

# Mineral Industry Surveys

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## CHROMIUM IN OCTOBER 2006

On the basis of gross weight, consumption of chromium ferroalloys and metal in October 2006 decreased slightly compared with revised consumption in September 2006, 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 October 2006, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of October 2006, and U.S. foreign trade data for selected chromium-containing materials in September 2006.

### Update

The Defense National Stockpile Center (DNSC) announced that 8,276 metric tons (t) of ferrochromium (7,369 t of high-carbon ferrochromium and 907 t of low-carbon ferrochromium) were sold in November at a value of \$7.6 million or \$0.417 per pound gross weight (Defense National Stockpile Center, 2006).

### Reference Cited

Defense National Stockpile Center, 2006, Stockpile announces ferrochromium BOA sales for November 2006: Defense National Stockpile Center, News Release DNSC-07-2824, December 6, 1 p.

TABLE 1  
U.S. SALIENT CHROMIUM STATISTICS<sup>1</sup>

(Metric tons, gross weight)

	2005	2006				
	January-December	August	September	Third quarter	October	January-October <sup>2</sup>
Production:						
Stainless steel production <sup>3</sup>	2,240,000	219,000	220,000	629,000	212,000	2,110,000 <sup>4</sup>
Components of U.S. supply:						
Stainless steel scrap receipts	731,000	NA	NA	NA	NA	405,000 <sup>5</sup>
Stainless steel scrap consumption	1,060,000	NA	NA	NA	NA	596,000 <sup>5</sup>
Imports for consumption:						
Chromite ore	165,000	15,400	389	40,100	NA	96,800 <sup>6</sup>
Ferrochromium:						
More than 4% carbon	398,000	31,400	39,200	93,200	NA	296,000 <sup>6</sup>
More than 0.5%, but not more than 3% carbon	3,530	--	--	--	NA	10 <sup>6</sup>
Not more than 0.5% carbon	43,000	823	2,430	6,140	NA	22,600 <sup>6</sup>
Ferrochromium silicon	33,700	6,660	3,900	14,100	NA	31,600 <sup>6</sup>
Total ferroalloy imports	478,000	38,900	45,500	113,000	NA	350,000 <sup>6</sup>
Chromium metal <sup>7</sup>	11,000	937	753	2,510	NA	7,220 <sup>6</sup>
Stainless steel	770,000	82,200	65,000	228,000	NA	645,000 <sup>6</sup>
Stainless steel scrap	111,000	21,600	15,300	57,400	NA	140,000 <sup>6</sup>
Distribution of U.S. supply:						
Consumption, industry, chromium ferroalloys and metal	431,000 <sup>r</sup>	36,900 <sup>r</sup>	35,200 <sup>r</sup>	108,000	34,400	356,000
Exports:						
Chromite ore	42,600	6,940	2,280	18,000	NA	30,500 <sup>6</sup>
Chromium ferroalloys:						
High-carbon ferrochromium	30,700	625	273	7,700	NA	15,700 <sup>6</sup>
Low-carbon ferrochromium	5,460	1,760	1,170	4,680	NA	7,730 <sup>6</sup>
Ferrochromium silicon	147	--	--	21	NA	224 <sup>6</sup>
Total ferroalloy exports	36,300	2,380	1,440	12,400	NA	23,700 <sup>6</sup>
Chromium metal	1,020	109	109	313	NA	774 <sup>6</sup>
Stainless steel	371,000	33,500	35,100	95,800	NA	317,000 <sup>6</sup>
Stainless steel scrap	585,000	41,700	901,000	984,000	NA	1,230,000 <sup>6</sup>
Stocks at end of period:						
Consumer, industry, chromium ferroalloys and metal	XX	12,400	12,300	XX	11,700	XX
Government stockpile:						
Chromium ferroalloys	XX	404,000	399,000	XX	395,000	XX
Chromium metal	XX	5,280	5,280	XX	5,280	XX

<sup>r</sup>Revised. NA Not available. XX Not applicable. -- Zero.

