

# Mineral Industry Surveys

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## MANGANESE IN JUNE 2016

Preliminary data for June 2016 indicated that domestic consumption of manganese ore containing more than 20% manganese, exclusive of that consumed at iron and steel plants, was 33,200 metric tons (t) (gross weight). This was a 10% increase compared with the amount consumed in May 2016 (30,100 t). Manganese ore consumption during the first 6 months of 2016 was 189,000 t, 18% less than the revised amount consumed during the same period of 2015 (229,000 t) (fig. 1). Industry stocks of ore at the end of June 2016 were 146,000 t, which was a 13% decrease from the amount at the end of May 2016 (169,000 t).

On a gross-weight basis, U.S. imports of manganese ore in June 2016 were 152 t, significantly less than that imported in May 2016 (21,300 t) (fig. 1, table 5). Manganese ore imports were 57% lower during the first 6 months of 2016 (101,000 t) compared with the revised amount (236,000 t) during the same period in 2015).

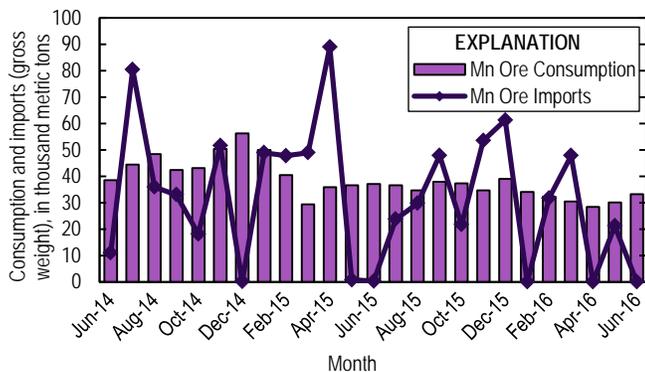


Figure 1. Monthly domestic consumption and imports of manganese (Mn) ore from June 2014 through June 2016. Sources: U.S. Census Bureau and U.S. Geological Survey.

Average spot-market prices for three grades of manganese ore delivered to China from June 2014 through June 2016 are shown in figure 2. In June 2016, the average spot prices were 3.11 dollars per metric ton unit, 36%–39% grade; 3.58 dollars per metric ton unit, 44% grade; and 3.80 dollars per metric ton unit, 46% grade (fig. 2, table 1). These were all higher than those manganese ore prices in June 2015—17% more than the 36%–39% grade, 22% more for the 44% grade, and 15% more for the 46% grade. Compared to June 2014, the average monthly prices are lower—9% less for the 36%–39% grade, 18% less for the 44% grade, and 23% less for the 46% grade.

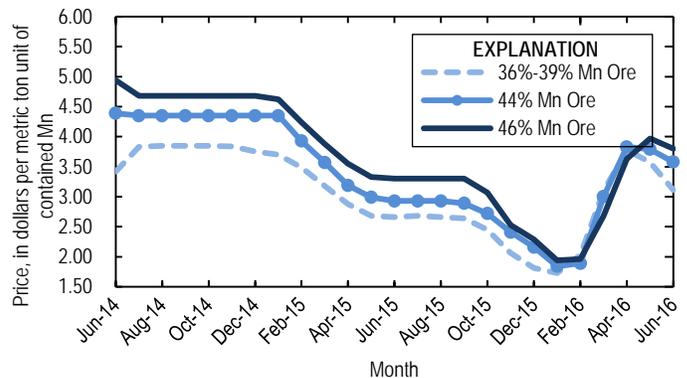


Figure 2. Average monthly spot prices for manganese (Mn) ore deliveries to China from June 2014 through June 2016. The prices shown are reported in dollars per metric ton unit of contained Mn. Source: CRU Ryan's Notes.

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TABLE 1  
PRICES FOR MANGANESE FERROALLOYS, METAL, AND ORE IN JUNE 2016

		Low	Average	High
<u>Manganese ferroalloys:<sup>1</sup></u>				
High-carbon ferromanganese, 75% manganese	dollars per long ton of contained manganese	800.00	831.00	860.00
Medium-carbon ferromanganese, 85% manganese	cents per pound of contained manganese	76.00	78.60	82.00
Silicomanganese, 65% manganese	do.	39.50	41.05	42.00
<u>Manganese metal, 99.9% manganese flake<sup>2</sup></u>	cents per pound	95.00	97.50	100.00
<u>Manganese ore:<sup>3, 4</sup></u>				
36%–39% manganese	dollars per metric ton unit contained manganese	2.50	3.11	3.50
44% manganese	do.	2.60	3.58	3.80
46% manganese	do.	3.75	3.80	3.85

do. Ditto.

