

Mineral Industry Surveys

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SILICON IN DECEMBER 2008

Preliminary data for December 2008 indicate that domestic production and net shipments of silicon ferroalloys, on a gross-weight basis, increased by 5% and decreased by 6%, respectively, compared with those in November 2008, according to the U.S. Geological Survey. Ending stocks were 2% higher than those at the end of November. Stocks included adjustments in inventory and in-plant consumption of ferrosilicon to produce magnesium ferrosilicon and other miscellaneous alloys.

Production and net shipments of silicon ferroalloys during 2008 increased by 6% and 4%, respectively, compared with the revised amounts of those during 2007 [271,000 metric tons (t), production; 222,000 t, net shipments]. Production-related statistics for silicon metal were concealed to avoid disclosing company proprietary data.

On a gross-weight basis, U.S. ferrosilicon and silicon metal exports in November 2008 were 46% and 14% lower,

respectively, than those in October 2008. U.S. ferrosilicon and silicon metal exports in the first 11 months of 2008 were 16,400 t and 32,400 t, respectively; these were 62% and 25% higher, respectively, than those during the same period in 2007.

On a gross-weight basis, U.S. ferrosilicon and silicon metal imports in November 2008 were 37% and 26% higher, respectively, than those in the prior month. U.S. ferrosilicon and silicon metal imports during the first 11 months of 2008 were 268,000 t and 156,000 t, respectively; these were 7% lower and 14% higher, respectively, than those during the same period in 2007.

Prices

Prices for silicon materials in December 2008, in cents per pound, silicon content, are listed below.

50% Ferrosilicon prices¹

| <u>Price Range</u> | <u>Average Low-High Prices</u> |
|--------------------|--------------------------------|
| 80.00-90.00 | 83.75-90.63 |

75% Ferrosilicon prices²

| <u>Price Range</u> | <u>Average Price</u> |
|--------------------|----------------------|
| 72.00-81.00 | 75.90 |

Silicon metal prices²

| <u>Price Range</u> | <u>Average Price</u> |
|--------------------|----------------------|
| 135.00-140.00 | 137.50 |

¹Source: Ryan's Notes, North American transaction price. Average prices reported for the price range.

²Source: Platts Metals Week, dealer import price. Average price reported for all transactions during the month.

TABLE 1
U.S. PRODUCTION, SHIPMENTS, AND PRODUCER STOCKS OF SILICON ALLOYS AND METAL IN 2008^{1,2,3}

(Metric tons)

| Material | Gross production ⁴ | | Net shipments | | Stocks, |
|--|-------------------------------|--------------|---------------|--------------|-------------|
| | December | Year to date | December | Year to date | December 31 |
| Ferrosilicon, all grades ^{5,6} | 21,200 | 287,000 | 17,500 | 231,000 | 22,700 |
| Silicon metal, excludes semiconductor grades | W | W | W | W | W |

W Withheld to avoid disclosing company proprietary data.

¹Data are rounded to no more than three significant digits.

²Includes U.S. Geological Survey estimates.

³Data for silvery pig iron (less than 25% silicon) withheld to avoid disclosing company proprietary data.

⁴Includes in-plant consumption, as in production of magnesium ferrosilicon and other miscellaneous alloys.

⁵Ferrosilicon categories were aggregated to avoid disclosing company proprietary data.

⁶Includes miscellaneous silicon alloys and other silicon products.

TABLE 2
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2008^{1,2}

(Metric tons, unless otherwise specified)

