NA	139,000 ⁵
Ferrochromium:						
More than 4% carbon	283,000	32,700	96,100	22,300	NA	215,000 ⁵
More than 0.5%, but not more than 3% carbon	8,040	56	816	1,140	NA	3,560 ⁵
Not more than 0.5% carbon	25,600	1,760	4,480	2,080	NA	12,800 ⁵
Ferrochromium silicon	28,900	3,600	15,200	2,850	NA	21,300 ⁵
Total ferroalloy imports	345,000	38,100	117,000	28,400	NA	253,000 ⁵
Chromium metal ⁶	7,430	677	2,540	847	NA	5,580 ⁵
Stainless steel	752,000	56,900	168,000	54,700	NA	384,000 ⁵
Stainless steel scrap	81,000	5,440	18,700	5,600	NA	40,600 ⁵
Distribution of U.S. supply:						
Industry consumer, chromium ferroalloys and metal	384,000	30,200	95,700	27,100 ^r	28,000	245,000
Exports:						
Chromite ore	24,300	1,030	3,380	985	NA	6,150 ⁵
Chromium ferroalloys:						
High-carbon ferrochromium	13,500	569	1,020	168	NA	1,780 ⁵
Low-carbon ferrochromium	2,070	147	388	35	NA	864 ⁵
Ferrochromium silicon	281	40	59	70	NA	129 ⁵
Total ferroalloy exports	15,900	756	1,460	273	NA	2,770 ⁵
Chromium metal	745	46	182	95	NA	486 ⁵
Stainless steel	273,000	27,700	89,800	31,200	NA	197,000 ⁵
Stainless steel scrap	342,000	30,700	101,000	47,600	NA	325,000 ⁵
Stocks at end of period:						
Industry consumer, chromium ferroalloys and metal	13,900	18,900	XX	16,600 ^r	16,000	XX
Government stockpile:						
Chromite ore	204,000	155,000	XX	148,000 ^r	154,000	XX
Chromium ferroalloys	763,000	723,000	XX	717,000 ^r	705,000	XX
Chromium metal	7,220	7,160	XX	7,150	7,150	XX

¹Revised. NA Not available. XX Not applicable.

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 which is not broken out by specific month.

⁵Includes January through July data; August data not available.

⁶Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN 2003¹

(Metric tons, gross weight unless otherwise noted)

	July	August	January- August ²
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	314	292	2,450
High-strength low-alloy steel	533	535	4,350
Stainless and heat-resisting steel	22,800	23,900	211,000
Full alloy steel	1,280 ^r	1,210	10,400
Electrical steel	W	W	W
Tool steel	494	405	3,830
Unspecified Steel	W	W	W
Cast irons	W	W	W
Superalloys	631 ^r	597	5,230
Other alloys ³	82	103	745
Total	27,100 ^r	28,000	245,000
Total, chromium content	15,900 ^r	16,600	145,000
Consumption by material:			
Low-carbon ferrochromium	1,720 ^r	1,770	14,400
High-carbon ferrochromium	22,000 ^r	22,300	201,000
Ferrochromium silicon	2,810	3,400	25,700
Chromium metal	327 ^r	285	2,620
Chromite ore	W	W	W
Chromium-aluminum alloy	30 ^r	33	285
Other chromium materials	W	W	W
Total	27,100 ^r	28,000	245,000
Total, chromium content	15,900 ^r	16,600	145,000
Consumer stocks:			
Low-carbon ferrochromium	1,350 ^r	1,260	XX
High-carbon ferrochromium	14,000	13,200	XX
Ferrochromium silicon	1,060	1,200	XX
Chromium metal	157 ^r	232	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	42 ^r	34	XX
Other chromium materials	W	W	XX
Total	16,600 ^r	16,000	XX
Total, chromium content	9,950 ^r	9,690	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	
2002:					
August	78,300	113,000	547,000 ³	235,000 ³	7,220 ³
September	78,300	113,000	544,000	234,000	7,220
October	78,300	127,000 ³	536,000	233,000	7,220
November	78,300	127,000	535,000	232,000	7,220
December	78,300	126,000	531,000	232,000	7,220
2003:					
January	78,300	126,000	527,000	231,000	7,220
February	78,300	126,000	521,000	229,000	7,220
March	78,300	98,000	517,000	228,000	7,210
April	78,300	98,000	505,000	228,000	7,210
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 ^r	83,700 ^r	492,000 ^r	225,000 ^r	7,150
August	71,500 ³	82,100	484,000	220,000	7,150

^rRevised.