<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
2015:						
June	526	30,700	31,200	36	337	373
January–June <sup>3</sup>	116,000	270,000	386,000	161	2,720	2,880
2016:						
January	252	53,700	53,900	29	1,970	2,000
February	17,200	34,700	51,900	18	2,350	2,370
March	25,700	23,800	49,500	15	963	978
April	292	23,400	23,700	7	1,040	1,050
May	10,800	31,400	42,200	29	499	528
June	324	48,700	49,000	34	1,060	1,090
January–June <sup>3</sup>	54,500	216,000	270,000	133	7,880	8,010

<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.

<sup>3</sup>May include revised data that are not broken out by specific month(s).

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN JUNE 2016<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>3</sup>	January–June <sup>2</sup>		
				Gross weight	Mn content	Customs value <sup>3</sup>
Australia	--	--	--	23,900	15,800 <sup>4</sup>	\$15,900,000
Brazil	944	623	\$594,000	4,210	2,830	2,580,000
Gabon	312	221	201,000	312	221	201,000
Georgia	28,500	20,700	21,100,000	55,000	39,400	40,900,000
India	20	9	24,900	844	510	940,000
Mexico	2,900	1,900	1,780,000	15,700	10,300	9,930,000
Norway	1,580	952	1,940,000	19,000	12,300	16,000,000
Russia	--	--	--	14	7	20,400
South Africa	13,000	8,490	8,650,000	52,100	34,200	36,000,000
Spain	--	--	--	3,680	2,240	4,200,000
Total	47,300	32,900	34,300,000	175,000	118,000	127,000,000

-- Zero.

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

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</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>4</sup>Adjusted by the U.S. Geological Survey based on the stoichiometric ration of silicomanganese (66.17%).

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN JUNE 2016<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>3</sup>	January–June <sup>2</sup>		
				Gross weight	Mn content	Customs value <sup>3</sup>
<b>Low carbon:</b>						
Belgium	24	23	\$55,200	24	23	\$55,200
China	1,290	1,200	2,110,000	4,280	3,990	6,790,000
Germany	35	30	73,400	239	216	587,000
Korea, Republic of	500	400	574,000	1,850	1,650	2,740,000
Mexico	18	14	32,700	518	416	591,000
Norway	2,320	1,880	2,760,000	15,200	12,300	18,100,000
South Africa	--	--	--	50	46	82,000
<b>Total</b>	<b>4,180</b>	<b>3,540</b>	<b>5,600,000</b>	<b>22,200</b>	<b>18,700</b>	<b>28,900,000</b>
<b>Medium carbon, 1%–2% C:</b>						
Australia	--	--	--	6,860	5,440	5,670,000
China	--	--	--	60	46	122,000
Germany	--	--	--	8	6	15,400
Korea, Republic of	1,560	1,330	2,040,000	15,300	12,500	18,500,000
Mexico	640	513	697,000	3,520	2,800	4,160,000
Norway	200	163	197,000	2,420	1,970	2,510,000
South Africa	19	15	29,300	3,980	3,210	5,840,000
Turkey	--	--	--	79	60	143,000
<b>Total</b>	<b>2,420</b>	<b>2,020</b>	<b>2,960,000</b>	<b>32,200</b>	<b>26,000</b>	<b>36,900,000</b>
<b>Medium carbon, 2%–4% C:</b>						
China	--	--	--	323	254	160,000
South Africa	--	--	--	51	40	160,000
<b>Total</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>374</b>	<b>294</b>	<b>320,000</b>
<b>High carbon:</b>						
Australia	--	--	--	19,000	13,200	15,200,000
Brazil	170	128	118,000	296	226	326,000
Canada	16	13	23,300	109	75	161,000
China	8	6	11,900	10	8	14,400
Georgia	--	--	--	5,000	3,760	3,440,000
Korea, Republic of	2,000	1,200	1,060,000	3,420	2,310	3,110,000
Norway	210	164	303,000	7,800	5,610	5,280,000
Russia	--	--	--	1,830	1,200	1,420,000
Singapore	1	1	2,030	1	1	2,030
South Africa	9,080	6,650	5,850,000	21,500	15,700	17,000,000
Spain	--	--	--	312	238	207,000
Ukraine	60	38	64,000	1,610	988	986,000
<b>Total</b>	<b>11,500</b>	<b>8,200</b>	<b>7,430,000</b>	<b>60,900</b>	<b>43,300</b>	<b>47,100,000</b>
<b>Grand total</b>	<b>18,100</b>	<b>13,800</b>	<b>16,000,000</b>	<b>116,000</b>	<b>88,200</b>	<b>113,000,000</b>

-- Zero.

