

Mineral Industry Surveys

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CHROMIUM IN SEPTEMBER 2003

On the basis of gross weight, consumption of chromium ferroalloys and metal in September 2003 decreased 7% compared with consumption in August 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 September 2003, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of September 2003, and U.S. foreign trade data for selected chromium-containing materials in August 2003.

Update

The Defense National Stockpile Center (DNSC) announced the sale in October of 156 metric tons (t) of chromium metal valued at \$426,716 and 3,986 t of ferrochromium valued at \$2.52 million. The ferrochromium sold comprised 3,079 t of high-carbon ferrochromium and 907 t of low-carbon ferrochromium. DNSC issued Amendment Number 004 to Solicitation of Offers, DLA-Chromium metal-002. The amendment added 148 t of aluminothermic chromium metal

and 102 t of electrolytic chromium metal to the chromium metal available for sale under that solicitation. DNSC issued Amendment Number 009 to Solicitation of Offers, DLA-Ferrochromium-004. The amendment added 16,671 t of high-carbon ferrochromium to the ferrochromium available for sale under that solicitation. (Defense National Stockpile Center, 2003a, b, c, d).

References Cited

- Defense National Stockpile Center, 2003a, Stockpile accepts chromium metal bids: Defense National Stockpile Center, News Release DNSC-04-2374, October 31, 1 p.
- Defense National Stockpile Center, 2003b, Stockpile announces ferrochromium sales for October 2003: Defense National Stockpile Center, News Release DNSC-04-2373, November 5, 1 p.
- Defense National Stockpile Center, 2003c, Stockpile issues amendment for chromium metal: Defense National Stockpile Center, News Release DNSC-04-2378, November 4, 1 p.
- Defense National Stockpile Center, 2003d, Stockpile issues ferrochromium amendment: Defense National Stockpile Center, News Release DNSC-04-2367, October 21, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2002	2003				
	January-December ²	Second quarter	July	August	September	January-September ²
Production:						
Stainless steel production ³	2,180,000 ⁴	570,000	163,000	184,000	174,000	1,630,000 ⁴
Components of U.S. supply:						
Stainless steel scrap receipts	815,000	191,000	61,100	62,300	50,000	561,000
Stainless steel scrap consumption	1,190,000	267,000	83,700	88,100	75,300	794,000
Imports for consumption:						
Chromite ore	112,000	41,200	36,200	5,380	NA	144,000 ⁵
Ferrochromium:						
More than 4% carbon	283,000	96,100	22,300	27,800	NA	243,000 ⁵
More than 0.5%, but not more than 3% carbon	8,040	816	1,140	750	NA	4,310 ⁵
Not more than 0.5% carbon	25,600	4,480	2,080	1,410	NA	14,200 ⁵
Ferrochromium silicon	28,900	15,200	2,850	22	NA	21,400 ⁵
Total ferroalloy imports	345,000	117,000	28,400	30,000	NA	283,000 ⁵
Chromium metal ⁶	7,430	2,540	847	556	NA	6,140 ⁵
Stainless steel	752,000	168,000	54,700	48,200	NA	432,000 ⁵
Stainless steel scrap	81,000	18,700	5,600	6,330	NA	46,900 ⁵
Distribution of U.S. supply:						
Industry consumer, chromium ferroalloys and metal	384,000	95,700	27,100	28,000	26,100	271,000
Exports:						
Chromite ore	24,300	3,380	985	22,900	NA	29,100 ⁵
Chromium ferroalloys:						
High-carbon ferrochromium	13,500	1,020	168	292	NA	2,070 ⁵
Low-carbon ferrochromium	2,070	388	35	84	NA	948 ⁵
Ferrochromium silicon	281	59	70	11	NA	140 ⁵
Total ferroalloy exports	15,900	1,460	273	387	NA	3,160 ⁵
Chromium metal	745	182	95	119	NA	605 ⁵
Stainless steel	273,000	89,800	31,200	24,400	NA	221,000 ⁵
Stainless steel scrap	342,000	101,000	47,600	40,500	NA	366,000 ⁵
Stocks at end of period:						
Industry consumer, chromium ferroalloys and metal	13,900	XX	16,600	15,900 ^r	14,800	XX
Government stockpile:						
Chromite ore	204,000	XX	148,000	154,000	153,000	XX
Chromium ferroalloys	763,000	XX	717,000	705,000	700,000	XX
Chromium metal	7,220	XX	7,150	7,150	7,100	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 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 August data; September 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)

