

# Mineral Industry Surveys

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## MANGANESE IN MAY 2017

Preliminary data for May 2017 indicated that domestic consumption of manganese ore containing more than 20% manganese, exclusive of that consumed at iron and steel plants, was 31,300 metric tons (t) (gross weight). This was 5% more than the amount consumed in April 2017 (29,800 t) (fig. 1). Manganese ore consumption during the first 5 months of 2017 was 155,000 t, which was the same as the amount consumed during the same period in 2016. Industry stocks of ore at the end of May 2017 were 117,000 t, 6% less than the amount at the end of April 2017 (125,000 t).

On a gross-weight basis, U.S. imports of manganese ore in May 2017 were 9,710 t, down from 52,500 in April 2017 (fig. 1, table 5).

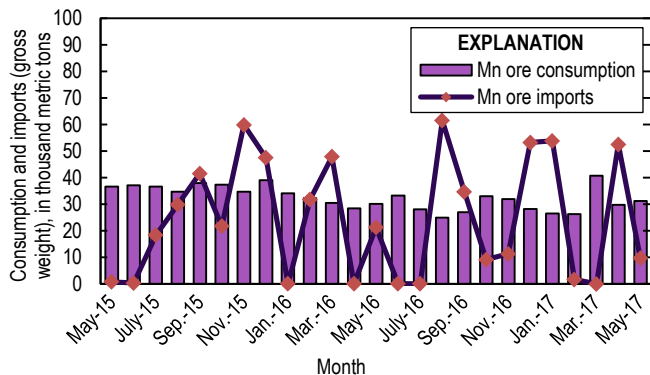


Figure 1. Monthly domestic consumption and imports of manganese (Mn) ore from May 2015 through May 2017. Sources: U.S. Census Bureau and U.S. Geological Survey.

In May 2017, the average monthly spot-market prices for manganese ore deliveries to China increased compared to those in April 2017. The average spot prices were 4.79 dollars per metric ton unit, 36%–39% grade and 5.62 dollars per metric ton unit, 44% grade (fig. 2, table 1). These were more than those in April 2017—10% for the 36%–39% grade and 11% for the 44% grade. They were also higher than those in May 2016—34% for

the 36%–39% grade and 48% for the 44% grade—and about 80% to 90% more than those of May 2015, respectively.

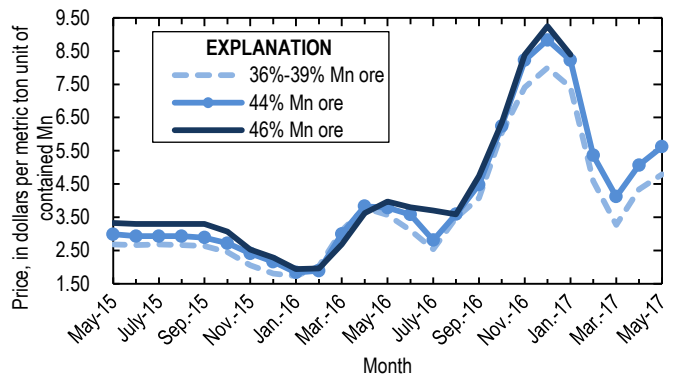


Figure 2. Average monthly spot prices for manganese (Mn) ore delivered to China from May 2015 through May 2017. Source: CRU Ryan’s Notes.

**Update**

By August 20, 2017, U.S. silicomanganese producer Felman Production, LLC, had resumed operating one of its three electric arc furnaces at its New Haven, WV, facility. The plant had been shut since July 16, 2017, after a transformer failed. The plant has a total silicomanganese production capacity of 105,000 metric tons per year.

**Reference Cited**

Matyi, Bob, 2017, Felman’s West Virginia silicomanganese plant resumes operations: S&P Global Platts, August 25. (Accessed September 21, 2017, at <https://www.platts.com/latest-news/metals/louisville-kentucky/felmans-west-virginia-silicomanganese-plant-resumes-21762380>.)