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

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</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 JUNE 2016<sup>1</sup>

(Metric tons)

Source	Gross weight	Mn content	Customs value <sup>3</sup>	January–June <sup>2</sup>		
				Gross weight	Mn content	Customs value <sup>3</sup>
More than 20%, but less than 47% manganese, China	--	--	--	57	26	\$3,920
47% or more manganese:						
Australia	--	--	--	7,130	3,510	1,200,000
Belgium	--	--	--	18	11	86,600
Brazil	52	25	\$21,700	209	103	92,200
Gabon	--	--	--	82,400	43,600	11,100,000
Mexico	--	--	--	10,900	5,540	1,360,000
Morocco	--	--	--	116	66	152,000
South Africa	100	49	40,600	500	241	140,000
Total	152	74	62,300	101,000	53,000	14,100,000
Grand total	152	74	62,300	101,000	53,100	14,200,000

-- Zero.

<sup>1</sup>Data 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(s).

<sup>3</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 6  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE IN JUNE 2016<sup>1</sup>

(Metric tons, gross weight)

Source	Quantity	Customs value <sup>3</sup>	January–June <sup>2</sup>	
			Quantity	Customs value <sup>3</sup>
Belgium	(4)	\$2,090	44	\$111,000
Brazil	--	--	31	52,600
China	--	--	22	36,900
France	--	--	18	33,300
Germany	3	17,100	6	34,200
Japan	414	866,000	2,170	4,770,000
Netherlands	--	--	11	19,400
Singapore	--	--	79	134,000
Ukraine	--	--	10	16,900
United Kingdom	(4)	2,070	(4)	2,070
Total	417	887,000	2,390	5,210,000

-- Zero.

<sup>1</sup>Data 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(s).

<sup>3</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>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE METAL IN JUNE 2016<sup>1</sup>

(Metric tons)

Source	Gross weight	Customs value <sup>3</sup>	January–June <sup>2</sup>	
			Gross weight	Customs value <sup>3</sup>
<b>Unwrought flake:</b>				
China	164	\$417,000	1,520	\$3,640,000
Gabon	97	157,000	97	157,000
Japan	64	219,000	189	631,000
Mexico	--	--	27	89,700
South Africa	297	552,000	3,040	5,550,000
Total	622	1,350,000	4,870	10,100,000
<b>Unwrought powder:</b>				
China	20	35,000	165	407,000
Mexico	23	73,600	109	352,000
New Zealand	--	--	3	2,500
South Africa	281	773,000	1,370	3,700,000
Total	324	882,000	1,650	4,460,000
<b>Unwrought, other:</b>				
Belgium	22	40,400	22	40,400
China	861	1,720,000	5,040	9,430,000
Germany	90	167,000	293	538,000
South Africa	61	125,000	360	732,000
Spain	23	48,400	175	368,000
Total	1,060	2,100,000	5,890	11,100,000
<b>Other manganese, wrought:</b>				
China	--	--	109	182,000
France	1	19,300	1	19,300
Germany	8	79,400	60	602,000
Japan	(4)	13,700	(4)	24,800
Mexico	--	--	2	6,350
South Africa	--	--	10	25,200
Total	9	112,000	183	859,000
Metallic waste and scrap, Canada	--	--	175	44,900
Grand total	2,010	4,440,000	12,800	26,500,000

-- Zero.

<sup>1</sup>Data 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(s).

