

# Mineral Industry Surveys

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## MANGANESE IN NOVEMBER 2015

Preliminary data for November 2015 indicated that domestic consumption of manganese ore containing more than 20% manganese, exclusive of that consumed at iron and steel plants, was 32,800 metric tons (t) (gross weight). This was a slight increase compared with the revised amount consumed in October 2015 (31,900 t). Manganese ore consumption during the first 11 months of 2015 was about 402,000 t, 18% less than the revised amount consumed during the same period of 2014 (489,000 t). Industry stocks of ore at the end of November 2015 were estimated to be 188,000 t, which was an 11% increase from the revised amount at the end of October 2015 (169,000 t).

Combined U.S. imports of manganese dioxide and manganese ore (contained weight) were 231% greater in November 2015 compared to the amount imported in October 2015. The combined imports of these materials were slightly higher during the first 11 months of 2015 compared with those during the same period in 2014 (table 2). The amounts of manganese ore (gross weight) that were consumed and imported since November 2013 are shown in figure 1.

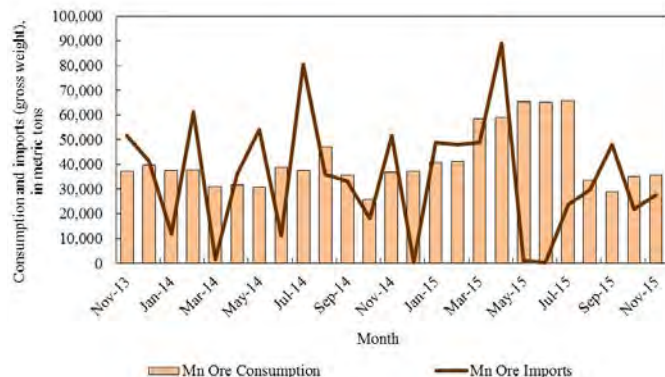


Figure 1. Monthly domestic consumption and imports of manganese (Mn) ore from November 2013 through November 2015. Sources: U.S. Census Bureau and U.S. Geological Survey.

Average spot-market prices for three grades of manganese ore delivered to China from November 2013 through November 2015 are shown in figure 2. In November 2015, the average mid-level spot prices were 2.06 dollars per metric ton unit, 36%–39% grade; 2.41 dollars per metric ton unit, 44% grade; and 2.53 dollars per metric ton unit, 46% grade (fig. 2, table 1). These were all significantly lower than those manganese ore prices at the start of 2015—45% less for both the 36%–39% and 44% grades and 44% less for the 46% grade. Compared to November 2013, the average monthly prices are considerably lower—53% less for both the 36%–39% and 46% ore grades and 55% less for the 44% ore grade.

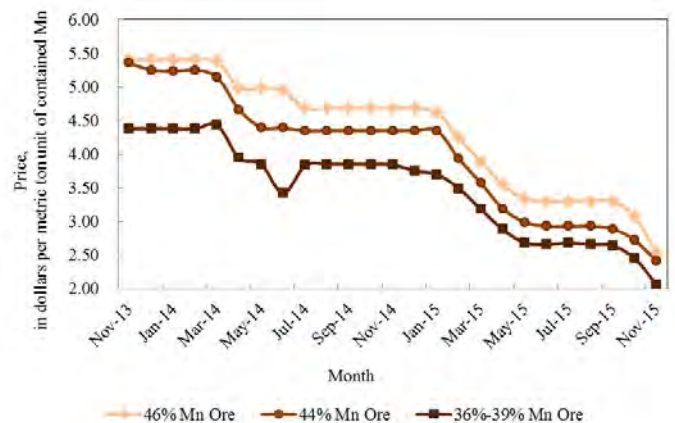


Figure 2. Average monthly spot prices for manganese (Mn) ore deliveries to China from November 2013 through November 2015. The prices shown are for the middle of the average price ranges and are reported in dollars per metric ton unit of contained Mn. Source: CRU Ryan's Notes.