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TABLE 1  
PRICES FOR MANGANESE FERROALLOYS, METAL, AND ORE IN MAY 2017

|                                                           |                                                 | Low           | Average       | High          |
|-----------------------------------------------------------|-------------------------------------------------|---------------|---------------|---------------|
| <b>Manganese ferroalloys:<sup>1</sup></b>                 |                                                 |               |               |               |
| High-carbon ferromanganese, 75% manganese                 | dollars per long ton of contained manganese     | 1,400.00      | 1,433.00      | 1,450.00      |
| Medium-carbon ferromanganese, 85% manganese               | cents per pound of contained manganese          | 110.00        | 111.00        | 112.00        |
| Silicomanganese, 65% manganese                            | do.                                             | 65.00         | 66.50         | 67.00         |
| <b>Manganese metal, 99.9% manganese flake<sup>2</sup></b> | <b>cents per pound</b>                          | <b>109.00</b> | <b>112.28</b> | <b>115.00</b> |
| <b>Manganese ore:<sup>3,4</sup></b>                       |                                                 |               |               |               |
| 36%–39% manganese                                         | dollars per metric ton unit contained manganese | 4.30          | 4.79          | 5.20          |
| 44% manganese                                             | do.                                             | 5.20          | 5.62          | 5.90          |

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 44 when the manganese content is 44%.

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              |
| 2016:       |                         |                      |                      |         |                      |                    |
| May         | 10,800                  | 28,700 <sup>r</sup>  | 39,400 <sup>r</sup>  | 29      | 499                  | 528                |
| January–May | 59,300 <sup>r</sup>     | 161,000 <sup>r</sup> | 220,000 <sup>r</sup> | 98      | 6,870 <sup>r</sup>   | 6,970 <sup>r</sup> |
| 2017:       |                         |                      |                      |         |                      |                    |
| January     | 27,700                  | 33,200               | 60,900               | 9       | 901                  | 910                |
| February    | 1,120                   | 20,500               | 21,600               | 15      | 2,020                | 2,040              |
| March       | 477                     | 21,600               | 22,100               | 28      | 2,160                | 2,180              |
| April       | 42,300                  | 59,500               | 102,000              | 10      | 1,990                | 2,000              |
| May         | 5,030                   | 53,300               | 58,400               | 43      | 1,240                | 1,280              |
| January–May | 76,600                  | 188,000              | 265,000              | 106     | 8,310                | 8,410              |

<sup>r</sup>Revised.

<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 MAY 2017<sup>1</sup>

(Metric tons)

| Source       | Gross weight | Mn content | Customs value <sup>3</sup> | January–May <sup>2</sup> |            |                            |
|--------------|--------------|------------|----------------------------|--------------------------|------------|----------------------------|
|              |              |            |                            | Gross weight             | Mn content | Customs value <sup>3</sup> |
| Australia    | 7,810        | 5,180      | \$10,600,000               | 28,200                   | 18,700     | \$37,300,000               |
| France       | --           | --         | --                         | 2,300                    | 1,390      | 3,680,000                  |
| Georgia      | 13,000       | 9,620      | 12,100,000                 | 38,600                   | 27,700     | 35,300,000                 |
| India        | 567          | 336        | 794,000                    | 1,550                    | 916        | 2,090,000                  |
| Malaysia     | 4,000        | 2,580      | 4,860,000                  | 5,210                    | 3,420      | 6,300,000                  |
| Mexico       | 2,100        | 1,380      | 2,230,000                  | 16,800                   | 10,400     | 15,900,000                 |
| Norway       | 352          | 218        | 558,000                    | 5,150                    | 3,070      | 7,510,000                  |
| Russia       | --           | --         | --                         | 8,910                    | 5,980      | 11,400,000                 |
| South Africa | 10,400       | 6,760      | 11,400,000                 | 31,200                   | 20,300     | 30,700,000                 |
| Spain        | 2,350        | 1,540      | 2,760,000                  | 7,140                    | 4,650      | 8,600,000                  |
| Total        | 40,600       | 27,600     | 45,300,000                 | 145,000                  | 96,500     | 159,000,000                |

-- 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.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN MAY 2017<sup>1</sup>

