

# Mineral Industry Surveys

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## SULFUR IN SEPTEMBER 2020

During September 2020, production of recovered elemental sulfur was 537,000 metric tons (t), which was 7% lower than that of August 2020 and 17% lower than that of September 2019. Total production for January through September was 5.58 million metric tons (Mt), which was 8% lower than that in the same period of 2019. Shipments were 534,000 t, which were 5% lower than those of August 2020. Total shipments for January through September were 5.58 Mt, which were 8% lower than those in the same period of 2019. Producers' ending stocks for September 2020 were 102,000 t, which were 11% lower than those of August 2020 (table 1).

Imports of recovered sulfur for September 2020 were 186,000 t; exports were 77,000 t. Total imports of recovered sulfur for January through September were 1.66 Mt, which were 17% higher than those in the same period of 2019. Total exports of recovered sulfur for January through September were 1.09 Mt, which were 35% lower than those in the same period of 2019 (tables 2, 4).

Imports of sulfuric acid for September 2020 were 334,000 t; exports were 16,000 t. Total imports for January through

September were 2.73 Mt, which were 24% higher than those in the same period of 2019. Total exports of sulfuric acid for January through September were 157,000 t, which were slightly higher than those in the same period of 2019 (tables 3, 4).

U.S. sulfur consumption, calculated as shipments minus exports plus imports, was 643,000 t in September 2020. This was 7% higher than that of August 2020 and 9% higher than that of September 2019. Total consumption for January through September was 6.15 Mt, which was 6% higher than that in the same period of 2019 (table 5).

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TABLE 1  
SALIENT SULFUR STATISTICS<sup>1</sup>

(Thousand metric tons)

| Period                 | Production             |                  |                    | Shipments,<br>all sources | Stocks,<br>end of period <sup>3</sup> |
|------------------------|------------------------|------------------|--------------------|---------------------------|---------------------------------------|
|                        | Petroleum <sup>2</sup> | Natural gas      | Total              |                           |                                       |
| 2019:                  |                        |                  |                    |                           |                                       |
| January–December       | 7,790                  | 322              | 8,110              | 8,100                     | 124                                   |
| January–September      | 5,800 <sup>r</sup>     | 239 <sup>r</sup> | 6,040 <sup>r</sup> | 6,040 <sup>r</sup>        | 115                                   |
| September              | 620                    | 25               | 644                | 641                       | 114                                   |
| October                | 611                    | 28               | 639                | 643                       | 109                                   |
| November               | 658                    | 27               | 685                | 676                       | 119                                   |
| December               | 723                    | 29               | 751                | 746                       | 124                                   |
| 2020:                  |                        |                  |                    |                           |                                       |
| January                | 701                    | 28               | 729                | 742                       | 111                                   |
| February               | 628                    | 25               | 653                | 645                       | 119                                   |
| March                  | 642                    | 27               | 669                | 688                       | 100                                   |
| April                  | 578                    | 24               | 602                | 593                       | 110                                   |
| May                    | 574                    | 22               | 595                | 592                       | 113                                   |
| June                   | 566                    | 20               | 585                | 580                       | 119                                   |
| July                   | 605                    | 20               | 625                | 644                       | 100                                   |
| August                 | 561                    | 19               | 580                | 565                       | 115                                   |
| September <sup>p</sup> | 516                    | 21               | 537                | 534                       | 102                                   |
| January–September      | 5,370                  | 206              | 5,580              | 5,580                     | 102                                   |

<sup>p</sup>Preliminary. <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>Includes a small quantity from coking operations.

<sup>3</sup>Subject to inventory adjustments.

TABLE 2  
U.S. IMPORTS OF SULFUR<sup>1</sup>

(Thousand metric tons and thousand dollars)

| Period            | Canada             |                    | Total, all countries <sup>2</sup> |                      |
|-------------------|--------------------|--------------------|-----------------------------------|----------------------|
|                   | Quantity           | Value <sup>3</sup> | Quantity                          | Value <sup>3</sup>   |
| 2019:             |                    |                    |                                   |                      |
| January–December  | 1,450              | 65,900             | 1,850                             | 137,000              |
| January–September | 1,100 <sup>r</sup> | 57,500             | 1,420 <sup>r</sup>                | 115,000 <sup>r</sup> |
| September         | 97                 | 3,470              | 99                                | 4,460                |
| October           | 124                | 3,360              | 178                               | 14,500               |
| November          | 119                | 2,790              | 121                               | 3,860                |
| December          | 127                | 2,230              | 129                               | 3,270                |
| 2020:             |                    |                    |                                   |                      |
| January           | 127                | 2,970              | 129                               | 4,190                |
| February          | 104                | 3,200              | 143                               | 7,580                |
| March             | 131                | 4,710              | 183                               | 9,320                |
| April             | 159 <sup>r</sup>   | 5,150              | 252 <sup>r</sup>                  | 13,700               |
| May               | 148 <sup>r</sup>   | 8,230              | 149 <sup>r</sup>                  | 8,700                |
| June              | 145 <sup>r</sup>   | 4,960              | 181 <sup>r</sup>                  | 8,610                |
| July              | 130 <sup>r</sup>   | 5,320              | 271 <sup>r</sup>                  | 17,000               |
| August            | 108 <sup>r</sup>   | 4,800              | 161 <sup>r</sup>                  | 10,200               |
| September         | 130                | 4,380              | 186                               | 9,300                |
| January–September | 1,180              | 43,700             | 1,660 <sup>r</sup>                | 88,500               |

<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>May include other countries not listed.

