

# Mineral Industry Surveys

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## CHROMIUM IN NOVEMBER 2008

On the basis of gross weight, consumption of chromium ferroalloys and metal in November 2008 decreased slightly compared with consumption in October 2008, 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 November 2008, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of November 2008, and U.S. foreign trade data for selected chromium-containing materials in October 2008.

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

(Metric tons, gross weight)

	2007	2008			
	January- December	September	October	November	January- November <sup>2</sup>
<b>Production:</b>					
Stainless steel production <sup>3</sup>	2,170,000	121,000	129,000	95,000	1,860,000
<b>Components of U.S. supply:</b>					
Stainless steel scrap receipts	953,000	70,800	56,500	61,300	794,000
Stainless steel scrap consumption	1,430,000	108,000	102,000	103,000	1,240,000
<b>Imports for consumption:</b>					
Chromite ore	145,000	24,700	10,600	(4)	151,000 <sup>5</sup>
<b>Ferrochromium:</b>					
More than 4% carbon	384,000	53,600	4,370	(4)	419,000 <sup>5</sup>
More than 3% carbon but not more than 4% carbon	267	--	--	(4)	160 <sup>5</sup>
More than 0.5%, but not more than 3% carbon	7,110	--	--	(4)	1,840 <sup>5</sup>
Not more than 0.5% carbon	31,700	2,940	1,900	(4)	31,200 <sup>5</sup>
Ferrochromium silicon	37,300	3,300	--	(4)	22,500 <sup>5</sup>
Total ferroalloy imports	460,000	59,800	6,270	(4)	474,000 <sup>5</sup>
Chromium metal <sup>6</sup>	11,700	1,230	1,330	(4)	12,100 <sup>5</sup>
Stainless steel	809,000	55,700	61,800	(4)	689,000 <sup>5</sup>
Stainless steel scrap	118,000	10,000	9,630	(4)	128,000 <sup>5</sup>
<b>Distribution of U.S. supply:</b>					
Consumption, industry, chromium ferroalloys and metal	447,000	31,400	33,400	32,500	389,000
<b>Exports:</b>					
Chromite ore	37,600	468	958	(4)	6,120 <sup>5</sup>
<b>Chromium ferroalloys:</b>					
High-carbon ferrochromium	24,700	362	882	(4)	10,200 <sup>5</sup>
Low-carbon ferrochromium	16,200	350	1,290	(4)	13,200 <sup>5</sup>
Ferrochromium silicon	328	--	--	(4)	210 <sup>5</sup>
Total ferroalloy exports	41,100	713	2,180	(4)	23,600 <sup>5</sup>
Chromium metal	1,210	33	65	(4)	925 <sup>5</sup>
Stainless steel	476,000	34,200	32,700	(4)	418,000 <sup>5</sup>
Stainless steel scrap	882,000	80,500	92,300	(4)	880,000 <sup>5</sup>
<b>Stocks at end of period:</b>					
Consumer, industry, chromium ferroalloys and metal	XX	10,300	10,700	9,100	XX
<b>Government stockpile:</b>					
Chromium ferroalloys	XX	206,000	206,000	206,000	XX
Chromium metal	XX	4,820	4,820	4,820	XX

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 that are not broken out by specific month.

<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>Data to be published in a subsequent issue.

<sup>5</sup>January through October data only.

<sup>6</sup>Includes waste and scrap and other.

TABLE 2  
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS  
IN 2008<sup>1,2</sup>

(Metric tons, gross weight unless otherwise noted)

	October	November	January- November <sup>3</sup>
<b>Consumption by end use:</b>			
Alloy uses:			
Steel:			
Carbon steel	328	411	3,680
High-strength low-alloy steel	206	153	2,980
Stainless and heat-resisting steel	27,400	26,800	322,000
Full alloy steel	1,770	1,430	16,600
Tool steel	416	416	4,580
Steel end use, not reported by grade	2,140	2,140	26,100
Superalloys	455	456	5,140
Other alloys and uses <sup>4</sup>	703	710	7,760
<b>Total</b>	<b>33,400</b>	<b>32,500</b>	<b>389,000</b>
<b>Total, chromium content</b>	<b>19,600</b>	<b>18,900</b>	<b>226,000</b>
<b>Consumption by material:</b>			
Low-carbon ferrochromium	2,530	2,560	28,600
High-carbon ferrochromium	27,900	26,800	325,000
Ferrochromium silicon	W	W	W
Chromium metal <sup>5</sup>	245	247	2,780
Chromite ore	W	W	W
Chromium-aluminum alloy	W	W	W
Other chromium materials	W	W	W
<b>Total</b>	<b>33,400</b>	<b>32,500</b>	<b>389,000</b>
<b>Total, chromium content</b>	<b>19,600</b>	<b>18,900</b>	<b>226,000</b>
<b>Consumer stocks:</b>			
Low-carbon ferrochromium	1,850	1,690	XX
High-carbon ferrochromium	7,420	6,240	XX
Ferrochromium silicon	1,220	979	XX
Chromium metal	131	134	XX
Chromium-aluminum alloy	W	W	XX
Other chromium materials	W	W	XX
<b>Total</b>	<b>10,700</b>	<b>9,100</b>	<b>XX</b>
<b>Total, chromium content</b>	<b>6,260</b>	<b>5,290</b>	<b>XX</b>

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 that are not broken out by specific month.