(Metric tons)

| Source                         | Gross weight | Mn content | Customs value <sup>3</sup> | January–May <sup>2</sup> |            |                            |
|--------------------------------|--------------|------------|----------------------------|--------------------------|------------|----------------------------|
|                                |              |            |                            | Gross weight             | Mn content | Customs value <sup>3</sup> |
| <b>Low carbon:</b>             |              |            |                            |                          |            |                            |
| China                          | 326          | 303        | \$714,000                  | 3,270                    | 3,050      | \$6,060,000                |
| France                         | --           | --         | --                         | 3,300                    | 2,680      | 5,410,000                  |
| Germany                        | 25           | 24         | 59,400                     | 143                      | 137        | 356,000                    |
| Japan                          | --           | --         | --                         | 15                       | 12         | 34,800                     |
| Korea, Republic of             | --           | --         | --                         | 1,900                    | 1,660      | 3,900,000                  |
| Mexico                         | 421          | 342        | 530,000                    | 778                      | 630        | 970,000                    |
| Norway                         | 2,200        | 1,790      | 3,730,000                  | 11,800                   | 9,600      | 20,200,000                 |
| South Africa                   | 54           | 50         | 98,400                     | 81                       | 75         | 150,000                    |
| Total                          | 3,030        | 2,510      | 5,130,000                  | 21,300                   | 17,800     | 37,100,000                 |
| <b>Medium carbon, 1%–2% C:</b> |              |            |                            |                          |            |                            |
| China                          | --           | --         | --                         | 45                       | 34         | 115,000                    |
| France                         | --           | --         | --                         | 400                      | 324        | 625,000                    |
| Germany                        | --           | --         | --                         | 1                        | 1          | 2,180                      |
| Korea, Republic of             | 722          | 578        | 1,130,000                  | 7,370                    | 5,900      | 11,500,000                 |
| Mexico                         | 199          | 155        | 333,000                    | 1,010                    | 768        | 1,880,000                  |
| Norway                         | 2,500        | 2,040      | 4,010,000                  | 6,100                    | 4,960      | 9,660,000                  |
| South Africa                   | 1,270        | 1,020      | 2,290,000                  | 8,260                    | 6,620      | 12,800,000                 |
| Total                          | 4,690        | 3,790      | 7,760,000                  | 23,200                   | 18,600     | 36,600,000                 |
| <b>High carbon:</b>            |              |            |                            |                          |            |                            |
| Australia                      | 10,400       | 7,920      | 12,500,000                 | 29,400                   | 19,200     | 32,300,000                 |
| Brazil                         | --           | --         | --                         | 618                      | 461        | 528,000                    |
| Canada                         | --           | --         | --                         | 85                       | 59         | 149,000                    |
| Georgia                        | 800          | 618        | 722,000                    | 2,400                    | 1,860      | 2,230,000                  |
| Germany                        | --           | --         | --                         | 3                        | 2          | 3,710                      |
| Malaysia                       | 492          | 374        | 523,000                    | 996                      | 760        | 1,120,000                  |
| Mexico                         | --           | --         | --                         | 261                      | 186        | 212,000                    |
| Norway                         | --           | --         | --                         | 36                       | 30         | 65,400                     |
| Russia                         | 1,510        | 1,150      | 1,400,000                  | 3,080                    | 2,350      | 3,020,000                  |
| South Africa                   | 7,780        | 5,910      | 9,990,000                  | 21,500                   | 16,200     | 26,000,000                 |
| Spain                          | --           | --         | --                         | 2,900                    | 2,190      | 3,160,000                  |
| Ukraine                        | 812          | 622        | 748,000                    | 812                      | 622        | 748,000                    |
| Total                          | 21,800       | 16,600     | 25,800,000                 | 62,100                   | 44,000     | 69,500,000                 |
| Grand total                    | 29,500       | 22,900     | 38,700,000                 | 107,000                  | 80,400     | 143,000,000                |

-- 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 5  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE ORE (20% OR MORE Mn) IN MAY 2017<sup>1</sup>