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)
2002:							
July	335	\$89	394	240	\$369	47	\$525
August	345	61	771	469	577	68	652
September	458	171	664	394	589	45	651
October	2,490	842	9,880	6,460	4,650	72	625
November	456	122	520	307	462	69	671
December	415	93	296	178	288	71	597
January-December	24,300	4,070	15,900	10,100	10,100	745	7,450
2003:							
January	747	280	483	290	472	73	508
February	442	159	196	111	230	47	499
March	596	166	352	217	445	89	589
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
January-July	6,150	1,340	2,770	1,630	2,770	486	4,990

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)

	2002	2003		
	January- December	June	July	January- July ²
Chromite ore:				
Not more than 40% chromic oxide:				
Gross weight	1,080	--	--	77
Chromic oxide content	370 ^r	--	--	24
More than 40% but less than 46% chromic oxide:				
Gross weight	10,600	24	44	636
Chromic oxide content	4,470	11	20	294
46% or more chromic oxide:				
Gross weight	100,000	5,220	36,100	138,000
Chromic oxide content	46,700	2,410	16,800	64,200
Total, all grades:				
Gross weight	112,000	5,240	36,200	139,000
Chromic oxide content	51,600 ^r	2,420	16,900	64,600
Ferrochromium:				
Low-carbon: ³				
Not more than 0.5%:				
Gross weight	25,600	1,760	2,080	12,800
Chromium content	17,000	1,220	1,430	8,830
More than 0.5% but not more than 3%:				
Gross weight	8,040	56	1,140	3,560
Chromium content	4,960	36	851	2,310
Total, low-carbon:				
Gross weight	33,600	1,820	3,210	16,300
Chromium content	21,900	1,260	2,280	11,100
High-carbon: ⁴				
Gross weight	283,000	32,700	22,300	215,000
Chromium content	169,000	19,400	11,700	123,000
Total, all grades:				
Gross weight	316,000	34,500	25,500	232,000
Chromium content	191,000	20,700	14,000	134,000
Chromium metal:				
Unwrought powders	776 ^r	82	115	1,220
Waste and scrap	83	1	--	243
Other than waste and scrap and unwrought powders	6,570	595	732	4,120
Total, all grades	7,430	677	847	5,580

^rRevised. -- 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 2003, BY GRADE AND BY COUNTRY¹

Grade and country	July			January-July 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, South Africa	--	--	--	77	24	\$30
More than 40% but less than 46% chromic oxide, South Africa	44	20	\$8	636	294	96
46% or more chromic oxide, South Africa	36,100	16,800	1,660	138,000	64,200	6,240
Total	36,200	16,900	1,670	139,000	64,600	6,370

-- 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 2003, BY GRADE AND BY COUNTRY¹

Grade and country	July			January-July 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						
China	--	--	--	20	14	\$25
Kazakhstan	2,800	1,960	\$1,390	71,400	49,200	38,600
Russia	--	--	--	910	667	747
South Africa	19,500	9,770	7,430	120,000	59,500	38,400
Zimbabwe	--	--	--	22,900	13,900	8,920
Total	22,300	11,700	8,820	215,000	123,000	86,700
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3% carbon:						
Kazakhstan	--	--	--	500	345	418
Russia	--	--	--	11	5	12
South Africa	1,140	851	472	3,050	1,950	1,490
Total	1,140	851	472	3,560	2,310	1,920
Not more than 0.5% carbon:						
China	13	9	15	74	51	92
Germany	1,030	717	1,940	2,760	1,940	5,190
Japan	140	97	296	1,050	728	2,180
Kazakhstan	--	--	--	1,310	911	1,130
Russia	898	610	982	7,390	5,070	7,150
South Africa	--	--	--	56	36	63
Turkey	--	--	--	140	94	206
Total	2,080	1,430	3,230	12,800	8,830	16,000
All grades:						
China	13	9	15	94	65	117
Germany	1,030	717	1,940	2,760	1,940	5,190
Japan	140	97	296	1,050	728	2,180
Kazakhstan	2,800	1,960	1,390	73,300	50,400	40,200
Russia	898	610	982	8,310	5,750	7,910
South Africa	20,600	10,600	7,900	123,000	61,500	40,000
Turkey	--	--	--	140	94	206
Zimbabwe	--	--	--	22,900	13,900	8,920
Total	25,500	14,000	12,500	232,000	134,000	105,000

-- Zero.