| Country | Gross weight | Contained weight | Value | Year to date | | |
|------------------------|--------------|------------------|-----------|--------------|------------------|------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| More than 55% silicon: | | | | | | |
| Brazil | -- | -- | -- | 375 | 236 | \$663,000 |
| Canada | 449 | 269 | \$653,000 | 8,760 | 5,250 | 13,400,000 |
| Colombia | -- | -- | -- | 26 | 19 | 39,100 |
| Costa Rica | -- | -- | -- | 3 | 2 | 10,000 |
| Germany | -- | -- | -- | 22 | 13 | 15,800 |
| Honduras | -- | -- | -- | 1 | 1 | 3,210 |
| Italy | -- | -- | -- | 98 | 64 | 247,000 |
| Japan | -- | -- | -- | 45 | (3) | 44,700 |
| Malaysia | -- | -- | -- | 44 | 32 | 72,000 |
| Mexico | 191 | 115 | 379,000 | 2,220 | 1,370 | 3,900,000 |
| Total | 640 | 384 | 1,030,000 | 11,600 | 6,990 | 18,400,000 |
| Other ferrosilicon: | | | | | | |
| Belgium | -- | -- | -- | 160 | 85 | 282,000 |
| Brazil | -- | -- | -- | 552 | 276 | 1,180,000 |
| Canada | 86 | 43 | 178,000 | 1,500 | 751 | 2,770,000 |
| Colombia | -- | -- | -- | 69 | 32 | 117,000 |
| Germany | 34 | 17 | 70,600 | 452 | 227 | 867,000 |
| Italy | 33 | 15 | 80,600 | 196 | 92 | 445,000 |
| Mexico | 88 | 44 | 184,000 | 1,090 | 538 | 2,040,000 |
| Netherlands | -- | -- | -- | 379 | 190 | 651,000 |
| Turkey | -- | -- | -- | 223 | 109 | 400,000 |
| United Kingdom | -- | -- | -- | 114 | 57 | 243,000 |
| Other (6 countries) | 5 | 2 | 15,400 | 122 | 55 | 228,000 |
| Total | 246 | 121 | 528,000 | 4,850 | 2,410 | 9,220,000 |
| Total ferrosilicon | 886 | 505 | 1,560,000 | 16,400 | 9,400 | 27,600,000 |

See footnotes at end of table.

TABLE 2--Continued
 U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2008^{1,2}

(Metric tons, unless otherwise specified)

| Country | Gross weight | Contained weight | Value | Year to date | | |
|----------------------------------|--------------|--------------------------|--------------------|---------------|---------------------------|----------------------|
| | | | | Gross weight | Contained weight | Value |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| Canada | 2 | XX | \$113,000 | 195 | XX | \$13,500,000 |
| China | 409 | XX | 30,600,000 | 3,550 | XX | 405,000,000 |
| Finland | 12 | XX | 1,840,000 | 186 | XX | 28,700,000 |
| Germany | 354 | XX | 18,200,000 | 4,350 | XX | 261,000,000 |
| Hong Kong | 2 | XX | 854,000 | 113 | XX | 35,000,000 |
| Japan | 844 | XX | 89,200,000 | 7,880 | XX | 756,000,000 |
| Korea, Republic of | 146 | XX | 11,900,000 | 1,320 | XX | 114,000,000 |
| Malaysia | 6 | XX | 1,060,000 | 121 | XX | 22,600,000 |
| Norway | 308 | XX | 18,500,000 | 3,350 | XX | 191,000,000 |
| Taiwan | 131 | XX | 9,110,000 | 1,410 | XX | 104,000,000 |
| Other (38 countries) | 67 | XX | 6,870,000 | 607 | XX | 87,600,000 |
| Total | 2,280 | 2,280^c | 188,000,000 | 23,100 | 23,100^c | 2,020,000,000 |
| 99.00% - 99.99% silicon: | | | | | | |
| China | 18 | 18 | 25,000 | 597 | 592 | 1,700,000 |
| Dominican Republic | -- | -- | -- | 13 | 13 | 17,800 |
| Germany | -- | -- | -- | 12 | 11 | 16,200 |
| Hong Kong | -- | -- | -- | 45 | 44 | 163,000 |
| Italy | -- | -- | -- | 13 | 13 | 17,900 |
| Japan | -- | -- | -- | 89 | 88 | 239,000 |
| Korea, Republic of | -- | -- | -- | 15 | 15 | 21,000 |
| Mexico | -- | -- | -- | 44 | 44 | 70,000 |
| Singapore | 8 | 8 | 11,200 | 55 | 54 | 95,400 |
| United Kingdom | -- | -- | -- | 505 | 501 | 1,120,000 |
| Other (13 countries) | 101 | 100 | 271,000 | 156 | 156 | 359,000 |
| Total | 127 | 126 | 308,000 | 1,540 | 1,530 | 3,810,000 |
| Other silicon: | | | | | | |
| Canada | 24 | 24 | 33,900 | 585 | 568 | 640,000 |
| China | 111 | 104 | 986 | 2,330 | 2,260 | 11,400,000 |
| Germany | -- | -- | -- | 137 | 133 | 190,000 |
| Hong Kong | 55 | 53 | 72 | 494 | 479 | 773,000 |
| Japan | 155 | 150 | 284,000 | 2,160 | 2,100 | 3,940,000 |
| Korea, Republic of | -- | -- | -- | 355 | 344 | 1,610,000 |
| Netherlands | -- | -- | -- | 110 | 105 | 828,000 |
| Singapore | 16 | 16 | 21,600 | 148 | 144 | 226,000 |
| Taiwan | 80 | 78 | 170,000 | 1,060 | 1,030 | 2,140,000 |
| United Kingdom | (3) | (3) | 3,350 | 106 | 103 | 151,000 |
| Other (21 countries) | 4 | 3 | 1,070,000 | 309 | 297 | 800,000 |
| Total | 445 | 428 | 1,590,000 | 7,790 | 7,560 | 22,700,000 |
| Total silicon metal | 2,850 | 2,840 | 190,000,000 | 32,400 | 32,200 | 2,050,000,000 |