(Metric tons)

| Source                                                   | Gross weight | Mn content | Customs value <sup>3</sup> | January–May <sup>2</sup> |            |                            |
|----------------------------------------------------------|--------------|------------|----------------------------|--------------------------|------------|----------------------------|
|                                                          |              |            |                            | Gross weight             | Mn content | Customs value <sup>3</sup> |
| More than 20%, but less than 47% manganese, South Africa | --           | --         | --                         | 11,000                   | 5,100      | \$2,220,000                |
| 47% or more manganese:                                   |              |            |                            |                          |            |                            |
| Australia                                                | --           | --         | --                         | 7,390                    | 3,550      | 1,930,000                  |
| Brazil                                                   | 53           | 26         | \$36,700                   | 307                      | 181        | 169,000                    |
| Gabon                                                    | 9,240        | 4,440      | 2,410,000                  | 96,600                   | 64,800     | 22,500,000                 |
| Korea, Republic of                                       | --           | --         | --                         | 20                       | 14         | 12,800                     |
| Mexico                                                   | --           | --         | --                         | 1,410                    | 706        | 513,000                    |
| Morocco                                                  | 36           | 22         | 50,900                     | 74                       | 44         | 102,000                    |
| South Africa                                             | 380          | 184        | 162,000                    | 999                      | 493        | 202,000                    |
| Total                                                    | 9,710        | 4,670      | 2,650,000                  | 107,000                  | 69,800     | 25,400,000                 |
| Grand total                                              | 9,710        | 4,670      | 2,650,000                  | 118,000                  | 74,900     | 27,700,000                 |

-- 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 MAY 2017<sup>1</sup>

(Metric tons, gross weight)

| Source      | Quantity | Customs<br>value <sup>3</sup> | January–May <sup>2</sup> |                               |
|-------------|----------|-------------------------------|--------------------------|-------------------------------|
|             |          |                               | Quantity                 | Customs<br>value <sup>3</sup> |
| Belgium     | 20       | \$95,100                      | 42                       | \$133,000                     |
| Brazil      | 18       | 20,500                        | 18                       | 20,500                        |
| Canada      | --       | --                            | 3                        | 3,380                         |
| China       | 44       | 44,800                        | 61                       | 95,100                        |
| Germany     | 18       | 41,300                        | 21                       | 59,200                        |
| India       | --       | --                            | 35                       | 64,600                        |
| Japan       | 465      | 971,000                       | 2,530                    | 5,240,000                     |
| Netherlands | 22       | 38,100                        | 22                       | 38,100                        |
| Singapore   | --       | --                            | 79                       | 107,000                       |
| Ukraine     | 6        | 10,800                        | 19                       | 32,400                        |
| Total       | 594      | 1,220,000                     | 2,830                    | 5,790,000                     |

-- 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 7  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE METAL IN MAY 2017<sup>1</sup>

(Metric tons)

| Source                           | Gross weight | Customs value <sup>3</sup> | January–May <sup>2</sup> |                            |
|----------------------------------|--------------|----------------------------|--------------------------|----------------------------|
|                                  |              |                            | Gross weight             | Customs value <sup>3</sup> |
| <b>Unwrought flake:</b>          |              |                            |                          |                            |
| China                            | 1,700        | \$3,150,000                | 2,380                    | \$4,460,000                |
| Gabon                            | --           | --                         | 200                      | 356,000                    |
| Hong Kong                        | --           | --                         | 50                       | 96,300                     |
| Japan                            | 33           | 178,000                    | 150                      | 842,000                    |
| Mexico                           | 20           | 63,900                     | 20                       | 63,900                     |
| South Africa                     | 292          | 651,000                    | 3,250                    | 7,840,000                  |
| Total                            | 2,050        | 4,040,000                  | 6,050                    | 13,700,000                 |
| <b>Unwrought powder:</b>         |              |                            |                          |                            |
| China                            | --           | --                         | 80                       | 183,000                    |
| Mexico                           | 18           | 74,600                     | 104                      | 365,000                    |
| South Africa                     | 152          | 421,000                    | 777                      | 2,120,000                  |
| Total                            | 170          | 495,000                    | 961                      | 2,670,000                  |
| <b>Unwrought, other:</b>         |              |                            |                          |                            |
| Belgium                          | --           | --                         | 19                       | 37,600                     |
| China                            | 492          | 1,030,000                  | 3,070                    | 6,390,000                  |
| Germany                          | 5            | 11,600                     | 496                      | 1,010,000                  |
| Portugal                         | (4)          | 5,100                      | (4)                      | 5,100                      |
| South Africa                     | 61           | 135,000                    | 408                      | 853,000                    |
| Spain                            | --           | --                         | 46                       | 90,500                     |
| Total                            | 559          | 1,180,000                  | 4,040                    | 8,380,000                  |
| <b>Other manganese, wrought:</b> |              |                            |                          |                            |
| Germany                          | 25           | 266,000                    | 85                       | 862,000                    |
| India                            | --           | --                         | (4)                      | 2,110                      |
| Japan                            | --           | --                         | 3                        | 14,000                     |
| Malaysia                         | (4)          | 3,650                      | (4)                      | 3,650                      |
| Mexico                           | 20           | 51,900                     | 26                       | 75,500                     |
| South Africa                     | 10           | 19,400                     | 10                       | 19,400                     |
| Total                            | 55           | 341,000                    | 125                      | 976,000                    |
| <b>Metallic waste and scrap:</b> |              |                            |                          |                            |
| Canada                           | --           | --                         | 161                      | 48,800                     |
| Mexico                           | --           | --                         | 3                        | 3,210                      |
| United Kingdom                   | --           | --                         | 2                        | 5,530                      |
| Total                            | --           | --                         | 166                      | 57,600                     |
| Grand total                      | 2,830        | 6,050,000                  | 11,300                   | 25,700,000                 |