<sup>3</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>4</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 JUNE 2016<sup>1,2</sup>

Source	Gross weight (metric tons)	F.a.s. <sup>4</sup> value (thousands)	January-June <sup>3</sup>	
			Gross weight (metric tons)	F.a.s. <sup>4</sup> value (thousands)
<b>Ore and concentrates with 20% or more manganese:</b>				
Canada	19	\$16	78	\$71
China	33	32	33	32
El Salvador	--	--	2	3
Guatemala	--	--	11	29
Korea, Republic of	--	--	3	17
Mexico	--	--	10	33
Netherlands	16	73	108	466
Taiwan	(5)	6	(5)	6
United Kingdom	--	--	20	17
<b>Total</b>	<b>68</b>	<b>127</b>	<b>265</b>	<b>673</b>
<b>Ferromanganese:</b>				
<b>2% or less carbon:</b>				
Brazil	--	--	7	14
Canada	--	--	1,640	2,010
Colombia	--	--	2	4
Jamaica	22	42	22	42
Mexico	--	--	85	176
Suriname	13	24	25	48
<b>Total</b>	<b>35</b>	<b>66</b>	<b>1,790</b>	<b>2,300</b>
<b>More than 2% carbon:</b>				
Canada	46	38	3,920	3,200
Chile	--	--	20	57
Italy	--	--	1	8
Jamaica	1	3	1	3
Korea, Republic of	--	--	6	23
Mexico	8	31	16	45
United Arab Emirates	8	23	8	23
<b>Total</b>	<b>63</b>	<b>95</b>	<b>3,970</b>	<b>3,360</b>
<b>Silicomanganese:</b>				
Canada	352	316	833	803
Germany	2	3	2	3
Mexico	--	--	14	31
Venezuela	--	--	3	5
<b>Total</b>	<b>354</b>	<b>319</b>	<b>852</b>	<b>842</b>
<b>Metal, including alloys and waste and scrap:<sup>6</sup></b>				
Canada	91	51	115	97
China	59	43	181	953
Germany	3	5	49	189
India	41	13	54	219
Japan	20	56	42	145
Malaysia	121	36	1,540	571
Mexico	245	580	554	1,470
Netherlands	--	--	18	71
Vietnam	160	29	180	33
Other (10 countries)	8	128	38	369
<b>Total</b>	<b>747</b>	<b>940</b>	<b>2,770</b>	<b>4,120</b>
<b>Grand total</b>	<b>1,270</b>	<b>1,550</b>	<b>9,640</b>	<b>11,300</b>

-- Zero.

<sup>1</sup>Presentation of monthly data is based on the "January-June" 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>May include revised data that are not broken out by specific month(s).

<sup>4</sup>Free alongside ship.

<sup>5</sup>Less than ½ unit.

<sup>6</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 JUNE 2016, BY CLASS<sup>1</sup>

Class	Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Principal sources and destinations: gross weight (metric tons); value <sup>3</sup> (thousands)	January–June <sup>2</sup>		
				Gross weight (metric tons)	Value <sup>3</sup> (thousands)	Principal sources and destinations: gross weight (metric tons); value <sup>3</sup> (thousands)
<b>Imports for consumption:</b>						
Manganese oxides other than dioxide	1,410	\$1,290	Korea, Republic 728; \$852	10,800	\$7,250	Brazil 3,160; \$985
Manganites, manganates, and other permanganates						
Permanganates	--	--	--	10	29	Canada 10; \$29
Potassium permanganate	72	181	India 72; \$181	361	911	India 361; \$911
Sodium permanganate	157	348	China 157; \$345	502	1,180	China 484; \$1,130
Sulfates, basket category, including manganese sulfate	4,320	4,270	Mexico 1,560; \$1,370	31,600	27,100	Mexico 11,400; \$10,700
<b>Exports:</b>						
Manganese dioxide	452	746	Canada 182; \$156	2,170	4,000	Canada 970; \$850
Manganese oxides other than dioxide	655	1,180	Netherlands 295; \$552	3,120	6,550	Canada 604; \$806
Manganites, manganates, and other permanganates	10	33	Canada 8; \$17	48	118	Canada 44; \$89
Potassium permanganate	145	370	Belgium 77; \$174	1,440	4,180	Belgium 721; \$1,640
Sodium permanganate	33	142	Mexico 19; \$79	306	1,350	Belgium 97; \$208
Sulfates, basket category, including manganese sulfate	1,220	1,320	Canada 830; \$535	10,700	9,110	Canada 8,300; \$3,620

-- Zero.

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

<sup>2</sup>May include revised data that are not broken out by specific month(s).

<sup>3</sup>For imports, customs value; for exports, free alongside ship value.

Source: U.S. Census Bureau.