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

<sup>2</sup>May include revised data.

<sup>3</sup>Data 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.

<sup>4</sup>Includes revised data that are not broken out by specific month.

<sup>5</sup>Includes January to July data; August to October data not available.

<sup>6</sup>Includes January to September data; October data not available.

<sup>7</sup>Includes waste and scrap and other.

TABLE 2  
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN  
2006<sup>1,2</sup>

(Metric tons, gross weight unless otherwise noted)

	September	October	January- October <sup>3</sup>
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	286	289	3,040
High-strength low-alloy steel	474 <sup>r</sup>	514	5,370
Stainless and heat-resisting steel	30,700	29,800	308,000
Full alloy steel	1,580 <sup>r</sup>	1,670	16,100
Electrical steel	W	W	W
Tool steel	399	414	4,080
Unspecified steel	W	W	W
Cast irons	W	W	W
Superalloys	826	825	8,640
Other alloys <sup>4</sup>	55	52	528
Total	35,200 <sup>r</sup>	34,400	356,000
Total, chromium content	20,700 <sup>r</sup>	20,400	209,000
Consumption by material:			
Low-carbon ferrochromium	1,950 <sup>r</sup>	1,930	19,200
High-carbon ferrochromium	29,700 <sup>r</sup>	29,000	301,000
Ferrochromium silicon	3,120	3,040	30,400
Chromium metal	415	415	4,250
Chromite ore	W	W	W
Chromium-aluminum alloy	24	25	230
Other chromium materials	W	W	W
Total	35,200 <sup>r</sup>	34,400	356,000
Total, chromium content	20,700 <sup>r</sup>	20,400	209,000
Consumer stocks:			
Low-carbon ferrochromium	1,990 <sup>r</sup>	1,950	XX
High-carbon ferrochromium	8,950 <sup>r</sup>	8,470	XX
Ferrochromium silicon	1,080	1,060	XX
Chromium metal	181	188	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	28	26	XX
Other chromium materials	W	W	XX
Total	12,300	11,700	XX
Total, chromium content	7,320 <sup>r</sup>	7,060	XX

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

XX Not applicable.

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

<sup>2</sup>Includes estimates.

<sup>3</sup>May include revised data.

<sup>4</sup>Includes 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<sup>1,2</sup>

(Metric tons)

Period	Chromium ferroalloys		Chromium metal
	High-carbon ferro-chromium	Low-carbon ferro-chromium	
2005:			
October	323,000	175,000	6,190
November	320,000	174,000	6,190
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

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>These 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 METAL<sup>1</sup>

Period	Chromite ore		Chromium ferroalloys <sup>2</sup>			Chromium metal <sup>3</sup>	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
<b>2005:</b>							
September	7,760	\$1,320	577	356	\$680	115	\$1,940
October	1,320	600	577	355	828	39	1,410
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
<b>2006:</b>							
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
January-September	30,500	8,670	23,700	14,000	23,600	774	16,200

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

<sup>2</sup>Includes low-, medium-, and high-carbon ferrochromium and ferrochromium silicon.

<sup>3</sup>Includes 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 METAL<sup>1</sup>

(Metric tons)