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TABLE 1  
PRICES FOR MANGANESE FERROALLOYS, METAL, AND ORE IN OCTOBER 2015

		High	Low	Average	Average low, mid, and high
<b>Manganese ferroalloys:<sup>1</sup></b>					
High-carbon ferromanganese, 75% manganese	dollars per long ton of contained manganese	860.00	820.00	840.00	XX
Medium-carbon ferromanganese, 85% manganese	cents per pound of contained manganese	95.00	83.00	88.38	XX
Silicomanganese, 65% manganese	do.	46.00	41.00	41.75	XX
Manganese metal, 99.9% manganese flake <sup>2</sup>	cents per pound	115.00	112.00	XX	112.00–113.50–115.00
<b>Manganese ore:<sup>3,4</sup></b>					
36%–39% manganese	dollars per metric ton unit contained manganese	2.65	2.30	XX	2.40–2.45–2.49
44% manganese	do.	2.90	2.40	XX	2.66–2.72–2.79
46% manganese	do.	3.36	2.50	XX	3.00–3.07–3.15

do. Ditto. XX Not applicable.

<sup>1</sup>Platts Metals Week; in U.S. warehouse; average prices reported for all transactions during the month.

<sup>2</sup>CRU Ryan's Notes North American transaction prices, electrolytic manganese metal flake, 99.99% manganese, free-on-board producing point or Chicago/Pittsburgh warehouse; average prices reported for the price range.

<sup>3</sup>CRU Ryan's Notes, cost and freight, China; average prices reported for the price range.

<sup>4</sup>To determine dollars per metric ton of ore (gross weight), multiply the manganese content percentage by the price; that is, by 46 when the manganese content is 46%.

TABLE 2  
SELECTED U.S. FOREIGN TRADE IN MANGANESE<sup>1</sup>

(Metric tons, manganese content)<sup>2</sup>

	Imports for consumption			Exports		
	Ore and dioxide	Ferroalloy and metal	Total	Ore	Ferroalloy and metal	Total
2014:						
October	9,360	43,200	52,500	26	978	1,010
January–October	173,000	507,000	680,000	386	8,490	8,880
2015:						
January	25,200	53,800	78,900	9	894	903
February	24,300	44,300	68,600	27	378	405
March	24,600	32,800	57,300	56	292	348
April	40,700	40,900	81,500	9	582	591
May	625 <sup>†</sup>	67,900	68,500	25	235	260
June	526	30,700	31,200	36	337	373
July	11,700	49,000	60,700	8	866	875
August	16,300	29,900	46,100	76	739	815
September	23,800	34,900	58,700	8	1,680	1,690
October	8,480	27,300	35,700	23	1,640	1,670
January–October	176,000	414,000	590,000	276	7,650	7,920

<sup>†</sup>Revised. -- Zero.

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

<sup>2</sup>As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and for exports from gross weights.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN OCTOBER 2015<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>2</sup>	January–October		
				Gross weight	Mn content	Customs value <sup>2</sup>
Australia	6,500	4,300 <sup>3</sup>	\$4,990,000	53,800	35,600 <sup>3</sup>	\$53,400,000
Bahrain	800	520	778,000	2,000	1,300	1,940,000
China	--	--	--	10	7	20,100
France	--	--	--	312	219	259,000
Georgia	1,500	1,050	1,340,000	82,300	59,300	82,700,000
India	--	--	--	2,670	1,630	4,230,000
Indonesia	761	496	639,000	784	511	664,000
Korea, Republic of	--	--	--	2,000	1,400	1,980,000
Mexico	3,100	2,030	2,390,000	24,900	16,200	24,000,000
Norway	2,140	1,350	2,830,000	16,200	10,000	22,300,000
Russia	--	--	--	12	6	18,400
South Africa	6,540	4,250	6,010,000	78,100	50,700	80,200,000
Spain	1,850	1,210	1,600,000	13,900	9,050	13,300,000
Ukraine	--	--	--	20	14	18,300
Zambia	--	--	--	3,300	2,150	3,200,000
Total	23,200	15,200	20,600,000	280,000	188,000	288,000,000

-- Zero.