^cEstimated. XX Not applicable. -- Zero.

¹Countries listed are the leading exporters in terms of year-to-date quantities (gross weight).

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FERROSILICON AND SILICON METAL IN NOVEMBER 2008^{1, 2}

(Metric tons, unless otherwise specified)

| Country | Gross weight | Contained weight | Value | Year to date | | |
|--|---------------|------------------|-------------------|----------------|------------------|--------------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| 55% - 80% silicon, more than 3% Ca: | | | | | | |
| Argentina | -- | -- | -- | 120 | 72 | \$408,000 |
| Brazil | -- | -- | -- | 2 | 1 | 4,870 |
| Canada | -- | -- | -- | 59 | 30 | 33,800 |
| China | 19 | 12 | 49,700 | 16,800 | 12,100 | 20,800,000 |
| Egypt | -- | -- | -- | 21 | 12 | 21,100 |
| France | 180 | 110 | 630,000 | 1,060 | 639 | 2,540,000 |
| Germany | -- | -- | -- | 31 | 19 | 50,900 |
| Total | 199 | 122 | 680,000 | 18,100 | 12,900 | 23,900,000 |
| 55% - 80% silicon, other: | | | | | | |
| Brazil | 22 | 16 | 57,600 | 664 | 494 | 1,250,000 |
| Canada | 670 | 499 | 1,280,000 | 10,700 | 7,980 | 17,600,000 |
| China | 7,870 | 5,980 | 13,500,000 | 121,000 | 90,200 | 172,000,000 |
| Egypt | -- | -- | -- | 141 | 104 | 297,000 |
| France | 269 | 174 | 822,000 | 2,110 | 1,400 | 4,950,000 |
| Germany | 69 | 50 | 412,000 | 623 | 456 | 3,020,000 |
| India | 51 | 36 | 136,000 | 320 | 231 | 639,000 |
| Norway | 48 | 35 | 130,000 | 580 | 417 | 1,270,000 |
| Russia | 1,280 | 961 | 1,950,000 | 53,200 | 40,400 | 84,100,000 |
| Venezuela | -- | -- | -- | 19,000 | 14,200 | 25,800,000 |
| Other (5 countries) | 34 | 13 | 138,000 | 326 | 191 | 856,000 |
| Total | 10,300 | 7,770 | 18,400,000 | 208,000 | 156,000 | 312,000,000 |
| Magnesium ferrosilicon: | | | | | | |
| Argentina | 129 | 51 | 409,000 | 1,420 | 597 | 3,850,000 |
| Canada | 951 | 353 | 1,240,000 | 8,700 | 3,860 | 11,300,000 |
| China | 68 | 30 | 169,000 | 724 | 350 | 1,050,000 |
| Germany | -- | -- | -- | 10 | 3 | 14,400 |
| Japan | 16 | 7 | 73,600 | 92 | 42 | 362,000 |
| Norway | -- | -- | -- | 27 | 13 | 62,800 |
| South Africa | -- | -- | -- | 75 | 34 | 147,000 |
| Total | 1,160 | 441 | 1,900,000 | 11,000 | 4,900 | 16,800,000 |
| Other ferrosilicon: | | | | | | |
| Brazil | 77 | 35 | 192,000 | 175 | 81 | 321,000 |
| Canada | 465 | 174 | 564,000 | 8,570 | 3,060 | 8,990,000 |
| China | -- | -- | -- | 17,800 | 2,390 | 8,590,000 |
| France | 18 | 8 | 43,300 | 37 | 17 | 72,000 |
| Poland | -- | -- | -- | 12 | 5 | 21,900 |
| Russia | 1,260 | 569 | 1,400,000 | 3,840 | 1,790 | 4,730,000 |
| Total | 1,820 | 787 | 2,200,000 | 30,400 | 7,350 | 22,700,000 |
| Total ferrosilicon | 13,500 | 9,120 | 23,200,000 | 268,000 | 181,000 | 376,000,000 |

See footnotes at end of table.