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

²May included 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 2003, BY GRADE AND BY COUNTRY¹

Grade and country	July		January-July ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:⁴				
China	20	\$67	63	\$227
France	--	--	1	8
Germany	--	--	7	81
Japan	13	196	113	1,190
Kazakhstan	--	--	74	229
Russia	20	67	403	3,020
United Kingdom	62	350	558	2,710
Total	115	680	1,220	7,470
Waste and scrap:				
Germany	--	--	9	166
Japan	--	--	22	152
Korea, Republic of	--	--	4	22
Malaysia	--	--	1	3
Russia	--	--	200	713
Singapore	--	--	1	5
United Kingdom	--	--	5	61
Total	--	--	243	1,120
Other than waste and scrap and unwrought powders:				
Austria	(5)	5	(5)	8
China	215	708	984	3,410
Finland	--	--	(5)	7
France	186	1,240	931	6,770
Germany	1	30	74	401
India	--	--	(5)	2
Italy	--	--	(5)	3
Kazakhstan	3	13	260	843
Russia	123	409	784	2,700
Singapore	--	--	(5)	11
Spain	--	--	22	87
Switzerland	--	--	(5)	28
Taiwan	--	--	(5)	4
United Kingdom	205	1,280	1,060	6,610
Total	732	3,680	4,120	20,900
All grades:				
Austria	(5)	5	(5)	8
China	235	775	1,050	3,630
Finland	--	--	(5)	7
France	186	1,240	933	6,780
Germany	1	30	90	648
India	--	--	(5)	2
Italy	--	--	(5)	3
Japan	13	196	135	1,340
Kazakhstan	3	13	334	1,070
Korea, Republic of	--	--	4	22
Malaysia	--	--	1	3
Russia	143	476	1,390	6,440
Singapore	--	--	1	16
Spain	--	--	22	87
Switzerland	--	--	(5)	28
Taiwan	--	--	(5)	4
United Kingdom	267	1,630	1,630	9,380
Total	847	4,360	5,580	29,500

See footnotes at end of table.

TABLE 8--Continued
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2003, BY GRADE AND BY COUNTRY¹

-- 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.

⁴Separate category reported starting May 2003.

⁵Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 9
U.S. TRADE OF STAINLESS STEEL, BY PRODUCT, IN 2003¹

Stainless steel product	July		January-July	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	290	\$1,650	2,600	\$18,600
Flat-rolled (width > 600 mm)	18,900	36,900	105,000	202,000
Flat-rolled (width < 600 mm)	6,460	16,800	54,300	132,000
Bars and rods in irregular coils	222	1,050	1,300	4,320
Other bars and rods	1,320	5,890	9,990	51,400
Wire	736	4,930	5,070	31,500
Tubes, pipes, hollow profiles	3,330	11,100	19,100	79,000
Total	31,200	78,300	197,000	518,000
Stainless steel scrap	47,600	44,700	325,000	218,000
Grand total	78,800	123,000	522,000	736,000
Imports:				
Ingot	14,700	21,600	105,000	147,000
Flat-rolled (width > 600 mm)	20,300	35,800	141,000	234,000
Flat-rolled (width < 600 mm)	3,340	10,300	23,600	69,600
Bars and rods in irregular coils	2,650	4,690	21,800	35,400
Other bars and rods	5,100	11,800	36,800	82,200
Wire	2,500	7,720	18,500	56,200
Tubes, pipes, hollow profiles	6,140	23,400	36,700	143,000
Total	54,700	115,000	384,000	767,000
Stainless steel scrap	5,600	4,250	40,600	27,100
Grand total	60,300	119,000	424,000	794,000

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

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	
2002:							
07/05	60	65	40 - 50	48 - 70	100 - 120	NA	125 - 145
07/12	60	65					
07/19	60	65					
07/26	60	65					
08/02	60	65	40 - 50	48 - 70	100 - 120	NA	125 - 145
08/09	60	65					
08/16	60	65					
08/23	65	75					
08/30	65	75					
09/06	65	75	40 - 50	50 - 70	100 - 120	NA	125 - 145
09/13	65	75					
09/20	65	75					
09/27	65	75					
10/04	70	80	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
10/11	70	80					
10/18	70	80					
10/25	70	80					
11/01	70	80	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
11/08	70	80					
11/15	70	80					
11/22	70	80					
11/29	70	80					
12/06	70	80	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
12/13	70	80					
12/20	70	80					
12/27	70	80					
2003:							
01/03	70	80	35 - 40	45 - 55	100 - 120	40 - 50	125 - 145
01/10	70	80					
01/17	70	80					
01/24	70	80					
01/31	70	80					
02/07	70	80	35 - 40	45 - 55	100 - 120	40 - 50	125 - 145
02/14	70	80					
02/21	70	80					
02/28	75	85					
03/07	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
03/14	75	85					
03/21	75	85					
03/28	75	85					
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					

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:							
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					
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					

¹Revised. 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.