	August	September	January- September ²
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	288 ^r	303	2,750
High-strength low-alloy steel	534 ^r	545	4,900
Stainless and heat-resisting steel	23,900	21,800	233,000
Full alloy steel	1,210	1,310	11,700
Electrical steel	W	W	W
Tool steel	405	473	4,300
Unspecified Steel	W	W	W
Cast irons	W	W	W
Superalloys	597	611	5,840
Other alloys ³	103	93	838
Total	28,000	26,100	271,000
Total, chromium content	16,600	15,300	160,000
Consumption by material:			
Low-carbon ferrochromium	1,770	1,760	16,200
High-carbon ferrochromium	22,300	20,600	222,000
Ferrochromium silicon	3,400	3,260	29,000
Chromium metal	285	299	2,920
Chromite ore	W	W	W
Chromium-aluminum alloy	33	36	321
Other chromium materials	W	W	W
Total	28,000	26,100	271,000
Total, chromium content	16,600	15,300	160,000
Consumer stocks:			
Low-carbon ferrochromium	1,260	1,240	XX
High-carbon ferrochromium	13,100 ^r	W	XX
Ferrochromium silicon	1,200	1,110	XX
Chromium metal	232	156	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	34	33	XX
Other chromium materials	W	W	XX
Total	15,900 ^r	14,800	XX
Total, chromium content	9,600 ^r	8,850	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:					
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	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

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:							
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
August	22,900	949	387	232	455	119	1,320
January-August	29,100	2,290	3,160	1,860	3,220	605	6,320

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 ²	July	August	January- August ²
Chromite ore:				
Not more than 40% chromic oxide:				
Gross weight	1,080	--	--	77
Chromic oxide content	370	--	--	24
More than 40% but less than 46% chromic oxide:				
Gross weight	10,600	44	44	680
Chromic oxide content	4,470	20	20	314
46% or more chromic oxide:				
Gross weight	100,000	36,100	5,330	143,000
Chromic oxide content	46,700	16,800	2,510	66,800
Total, all grades:				
Gross weight	112,000	36,200	5,380	144,000
Chromic oxide content	51,600	16,900	2,530	67,100
Ferrochromium:				
Low-carbon: ³				
Not more than 0.5%:				
Gross weight	25,600	2,080	1,410	14,200
Chromium content	17,000	1,430	867	9,700
More than 0.5% but not more than 3%:				
Gross weight	8,040	1,140	750	4,310
Chromium content	4,960	851	417	2,720
Total, low-carbon:				
Gross weight	33,600	3,210	2,160	18,500
Chromium content	21,900	2,280	1,280	12,400
High-carbon: ⁴				
Gross weight	283,000	22,300	27,800	243,000
Chromium content	169,000	11,700	14,200	137,000
Total, all grades:				
Gross weight	316,000	25,500	30,000	262,000
Chromium content	191,000	14,000	15,500	150,000
Chromium metal:				
Unwrought powders	776	115	133	1,350
Waste and scrap	83	--	7	250
Other than waste and scrap and unwrought powders	6,570	732	416	4,530
Total, all grades	7,430	847	556	6,140

-- 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	August			January-August 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	\$7	680	314	103
46% or more chromic oxide:						
Germany	5,310	2,500	438	143,000	66,700	6,680
South Africa	20	13	8	20	13	8
Total	5,330	2,510	446	143,000	66,800	6,690
All grades:						
Germany	5,360	2,520	445	144,000	67,100	6,810
South Africa	20	13	8	20	13	8
Total	5,380	2,530	453	144,000	67,100	6,820