<sup>3</sup>Declared customs valuation.

Sources: U.S. Census Bureau as adjusted by U.S. Geological Survey and Acuity Commodities.

TABLE 3  
U.S. IMPORTS OF SULFURIC ACID<sup>1</sup>

(Thousand metric tons and thousand dollars)

| Period            | Canada   |                |                    | Mexico   |                |                    | Total, all countries <sup>2</sup> |                |                    |
|-------------------|----------|----------------|--------------------|----------|----------------|--------------------|-----------------------------------|----------------|--------------------|
|                   | Quantity | Sulfur content | Value <sup>3</sup> | Quantity | Sulfur content | Value <sup>3</sup> | Quantity                          | Sulfur content | Value <sup>3</sup> |
| 2019:             |          |                |                    |          |                |                    |                                   |                |                    |
| January–December  | 1,920    | 628            | 149,000            | 485      | 159            | 29,700             | 2,970                             | 971            | 240,000            |
| January–September | 1,450    | 473            | 112,000            | 355      | 116            | 22,500             | 2,200                             | 720            | 181,000            |
| September         | 156      | 51             | 11,000             | 38       | 12             | 2,290              | 198                               | 65             | 15,200             |
| October           | 185      | 60             | 14,400             | 37       | 12             | 1,990              | 320                               | 105            | 24,300             |
| November          | 109      | 36             | 8,110              | 34       | 11             | 1,900              | 166                               | 54             | 13,200             |
| December          | 180      | 59             | 13,700             | 59       | 19             | 3,320              | 281                               | 92             | 21,200             |
| 2020:             |          |                |                    |          |                |                    |                                   |                |                    |
| January           | 150      | 49             | 11,200             | 58       | 19             | 4,670              | 306                               | 100            | 23,400             |
| February          | 147      | 48             | 10,500             | 51       | 17             | 4,350              | 311                               | 102            | 21,600             |
| March             | 178      | 58             | 12,700             | 51       | 17             | 4,390              | 310                               | 101            | 22,500             |
| April             | 154      | 50             | 11,300             | 50       | 16             | 4,980              | 284                               | 93             | 22,100             |
| May               | 193      | 63             | 13,900             | 43       | 14             | 3,700              | 332                               | 109            | 22,100             |
| June              | 158      | 52             | 12,100             | 38       | 12             | 1,710              | 217                               | 71             | 16,800             |
| July              | 153      | 50             | 8,250              | 73       | 24             | 4,390              | 313                               | 102            | 18,200             |
| August            | 159      | 52             | 8,010              | 47       | 15             | 3,610              | 319                               | 104            | 18,100             |
| September         | 156      | 51             | 7,840              | 91       | 30             | 5,760              | 334                               | 109            | 18,900             |
| January–September | 1,450    | 473            | 95,700             | 501      | 164            | 37,600             | 2,730                             | 891            | 184,000            |

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

<sup>2</sup>May include other countries not listed.

<sup>3</sup>Declared customs valuation.

Source: U.S. Census Bureau.

TABLE 4  
U.S. EXPORTS OF SULFUR AND SULFURIC ACID<sup>1</sup>

(Thousand metric tons and thousand dollars)

| Period            | Sulfur             |                      | Sulfuric acid    |                |                    |
|-------------------|--------------------|----------------------|------------------|----------------|--------------------|
|                   | Quantity           | Value <sup>2</sup>   | Quantity         | Sulfur content | Value <sup>2</sup> |
| 2019:             |                    |                      |                  |                |                    |
| January–December  | 2,200              | 172,000              | 220              | 72             | 31,200             |
| January–September | 1,670 <sup>†</sup> | 148,000 <sup>†</sup> | 156 <sup>†</sup> | 51             | 25,700             |
| September         | 148                | 10,800               | 18               | 6              | 2,520              |
| October           | 321                | 8,860                | 28               | 9              | 2,310              |
| November          | 53                 | 4,750                | 11               | 4              | 1,530              |
| December          | 157                | 11,200               | 25               | 8              | 1,650              |
| 2020:             |                    |                      |                  |                |                    |
| January           | 97                 | 4,720                | 16               | 5              | 2,650              |
| February          | 190                | 10,100               | 10               | 3              | 2,240              |
| March             | 210                | 14,100               | 18               | 6              | 3,420              |
| April             | 87                 | 7,520                | 31               | 10             | 2,350              |
| May               | 136                | 9,040                | 17               | 6              | 2,780              |
| June              | 67                 | 6,020                | 11               | 4              | 1,400              |
| July              | 98                 | 6,750                | 22               | 7              | 1,610              |
| August            | 125                | 8,210                | 17               | 6              | 2,020              |
| September         | 77                 | 5,400                | 16               | 5              | 2,040              |
| January–September | 1,090              | 71,800               | 157              | 52             | 20,500             |

<sup>†</sup>Revised.