	2005	2006			January- September <sup>2</sup>
	January- December <sup>2</sup>	July	August	September	
<b>Chromite ore:</b>					
Not more than 40%:					
Gross weight	36	8	--	--	8
Chromic oxide content	11	2	--	--	2
More than 40% but less than 46% chromic oxide:					
Gross weight	29,700	48	3,000	27	3,670
Chromic oxide content	13,700	22	1,380	12	1,680
46% or more chromic oxide:					
Gross weight	135,000	24,300	12,400	362	93,100
Chromic oxide content	63,600	11,300	6,110	178	51,100
<b>Total, all grades:</b>					
Gross weight	165,000	24,400	15,400	389	96,800
Chromic oxide content	77,300	11,300	7,490	190	52,800
<b>Ferrochromium:</b>					
Low-carbon: <sup>3</sup>					
Not more than 0.5%:					
Gross weight	43,000	2,890	823	2,430	22,600
Chromium content	29,300	2,010	577	1,710	15,500
More than 0.5% but not more than 3%:					
Gross weight	3,530	--	--	--	10
Chromium content	2,300	--	--	--	7
<b>Total, low-carbon:</b>					
Gross weight	46,600	2,890	823	2,430	22,600
Chromium content	31,600	2,010	577	1,710	15,500
<b>High-carbon:<sup>4</sup></b>					
Gross weight	398,000	22,700	31,400	39,200	296,000
Chromium content	232,000	15,600	16,800	23,500	175,000
<b>Total, all grades:</b>					
Gross weight	444,000	25,500	32,200	41,600	318,000
Chromium content	264,000	17,600	17,400	25,200	191,000
<b>Chromium metal:</b>					
Unwrought powders	1,060	30	67	230	869
Waste and scrap	63	2	6	--	63
Other than waste and scrap and unwrought powders	9,830	785	864	523	6,290
<b>Total, all grades</b>	<b>11,000</b>	<b>817</b>	<b>937</b>	<b>753</b>	<b>7,220</b>

-- Zero.

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

<sup>2</sup>May include revised data.

<sup>3</sup>Ferrochromium containing not more than 3% carbon.

<sup>4</sup>Ferrochromium 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 COUNTRY<sup>1</sup>

Grade and country	September			January-September <sup>2</sup>		
	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value <sup>3</sup> (thousands)
<b>High-carbon ferrochromium:<sup>4</sup></b>						
India	--	--	--	42	34	\$34
Kazakhstan	16,800	11,700	\$15,700	83,300	58,000	71,500
Russia	4,350	2,760	3,240	34,900	22,600	23,200
South Africa	16,500	8,230	9,950	138,000	71,500	82,600
Sweden	19	13	30	557	374	633
Tajikistan	--	--	--	81	56	111
Zimbabwe	1,530	801	954	39,100	22,800	27,600
Total	39,200	23,500	29,900	296,000	175,000	206,000
<b>Low-carbon ferrochromium:<sup>5</sup></b>						
More than 0.5% but not more than 3%, China	--	--	--	10	7	16
Not more than 0.5% carbon:						
Brazil	--	--	--	19	14	47
China	--	--	--	538	358	880
Germany	500	352	885	4,800	3,360	10,400
Japan	120	83	411	2,240	1,560	7,080
Kazakhstan	500	349	739	2,580	1,790	3,560
Mexico	--	--	--	20	13	65
Russia	1,310	925	1,950	10,500	7,320	14,500
South Africa	--	--	--	1,800	1,060	1,410
Sweden	--	--	--	35	25	121
Turkey	--	--	--	60	38	161
Total	2,430	1,710	3,990	22,600	15,500	38,200
<b>All grades:</b>						
Brazil	--	--	--	19	14	47
China	--	--	--	548	365	895
Germany	500	352	885	4,800	3,360	10,400
India	--	--	--	42	34	34
Japan	120	83	411	2,240	1,560	7,080
Kazakhstan	17,300	12,100	16,400	85,800	59,800	75,100
Mexico	--	--	--	20	13	65
Russia	5,660	3,680	5,190	45,400	29,900	37,700
South Africa	16,500	8,230	9,950	140,000	72,500	84,000
Sweden	19	13	30	592	399	754
Tajikistan	--	--	--	81	56	111
Turkey	--	--	--	60	38	161
Zimbabwe	1,530	801	954	39,100	22,800	27,600
Total	41,600	25,200	33,900	318,000	191,000	244,000

-- Zero.

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

<sup>2</sup>May include revised data.

<sup>3</sup>Customs 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.