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

<sup>2</sup>Customs 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 material into the United States.

<sup>3</sup>Adjusted by the U.S. Geological Survey based on the stoichiometric ratio of silicomanganese (66.17%).

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN OCTOBER 2015<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>2</sup>	January–October		
				Gross weight	Mn content	Customs value <sup>2</sup>
<b>Low carbon:</b>						
China	713	662	\$1,290,000	11,600	10,700	\$24,600,000
Germany	47	45	130,000	221	208	608,000
Korea, Republic of	--	--	--	3,860	3,220	8,240,000
Mexico	--	--	--	400	315	631,000
Norway	3,480	2,830	5,050,000	20,800	16,900	32,400,000
South Africa	--	--	--	330	313	854,000
Vietnam	--	--	--	25	20	37,300
<b>Total</b>	<b>4,240</b>	<b>3,530</b>	<b>6,470,000</b>	<b>37,300</b>	<b>31,700</b>	<b>67,400,000</b>
<b>Medium carbon, 1%–2% C:</b>						
Australia	187	139	956,000	2,040	1,590	3,000,000
China	40	31	84,500	120	92	262,000
Egypt	--	--	--	298	242	444,000
Korea, Republic of	1,540	1,230	2,290,000	29,900	23,800	47,000,000
Mexico	1,080	857	1,210,000	3,200	2,480	4,950,000
Norway	1,500	1,220	1,930,000	8,640	7,040	11,900,000
South Africa	--	--	--	15,500	12,400	24,900,000
<b>Total</b>	<b>4,350</b>	<b>3,480</b>	<b>6,470,000</b>	<b>59,700</b>	<b>47,700</b>	<b>92,500,000</b>
<b>Medium carbon, 2%–4% C:</b>						
China	--	--	--	16	13	36,100
Norway	--	--	--	73	59	125,000
South Africa	--	--	--	424	333	1,200,000
Spain	--	--	--	1	1	3,190
Vietnam	--	--	--	54	42	76,100
<b>Total</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>568</b>	<b>448</b>	<b>1,440,000</b>
<b>High carbon:</b>						
Australia	1,250	971	1,800,000	23,600	17,600	20,800,000
Brazil	162	122	108,000	647	483	486,000
Canada	--	--	--	59	40	80,600
France	--	--	--	49	37	40,700
Georgia	--	--	--	3,700	2,830	2,650,000
Korea, Republic of	111	84	102,000	5,090	3,840	4,010,000
Norway	--	--	--	3,000	2,390	2,960,000
South Africa	3,750	2,890	3,750,000	102,000	76,800	91,700,000
Spain	72	54	54,900	884	605	829,000
Ukraine	92	58	120,000	16,800	13,000	14,100,000
United Kingdom	--	--	--	2	2	3,220
Zambia	--	--	--	20	13	29,600
<b>Total</b>	<b>5,440</b>	<b>4,180</b>	<b>5,930,000</b>	<b>156,000</b>	<b>118,000</b>	<b>138,000,000</b>
<b>Grand total</b>	<b>14,000</b>	<b>11,200</b>	<b>18,900,000</b>	<b>254,000</b>	<b>197,000</b>	<b>299,000,000</b>

-- Zero.