TABLE 3--Continued
 U.S. IMPORTS FOR CONSUMPTION OF FERROSILICON AND SILICON METAL IN NOVEMBER 2008^{1,2}

(Metric tons, unless otherwise specified)

| | Gross weight | Contained weight | Value | Year to date | | |
|----------------------------------|---------------|------------------------|-------------------|----------------|--------------------------|--------------------|
| | | | | Gross weight | Contained weight | Value |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| Canada | 30 | XX | \$1,540,000 | 347 | XX | \$8,110,000 |
| China | 1 | XX | 108,000 | 123 | XX | 9,820,000 |
| Denmark | 1 | XX | 274,000 | 6 | XX | 2,910,000 |
| Germany | 111 | XX | 12,300,000 | 1,330 | XX | 127,000,000 |
| Italy | 14 | XX | 853,000 | 195 | XX | 14,300,000 |
| Japan | 31 | XX | 3,710,000 | 408 | XX | 67,200,000 |
| Korea, Republic of | 32 | XX | 1,460,000 | 84 | XX | 6,350,000 |
| Poland | -- | XX | -- | 12 | XX | 697,000 |
| Spain | -- | XX | -- | 6 | XX | 66,700 |
| Taiwan | (3) | XX | 10,300 | 47 | XX | 8,240,000 |
| Other (17 countries) | 3 | XX | 166,000 | 18 | XX | 2,440,000 |
| Total | 223 | 223^c | 20,400,000 | 2,580 | 2,580^c | 247,000,000 |
| 99.00% - 99.99% silicon: | | | | | | |
| Australia | 969 | 963 | 2,730,000 | 15,400 | 14,800 | 38,900,000 |
| Belgium | -- | -- | -- | 280 | 278 | 560,000 |
| Brazil | 5,700 | 5,650 | 15,500,000 | 51,100 | 50,700 | 127,000,000 |
| Canada | 1,070 | 995 | 2,500,000 | 13,700 | 12,400 | 29,500,000 |
| China | 90 | 90 | 260,000 | 6,840 | 6,800 | 16,400,000 |
| Korea, Republic of | -- | -- | -- | 334 | 6 | 434,000 |
| Laos | -- | -- | -- | 2,520 | 2,510 | 5,890,000 |
| Norway | 169 | 168 | 496,000 | 6,090 | 6,060 | 18,000,000 |
| Philippines | -- | -- | -- | 226 | 225 | 452,000 |
| South Africa | 1,750 | 1,730 | 4,540,000 | 32,300 | 32,100 | 82,300,000 |
| Other (4 countries) | 44 | 19 | 172,000 | 293 | 218 | 917,000 |
| Total | 9,780 | 9,620 | 26,200,000 | 129,000 | 126,000 | 321,000,000 |
| Other silicon: | | | | | | |
| Brazil | 1,230 | 1,220 | 2,990,000 | 8,850 | 8,730 | 21,800,000 |
| Canada | 179 | 175 | 498,000 | 5,240 | 5,150 | 11,800,000 |
| China | 100 | 99 | 198,000 | 1,210 | 1,190 | 2,300,000 |
| France | -- | -- | -- | 266 | 261 | 741,000 |
| Japan | -- | -- | -- | 28 | 26 | 81,300 |
| Norway | 309 | 284 | 675,000 | 6,400 | 6,190 | 16,100,000 |
| Philippines | -- | -- | -- | 1,010 | 984 | 1,560,000 |
| Singapore | -- | -- | -- | 10 | -3 | 26,300 |
| Sweden | -- | -- | -- | 575 | 106 | 711,000 |
| United Kingdom | 11 | 11 | 26,800 | 420 | 393 | 970,000 |
| Other (7 countries) | -- | -- | -- | 20 | 4 | 50,800 |
| Total | 1,830 | 1,790 | 4,390,000 | 24,000 | 23,000 | 56,200,000 |
| Total silicon metal | 11,800 | 11,600 | 51,000,000 | 156,000 | 152,000 | 624,000,000 |

^cEstimated. XX Not applicable. -- Zero.

¹Presentation of monthly data is based on the year-to-date quantities (gross weight) of the leading countries.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Less than ½ unit.

Source: U.S. Census Bureau.