<sup>4</sup>Ferrochromium containing more than 4% carbon.

<sup>5</sup>Ferrochromium 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 COUNTRY<sup>1</sup>

Grade and country	September		January-September <sup>2</sup>	
	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Gross weight (metric tons)	Value <sup>3</sup> (thousands)
<b>Unwrought powders:</b>				
China	12	\$248	177	\$2,320
France	--	--	4	30
Germany	3	19	29	350
Japan	--	--	113	4,730
Netherlands	--	--	6	31
Russia	152	1,530	457	4,730
Spain	--	--	19	96
Sweden	--	--	1	4
United Kingdom	63	514	64	835
Total	230	2,310	869	13,100
<b>Waste and scrap:</b>				
Germany	--	--	6	223
Japan	--	--	12	217
Mexico	--	--	1	6
Singapore	--	--	43	315
Taiwan	--	--	1	29
Total	--	--	63	789
<b>Other than waste and scrap and unwrought powders:</b>				
China	47	318	1,580	10,500
France	76	569	1,790	15,700
Germany	9	164	33	494
Japan	3	24	24	91
Malaysia	--	--	6	24
Netherlands	--	--	24	131
Russia	242	1,510	1,640	10,800
Singapore	(4)	7	(4)	7
Spain	--	--	23	111
United Kingdom	146	1,200	1,170	8,980
Total	523	3,790	6,290	46,800
<b>All grades:</b>				
China	59	565	1,750	12,800
France	76	569	1,790	15,700
Germany	13	183	68	1,070
Japan	3	24	149	5,030
Malaysia	--	--	6	24
Mexico	--	--	1	6
Netherlands	--	--	30	162
Russia	394	3,040	2,100	15,600
Singapore	(4)	7	43	322
Spain	--	--	41	207
Sweden	--	--	1	4
Taiwan	--	--	1	29
United Kingdom	209	1,720	1,230	9,820
Total	753	6,110	7,220	60,700

-- Zero.

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

<sup>2</sup>May include revised data.

<sup>3</sup>Customs 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.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.



TABLE 8  
U.S. STAINLESS STEEL TRADE, BY PRODUCT, IN 2006<sup>1</sup>

Stainless steel product	September		January-September	
	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Gross weight (metric tons)	Value <sup>2</sup> (thousands)
<b>Exports:</b>				
Ingot	1,050	\$5,640	8,470	\$40,000
Flat-rolled (width > 600 mm)	18,600	55,600	132,000	363,000
Flat-rolled (width < 600 mm)	7,640	31,200	73,900	296,000
Bars and rods in irregular coils	1,370	5,600	8,600	36,800
Other bars and rods	3,140	22,100	24,700	159,000
Wire	491	3,380	5,370	38,200
Tubes, pipes, hollow profiles	2,800	21,800	64,000	213,000
Total	35,100	145,000	317,000	1,150,000
Stainless steel scrap	901,000 <sup>3</sup>	69,200	1,230,000	507,000
Grand total	936,000	215,000	1,550,000	1,650,000
<b>Imports:</b>				
Ingot	8,500	29,900	98,800	290,000
Flat-rolled (width > 600 mm)	31,900	104,000	306,000	813,000
Flat-rolled (width < 600 mm)	3,630	13,400	33,500	129,000
Bars and rods in irregular coils	1,860	6,770	19,700	58,200
Other bars and rods	6,820	28,900	70,800	292,000
Wire	3,420	17,000	32,600	147,000
Tubes, pipes, hollow profiles	8,940	49,400	83,200	500,000
Total	65,000	250,000	645,000	2,230,000
Stainless steel scrap	15,300	20,000	140,000	161,000
Grand total	80,300	270,000	784,000	2,390,000

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

<sup>2</sup>Export 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.

<sup>3</sup>Submitted to the U.S. Census Bureau for investigation.

Source: U.S. Census Bureau.