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

<sup>2</sup>Customs 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 material into the United States.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE ORE (20% OR MORE Mn) IN OCTOBER 2015<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>2</sup>	January–October		
				Gross weight	Mn content	Customs value <sup>2</sup>
More than 20%, but less than 47% manganese:						
Gabon	--	--	--	41,600	17,900	\$4,590,000
Mexico	--	--	--	1,510	694	357,000
South Africa	21,600	8,170	\$2,360,000	61,600	22,900	6,650,000
Total	21,600	8,170	2,360,000	105,000	41,500	11,600,000
47% or more manganese:						
Australia	--	--	--	19,800	9,830	5,840,000
Brazil	53	27	25,200	3,670	1,900	1,210,000
Canada	--	--	--	118	77	20,700
China	--	--	--	8	4	7,840
France	--	--	--	15	8	19,600
Gabon	--	--	--	226,000	117,000	53,500,000
Ivory Coast	17	14	19,400	35	22	38,800
Mexico	--	--	--	3,000	1,410	870,000
Morocco	77	39	51,100	154	107	153,000
Netherlands	--	--	--	(3)	(3)	23,900
South Africa	--	--	--	1,720	849	626,000
Total	147	79	95,600	254,000	131,000	62,300,000
Grand total	21,700	8,240	2,460,000	359,000	172,000	73,900,000

-- Zero.

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

<sup>2</sup>Customs 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 material into the United States.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE IN OCTOBER 2015<sup>1</sup>

(Metric tons, gross weight)

Source	Quantity	Customs value <sup>2</sup>	January–October	
			Quantity	Customs value <sup>2</sup>
Belgium	--	--	76	\$297,000
Brazil	10	\$17,500	29	40,200
China	--	--	199	218,000
Germany	2	9,600	12	48,500
India	--	--	(3)	8,640
Japan	348	803,000	5,140	11,800,000
Korea, Republic of	--	--	(3)	3,880
Mexico	--	--	(3)	4,220
Netherlands	--	--	89	73,900
Poland	--	--	(3)	4,320
Singapore	22	38,200	163	276,000
South Africa	--	--	275	468,000
Spain	--	--	8	20,400
Turkey	2	3,630	243	413,000
Total	385	872,000	6,240	13,700,000

-- Zero.

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

<sup>2</sup>Customs 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 material into the United States.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE METAL IN OCTOBER 2015<sup>1</sup>

(Metric tons)

Source	Gross weight	Customs value <sup>2</sup>	January–October	
			Gross weight	Customs value <sup>2</sup>
<b>Unwrought flake:</b>				
China	64	\$128,000	7,130	\$14,600,000
Japan	48	165,000	336	1,150,000
Mexico	29	96,400	56	186,000
Norway	--	--	10	20,400
South Africa	61	151,000	6,490	16,300,000
Total	202	540,000	14,000	32,300,000
<b>Unwrought powder:</b>				
China	--	--	335	810,000
Mexico	3	8,980	159	500,000
South Africa	20	61,000	1,420	4,580,000
Total	23	70,000	1,910	5,890,000
<b>Unwrought, other:</b>				
China	442	848,000	7,660	16,000,000
Germany	56	143,000	365	852,000
Russia	--	--	12	12,200
South Africa	41	97,900	356	847,000
Spain	77	172,000	538	1,280,000
United Kingdom	--	--	(3)	2,790
Total	615	1,260,000	8,940	18,900,000
<b>Other manganese, wrought:</b>				
China	(3)	3,530	(3)	3,530
France	--	--	5	67,900
Germany	--	--	150	1,650,000
India	--	--	4	18,000
Japan	--	--	(3)	43,900
Korea, Republic of	--	--	515	1,170,000
Mexico	8	27,000	136	461,000
Sweden	--	--	(3)	4,500
Switzerland	--	--	(3)	2,670
United Kingdom	5	65,500	19	232,000
Total	13	96,000	830	3,660,000
Metallic waste and scrap, Canada	27	5,190	548	144,000
Grand total	881	1,970,000	26,300	60,900,000

-- Zero.