-- 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	August			January-August 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	104	71	\$78	71,500	49,200	38,700
Russia	--	--	--	910	667	747
South Africa	27,700	14,200	10,600	148,000	73,700	49,100
Zimbabwe	--	--	--	22,900	13,900	8,920
Total	27,800	14,200	10,700	243,000	137,000	97,500
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3% carbon:						
Kazakhstan	--	--	--	500	345	418
Russia	--	--	--	11	5	12
South Africa	750	417	343	3,800	2,370	1,830
Total	750	417	343	4,310	2,720	2,260
Not more than 0.5% carbon:						
China	--	--	--	74	51	92
Germany	195	138	385	2,950	2,070	5,580
Japan	160	111	332	1,210	839	2,510
Kazakhstan	--	--	--	1,310	911	1,130
Russia	1,020	598	1,010	8,410	5,670	8,150
South Africa	16	11	32	72	48	95
Taiwan	17	9	20	17	9	20
Turkey	--	--	--	140	94	206
Total	1,410	867	1,780	14,200	9,700	17,800
All grades:						
China	--	--	--	94	65	117
Germany	195	138	385	2,950	2,070	5,580
Japan	160	111	332	1,210	839	2,510
Kazakhstan	104	71	78	73,400	50,500	40,300
Russia	1,020	598	1,010	9,330	6,340	8,910
South Africa	28,500	14,600	11,000	151,000	76,100	51,000
Taiwan	17	9	20	17	9	20
Turkey	--	--	--	140	94	206
Zimbabwe	--	--	--	22,900	13,900	8,920
Total	30,000	15,500	12,800	262,000	150,000	118,000

-- 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	August		January-August ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:⁴				
China	60	\$200	123	\$427
France	--	--	1	8
Germany	--	--	7	81
Japan	22	248	135	1,440
Kazakhstan	--	--	74	229
Russia	11	71	414	3,100
United Kingdom	40	208	598	2,910
Total	133	727	1,350	8,190
Waste and scrap:				
Germany	2	7	11	173
Japan	--	--	22	152
Korea, Republic of	--	--	4	22
Malaysia	--	--	1	3
Russia	2	41	202	753
Singapore	--	--	1	5
Taiwan	3	31	3	31
United Kingdom	--	--	5	61
Total	7	78	250	1,200
Other than waste and scrap and unwrought powders:				
Austria	--	--	-5	8
China	153	504	1,140	3,910
Finland	--	--	-5	7
France	91	645	1,020	7,410
Germany	--	--	74	401
India	--	--	-5	2
Italy	--	--	-5	3
Kazakhstan	--	--	260	843
Russia	80	271	864	2,980
Singapore	--	--	-5	11
Spain	--	--	22	87
Switzerland	--	--	-5	28
Taiwan	--	--	-5	4
United Kingdom	91	528	1,150	7,140
Total	416	1,950	4,530	22,800
All grades:				
Austria	--	--	-5	8
China	213	704	1,260	4,340
Finland	--	--	-5	7
France	91	645	1,020	7,420
Germany	2	7	91	655
India	--	--	-5	2
Italy	--	--	-5	3
Japan	22	248	158	1,590
Kazakhstan	--	--	334	1,070
Korea, Republic of	--	--	4	22
Malaysia	--	--	1	3
Russia	93	382	1,480	6,820
Singapore	--	--	1	16
Spain	--	--	22	87
Switzerland	--	--	-5	28
Taiwan	3	31	4	35
United Kingdom	131	735	1,760	10,100
Total	556	2,750	6,140	32,200

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	August		January-August	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	432	\$1,810	3,030	\$20,400
Flat-rolled (width > 600 mm)	12,500	33,300	117,000	235,000
Flat-rolled (width < 600 mm)	6,530	19,500	60,800	152,000
Bars and rods in irregular coils	241	865	1,550	5,180
Other bars and rods	1,700	7,520	11,700	58,900
Wire	646	4,360	5,720	35,900
Tubes, pipes, hollow profiles	2,340	9,830	21,400	88,800
Total	24,400	77,200	221,000	596,000
Stainless steel scrap	40,500	35,200	366,000	253,000
Grand total	64,900	112,000	587,000	849,000
Imports:				
Ingot	12,000	17,500	117,000	164,000
Flat-rolled (width > 600 mm)	19,100	32,900	160,000	267,000
Flat-rolled (width < 600 mm)	2,850	8,470	26,500	78,000
Bars and rods in irregular coils	2,790	4,750	24,500	40,200
Other bars and rods	3,420	8,450	40,200	90,700
Wire	2,150	7,090	20,600	63,300
Tubes, pipes, hollow profiles	5,940	21,500	42,600	165,000
Total	48,200	101,000	432,000	868,000
Stainless steel scrap	6,330	3,990	46,900	31,100
Grand total	54,500	105,000	479,000	899,000

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.