-- 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 MAY 2017<sup>1,2</sup>

| Source                                                          | Gross weight<br>(metric tons) | F.a.s. <sup>4</sup><br>value<br>(thousands) | January–May <sup>3</sup>      |                                             |
|-----------------------------------------------------------------|-------------------------------|---------------------------------------------|-------------------------------|---------------------------------------------|
|                                                                 |                               |                                             | Gross weight<br>(metric tons) | F.a.s. <sup>4</sup><br>value<br>(thousands) |
| <b>Ore and concentrates with 20% or more manganese:</b>         |                               |                                             |                               |                                             |
| China                                                           | 33                            | \$42                                        | 48                            | \$61                                        |
| Mexico                                                          | --                            | --                                          | 15                            | 23                                          |
| Netherlands                                                     | 16                            | 73                                          | 111                           | 482                                         |
| Poland                                                          | 18                            | 22                                          | 18                            | 22                                          |
| United Kingdom                                                  | 20                            | 16                                          | 20                            | 16                                          |
| Total                                                           | 87                            | 153                                         | 212                           | 605                                         |
| <b>Ferromanganese:</b>                                          |                               |                                             |                               |                                             |
| <b>2% or less carbon:</b>                                       |                               |                                             |                               |                                             |
| Canada                                                          | 11                            | 15                                          | 2,190                         | 3,740                                       |
| Chile                                                           | 35                            | 66                                          | 35                            | 66                                          |
| Korea, Republic of                                              | (5)                           | 5                                           | (5)                           | 5                                           |
| Mexico                                                          | 3                             | 6                                           | 3                             | 6                                           |
| Other (5 countries)                                             | 9                             | 18                                          | 32                            | 66                                          |
| Total                                                           | 58                            | 109                                         | 2,260                         | 3,880                                       |
| <b>More than 2% carbon:</b>                                     |                               |                                             |                               |                                             |
| Argentina                                                       | --                            | --                                          | 8                             | 23                                          |
| Brazil                                                          | --                            | --                                          | 21                            | 59                                          |
| Canada                                                          | 184                           | 265                                         | 1,800                         | 2,670                                       |
| Japan                                                           | 3                             | 8                                           | 3                             | 8                                           |
| Mexico                                                          | 10                            | 15                                          | 125                           | 180                                         |
| Singapore                                                       | --                            | --                                          | 5                             | 15                                          |
| United Kingdom                                                  | --                            | --                                          | 9                             | 27                                          |
| Other (4 countries)                                             | --                            | --                                          | 9                             | 28                                          |
| Total                                                           | 197                           | 287                                         | 1,980                         | 3,010                                       |
| <b>Silicomanganese:</b>                                         |                               |                                             |                               |                                             |
| Canada                                                          | 884                           | 1,290                                       | 4,250                         | 5,970                                       |
| Georgia                                                         | --                            | --                                          | 128                           | 120                                         |
| Total                                                           | 884                           | 1,290                                       | 4,380                         | 6,090                                       |
| <b>Metal, including alloys and waste and scrap:<sup>6</sup></b> |                               |                                             |                               |                                             |
| Argentina                                                       | --                            | --                                          | 1                             | 9                                           |
| Belgium                                                         | --                            | --                                          | 16                            | 303                                         |
| Canada                                                          | 2                             | 9                                           | 10                            | 30                                          |
| China                                                           | 9                             | 139                                         | 79                            | 479                                         |
| Costa Rica                                                      | 3                             | 31                                          | 6                             | 111                                         |
| India                                                           | 171                           | 158                                         | 620                           | 492                                         |
| Japan                                                           | 43                            | 140                                         | 66                            | 227                                         |
| Malaysia                                                        | 122                           | 38                                          | 910                           | 377                                         |
| Mexico                                                          | 7                             | 81                                          | 155                           | 425                                         |
| Pakistan                                                        | 93                            | 72                                          | 93                            | 72                                          |
| Other (9 countries)                                             | (5)                           | 4                                           | 116                           | 231                                         |
| Total                                                           | 451                           | 672                                         | 2,070                         | 2,760                                       |
| Grand total                                                     | 1,680                         | 2,510                                       | 10,900                        | 16,300                                      |