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

<sup>2</sup>Customs 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 material into the United States.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8  
 U.S. EXPORTS OF MANGANESE ORE (20% OR MORE Mn), FERROMANGANESE, SILICOMANGANESE,  
 AND MANGANESE METAL BY COUNTRIES OF DESTINATION IN OCTOBER 2015<sup>1,2</sup>

Source	Gross weight (metric tons)	F.a.s. <sup>3</sup> value (thousands)	January–October	
			Gross weight (metric tons)	F.a.s. <sup>3</sup> value (thousands)
<b>Ore and concentrates with 20% or more manganese:</b>				
Canada	--	--	20	\$18
Colombia	13	\$14	144	310
Israel	--	--	1	8
Mexico	--	--	6	23
Netherlands	32	123	193	764
Poland	--	--	15	10
United Kingdom	--	--	173	138
Total	45	137	553	1,270
<b>Ferromanganese:</b>				
<b>2% or less carbon:</b>				
Canada	--	--	1,130	1,700
France	--	--	8	15
Mexico	--	--	10	29
United Kingdom	--	--	5	9
Venezuela	--	--	1	3
Total	--	--	1,150	1,760
<b>More than 2% carbon:</b>				
Canada	764	729	2,160	2,060
Congo (Brazzaville)	--	--	7	14
Denmark	--	--	7	19
Equatorial Guinea	--	--	9	20
Germany	--	--	4	11
Israel	--	--	7	21
Italy	--	--	22	38
Mexico	--	--	19	31
Netherlands	200	210	201	213
Other (4 countries)	--	--	5	16
Total	964	939	2,440	2,440
<b>Silicomanganese:</b>				
Canada	75	94	548	683
India	--	--	20	18
Mexico	--	--	155	229
Spain	477	383	477	383
Venezuela	--	--	1	5
Total	552	477	1,200	1,320
<b>Metal, including alloys and waste and scrap:<sup>4</sup></b>				
Canada	8	17	51	130
China	7	104	167	424
India	14	189	35	523
Japan	20	60	162	561
Malaysia	437	190	3,110	1,470
Netherlands	9	35	105	421
Pakistan	--	--	120	50
Taiwan	--	--	40	21
United Kingdom	12	133	44	337
Vietnam	--	--	58	12
Other (10 countries)	11	73	121	2,060
Total	517	802	4,010	6,010
Grand total	2,080	2,360	9,360	12,800

-- Zero.

<sup>1</sup>Presentation of monthly data is based on the "January–October" quantities of the leading countries.

<sup>2</sup>Data rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Free alongside ship.

<sup>4</sup>Includes manganese-aluminum, other alloys, and waste and scrap.

Source: U.S. Census Bureau.

TABLE 9  
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS  
IN OCTOBER 2015, BY CLASS<sup>1</sup>

Class	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Principal sources and destinations: gross weight (metric tons); value <sup>2</sup> (thousands)	January–October		
				Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Principal sources and destinations: gross weight (metric tons); value <sup>2</sup> (thousands)
<b>Imports for consumption:</b>						
Manganese oxides other than dioxide	474	\$473	Korea, Republic of 217; \$253	8,430	\$7,090	Korea, Republic of 3,360; \$2,980
Manganites, manganates, and other permanganates	--	--	--	123	376	China 120; \$318
Potassium permanganate	124	320	India 124; \$317	802	2,090	India 793; \$2,070
Sodium permanganate	59	135	China 59; \$135	1,700	3,890	China 1,700; \$3,880
Sulfates, basket category, including manganese sulfate	5,270	4,370	Mexico 1,840; \$1,570	54,200	48,300	Mexico 17,900; \$15,800
<b>Exports:</b>						
Manganese dioxide	258	598	Canada 114; \$122	2,610	6,270	Canada 901; \$877
Manganese oxides other than dioxide	532	1,180	United Arab Emirates 152; \$145	7,050	11,900	Canada 973; \$1,250
Manganites, manganates, and other permanganates	5	20	Canada 3; \$7	135	447	Canada 126; \$258
Potassium permanganate	309	884	Belgium 180; \$424	3,090	7,950	Belgium 1,850; \$4,250
Sodium permanganate	39	126	Mexico 38; \$122	662	2,000	Mexico 398; \$1,410
Sulfates, basket category, including manganese sulfate	2,490	1,530	Canada 2,170; \$753	22,700	15,800	Canada 19,400; \$7,640

-- Zero.

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

<sup>2</sup>For imports, customs value; for exports, free alongside ship value.

Source: U.S. Census Bureau.