<sup>4</sup>Includes cast irons, welding and alloy hard-facing rods and materials, wear- and corrosion-resistant alloys, and aluminum, copper, magnetic, nickel, and other alloys.

<sup>5</sup>Includes waste and scrap and other.

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	
<b>2007:</b>			
November	104,000	57,800	5,030
December	99,400	55,400	4,970
<b>2008:</b>			
January	98,200	54,700	4,970
February	95,000	50,800	4,940
March	93,600	48,100	4,940
April	93,600	46,900	4,940
May	93,500	45,800	4,930
June	93,600	45,100	4,930
July	140,000	66,700	4,890
August	140,000	66,700	4,850
September	139,000	66,700	4,820
October	139,000	66,700	4,820
November	139,000	66,700	4,820

<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 D-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 D-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 D-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)
2007:							
October	6,340	\$812	933	568	\$1,620	74	\$1,390
November	525	400	1,580	831	2,600	125	3,850
December	534	284	1,440	737	2,680	67	1,170
January-December <sup>4</sup>	37,600	5,560	41,100	25,800	51,200	1,210	23,200
2008:							
January	482	255	2,040	957	4,470	96	1,600
February	657	424	2,210	905	3,650	30	845
March	582	282	2,260	946	3,600	131	1,940
April	778	411	4,680	1,810	6,500	80	1,610
May	369	242	4,370	2,040	10,800	129	2,040
June	325	197	2,740	1,180	6,020	128	2,540
July	818	472	899	323	1,130	110	2,210
August	678	372	1,470	544	2,060	123	2,490
September	468	446	713	291	896	33	1,460
October	958	637	2,180	927	2,830	65	1,600
January-October	6,120	3,740	23,600	9,930	42,000	925	18,300

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

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

<sup>3</sup>Includes chromium metal, waste and scrap, and unwrought powders.

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

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND CHROMIUM METAL<sup>1</sup>

(Metric tons)

	2007	2008		
	January- December	September	October	January- October <sup>2</sup>
<b>Chromite ore:</b>				
Not more than 40%:				
Gross weight	52	--	--	--
Chromic oxide content	19	--	--	--
More than 40% but less than 46% chromic oxide:				
Gross weight	26,400	1,540	321	12,900
Chromic oxide content	12,100	708	147	5,870
46% or more chromic oxide:				
Gross weight	119,000	23,200	10,300	138,000
Chromic oxide content	55,600	10,900	4,770	65,600
<b>Total, all grades:</b>				
Gross weight	145,000	24,700	10,600	151,000
Chromic oxide content	67,800	11,600	4,920	71,400
<b>Ferrochromium:</b>				
Low-carbon: <sup>3</sup>				
Not more than 0.5%:				
Gross weight	31,700	2,940	1,900	31,200
Chromium content	21,000	1,980	1,260	21,300
More than 0.5% but not more than 3%:				
Gross weight	7,110	--	--	1,840
Chromium content	4,020	--	--	1,160
<b>Total, low-carbon:</b>				
Gross weight	38,800	2,940	1,900	33,100
Chromium content	25,100	1,980	1,260	22,500
Medium-carbon: <sup>4</sup>				
Gross weight	267	--	--	160
Chromium content	144	--	--	90
High-carbon: <sup>5</sup>				
Gross weight	384,000	53,600	4,370	419,000
Chromium content	217,000	31,400	2,080	238,000
<b>Total, all grades:</b>				
Gross weight	423,000	56,500	6,270	452,000
Chromium content	242,000	33,400	3,350	261,000
<b>Chromium metal:</b>				
Unwrought powders	822	131	143	946
Waste and scrap	357	36	41	516
Other than waste and scrap and unwrought powders	10,500	1,060	1,150	10,700
<b>Total, all grades:</b>	<b>11,700</b>	<b>1,230</b>	<b>1,330</b>	<b>12,100</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 that are not broken out by specific month.

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

<sup>4</sup>Ferrochromium containing more than 3% carbon but not more than 4% carbon.

<sup>5</sup>Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2008,  
BY GRADE AND BY COUNTRY<sup>1</sup>