-- Zero.

<sup>1</sup>Presentation of monthly data is based on the "January–May" 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 MAY 2017, BY CLASS<sup>1</sup>

| Class                                                     | Gross weight<br>(metric tons) | Value <sup>3</sup><br>(thousands) | Principal sources<br>and destinations:<br>gross weight (metric tons);<br>value <sup>3</sup> (thousands) | January–May <sup>2</sup>      |                                   |                                                                                                         |
|-----------------------------------------------------------|-------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------|
|                                                           |                               |                                   |                                                                                                         | Gross weight<br>(metric tons) | Value <sup>3</sup><br>(thousands) | Principal sources<br>and destinations:<br>gross weight (metric tons);<br>value <sup>3</sup> (thousands) |
| <b>Imports for consumption:</b>                           |                               |                                   |                                                                                                         |                               |                                   |                                                                                                         |
| Manganese oxides other than dioxide                       | 3,540                         | \$2,230                           | South Africa 2,600; \$1,280                                                                             | 9,750                         | \$6,830                           | South Africa 5,620; \$2,760                                                                             |
| Manganites, manganates, and other permanganates           |                               |                                   |                                                                                                         |                               |                                   |                                                                                                         |
| Permanganates                                             | (4)                           | 3                                 | Canada (4); \$3                                                                                         | (4)                           | 12                                | Canada (4); \$12                                                                                        |
| Potassium permanganate                                    | 73                            | 178                               | India 73; \$178                                                                                         | 256                           | 637                               | India 238; \$597                                                                                        |
| Sodium permanganate                                       | 112                           | 263                               | China 95; \$222                                                                                         | 373                           | 853                               | China 285; \$645                                                                                        |
| Sulfates, basket category,<br>including manganese sulfate | 4,600                         | 3,230                             | Mexico 1,690; \$1,260                                                                                   | 24,100                        | 21,000                            | China 9,080; \$6,500                                                                                    |
| <b>Exports:</b>                                           |                               |                                   |                                                                                                         |                               |                                   |                                                                                                         |
| Manganese dioxide                                         | 289                           | 590                               | United Kingdom 76; \$89                                                                                 | 2,350                         | 3,610                             | Canada 1,010; \$938                                                                                     |
| Manganese oxides other than dioxide                       | 676                           | 961                               | Belgium 184; \$125                                                                                      | 3,070                         | 5,720                             | Netherlands 588; \$581                                                                                  |
| Manganites, manganates, and<br>other permanganates        | 8                             | 180                               | Canada 7; \$15                                                                                          | 27                            | 227                               | Canada 25; \$50                                                                                         |
| Potassium permanganate                                    | 245                           | 618                               | Belgium 108; \$259                                                                                      | 1,180                         | 3,190                             | Belgium 560; \$1,340                                                                                    |
| Sodium permanganate                                       | 40                            | 89                                | Belgium 39; \$79                                                                                        | 242                           | 783                               | Belgium 172; \$359                                                                                      |
| Sulfates, basket category,<br>including manganese sulfate | 1,650                         | 2,320                             | Canada 1,060; \$727                                                                                     | 8,880                         | 10,100                            | Canada 6,690; \$3,390                                                                                   |

<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.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.