Grade and country	October			January-October <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>						
Brazil	--	--	--	2,000	1,040	\$3,820
China	--	--	--	632	400	1,730
India	156	92	\$299	53,900	33,300	96,300
Italy	--	--	--	159	100	260
Kazakhstan	53	36	183	94,000	65,000	282,000
Mexico	--	--	--	38	28	123
Russia	--	--	--	25,500	16,500	66,900
South Africa	4,070	1,900	6,430	209,000	102,000	292,000
Sweden	95	61	243	623	387	1,130
Zimbabwe	--	--	--	33,200	19,400	87,200
Total	4,370	2,080	7,160	419,000	238,000	832,000
<b>Medium-carbon ferrochromium,<sup>5</sup> Russia</b>						
	--	--	--	160	90	152
<b>Low-carbon ferrochromium,<sup>6</sup></b>						
More than 0.5% but not more than 3%:						
China	--	--	--	340	212	1,200
Russia	--	--	--	1,080	726	3,690
South Africa	--	--	--	420	227	666
Total	--	--	--	1,840	1,160	5,560
Not more than 0.5% carbon:						
Brazil	--	--	--	37	25	116
China	174	122	944	4,170	2,680	21,100
Germany	237	161	1,480	4,300	2,960	23,100
Japan	450	327	2,920	3,690	2,370	12,100
Kazakhstan	153	102	563	621	412	1,700
Russia	876	545	5,330	17,800	12,500	101,000
South Africa	--	--	--	283	174	437
Sweden	7	5	64	308	209	1,360
Total	1,900	1,260	11,300	31,200	21,300	161,000
<b>All grades:</b>						
Brazil	--	--	--	2,030	1,070	3,940
China	174	122	944	5,140	3,300	24,000
Germany	237	161	1,480	4,300	2,960	23,100
India	156	92	299	53,900	33,300	96,300
Italy	--	--	--	159	100	260
Japan	450	327	2,920	3,690	2,370	12,100
Kazakhstan	206	138	746	94,600	65,400	284,000
Mexico	--	--	--	38	28	123
Russia	876	545	5,330	44,500	29,800	172,000
South Africa	4,070	1,900	6,430	209,000	102,000	293,000
Sweden	102	65	307	932	596	2,490
Zimbabwe	--	--	--	33,200	19,400	87,200
Total	6,270	3,350	18,400	452,000	261,000	998,000

-- 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 that are not broken out by specific month.

<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 more than 3% carbon but not more than 4% carbon.

<sup>6</sup>Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2008,  
BY GRADE AND BY COUNTRY<sup>1</sup>

Grade and country	October		January-October <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	94	\$1,060	317	\$2,700
France	--	--	30	90
Germany	28	461	38	674
Japan	4	174	36	1,610
Netherlands	--	--	20	173
Russia	17	95	322	2,240
United Kingdom	(4)	68	183	2,630
Total	143	1,850	946	10,100
<b>Waste and scrap:</b>				
Canada	--	--	9	49
China	3	14	66	582
Germany	--	--	(4)	10
Japan	--	--	25	397
Malaysia	--	--	25	201
Mexico	39	126	370	1,370
Singapore	--	--	18	308
Taiwan	--	--	2	39
Total	41	139	516	2,960
<b>Other than waste and scrap and unwrought powders:</b>				
China	198	2,460	2,020	18,900
France	248	3,610	2,820	35,000
Germany	44	555	212	3,860
India	--	--	126	170
Italy	--	--	1	20
Japan	1	21	16	238
Russia	301	3,530	3,100	32,300
United Kingdom	359	5,270	2,370	27,900
Total	1,150	15,500	10,700	118,000
<b>All grades:</b>				
Canada	--	--	9	49
China	294	3,530	2,400	22,200
France	248	3,610	2,850	35,100
Germany	72	1,020	250	4,540
India	--	--	126	170
Italy	--	--	1	20
Japan	5	195	77	2,240
Malaysia	--	--	25	201
Mexico	39	126	370	1,370
Netherlands	--	--	20	173
Russia	318	3,630	3,420	34,500
Singapore	--	--	18	308
Taiwan	--	--	2	39
United Kingdom	359	5,340	2,560	30,600
Total	1,330	17,400	12,100	131,000

-- 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 that are not broken out by specific month.

<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 2008<sup>1</sup>

Stainless steel product	October		January-October	
	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Gross weight (metric tons)	Value <sup>2</sup> (thousands)
<b>Exports:</b>				
Ingot	2,050	\$11,500	23,500	\$119,000
Flat-rolled (width > 600 mm)	15,500	55,400	228,000	789,000
Flat-rolled (width < 600 mm)	5,730	27,900	77,900	447,000
Bars and rods in irregular coils	514	2,740	7,130	39,200
Other bars and rods	4,140	26,400	36,300	254,000
Wire	787	5,940	7,500	59,600
Tubes, pipes, hollow profiles	4,000	36,700	37,700	321,000
Total	32,700	167,000	418,000	2,030,000
Stainless steel scrap	92,300	101,000	880,000	1,100,000
Grand total	125,000	267,000	1,300,000	3,130,000
<b>Imports:</b>				
Ingot	11,400	47,900	106,000	474,000
Flat-rolled (width > 600 mm)	25,100	94,600	312,000	1,230,000
Flat-rolled (width < 600 mm)	2,960	16,500	39,700	203,000
Bars and rods in irregular coils	2340	10,600	23,800	113,000
Other bars and rods	7,830	47,200	85,800	510,000
Wire	3240	20,700	33,700	214,000
Tubes, pipes, hollow profiles	8,880	83,100	88,800	812,000
Total	61,800	321,000	689,000	3,550,000
Stainless steel scrap	9,630	12,900	128,000	209,000
Grand total	71,400	334,000	818,000	3,760,000

<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. 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.