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

<sup>2</sup>Declared f.a.s. (free alongside ship) valuation.

Source: U.S. Census Bureau.

TABLE 5  
U.S. CONSUMPTION OF SULFUR<sup>1</sup>

(Thousand metric tons)

| Period                 | Domestic sources <sup>2</sup> | Imports            | Consumption        |
|------------------------|-------------------------------|--------------------|--------------------|
| 2019:                  |                               |                    |                    |
| January–December       | 5,900                         | 1,850              | 7,750              |
| January–September      | 4,370 <sup>r</sup>            | 1,420 <sup>r</sup> | 5,790 <sup>r</sup> |
| September              | 493                           | 99                 | 592                |
| October                | 322                           | 178                | 500                |
| November               | 623                           | 121                | 744                |
| December               | 589                           | 129                | 718                |
| 2020:                  |                               |                    |                    |
| January                | 645                           | 129                | 774                |
| February               | 455                           | 143                | 598                |
| March                  | 478                           | 183                | 661                |
| April                  | 506                           | 252 <sup>r</sup>   | 758 <sup>r</sup>   |
| May                    | 456                           | 149 <sup>r</sup>   | 605 <sup>r</sup>   |
| June                   | 513                           | 181 <sup>r</sup>   | 694 <sup>r</sup>   |
| July                   | 546                           | 271 <sup>r</sup>   | 817 <sup>r</sup>   |
| August                 | 440                           | 161 <sup>r</sup>   | 601 <sup>r</sup>   |
| September <sup>p</sup> | 457                           | 186                | 643                |
| January–September      | 4,490                         | 1,660 <sup>r</sup> | 6,150 <sup>r</sup> |

<sup>p</sup>Preliminary. <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>Calculated as shipments minus exports.

TABLE 6  
RECOVERED SULFUR PRODUCED AND SHIPPED IN THE UNITED STATES,  
BY PAD (PETROLEUM ADMINISTRATION FOR DEFENSE) DISTRICT<sup>1</sup>

(Thousand metric tons)

| District and source | January–September 2019 <sup>2</sup> |              | August 2020 |            | September 2020 <sup>P</sup> |            | January–September 2020 <sup>P, 2</sup> |              |
|---------------------|-------------------------------------|--------------|-------------|------------|-----------------------------|------------|--|--------------|
|                     | Production                          | Shipments    | Production  | Shipments  | Production                  | Shipments  | Production                             | Shipments    |
| <b>PAD 1:</b>       |                                     |              |             |            |                             |            |  |              |
| Petroleum and coke  | 129                                 | 129          | 13          | 13         | 12                          | 12         | 138                                    | 139          |
| Natural gas         | 10                                  | 10           | 1           | 1          | 1                           | 1          | 10                                     | 10           |
| <b>Total</b>        | <b>139</b>                          | <b>139</b>   | <b>14</b>   | <b>14</b>  | <b>13</b>                   | <b>13</b>  | <b>148</b>                             | <b>149</b>   |
| <b>PAD 2:</b>       |                                     |              |             |            |                             |            |  |              |
| Petroleum and coke  | 992                                 | 990          | 115         | 115        | 93                          | 89         | 965                                    | 962          |
| Natural gas         | 2                                   | 2            | --          | --         | --                          | --         | --                                     | 1            |
| <b>Total</b>        | <b>994</b>                          | <b>992</b>   | <b>115</b>  | <b>115</b> | <b>93</b>                   | <b>89</b>  | <b>965</b>                             | <b>963</b>   |
| <b>PAD 3:</b>       |                                     |              |             |            |                             |            |  |              |
| Petroleum and coke  | 3,570                               | 3,570        | 330         | 318        | 308                         | 310        | 3,300                                  | 3,310        |
| Natural gas         | 89                                  | 87           | 10          | 10         | 9                           | 9          | 84                                     | 85           |
| <b>Total</b>        | <b>3,660</b>                        | <b>3,660</b> | <b>340</b>  | <b>327</b> | <b>316</b>                  | <b>319</b> | <b>3,380</b>                           | <b>3,390</b> |
| <b>PAD 4 and 5:</b> |                                     |              |             |            |                             |            |  |              |
| Petroleum and coke  | 1,100                               | 1,110        | 103         | 98         | 104                         | 98         | 970                                    | 967          |
| Natural gas         | 137                                 | 138          | 9           | 11         | 11                          | 15         | 112                                    | 111          |
| <b>Total</b>        | <b>1,240</b>                        | <b>1,250</b> | <b>112</b>  | <b>109</b> | <b>115</b>                  | <b>113</b> | <b>1,080</b>                           | <b>1,080</b> |
| <b>Grand total</b>  | <b>6,040</b>                        | <b>6,040</b> | <b>580</b>  | <b>565</b> | <b>537</b>                  | <b>534</b> | <b>5,580</b>                           | <b>5,580</b> |

<sup>P</sup>Preliminary. -- 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 revisions to previously published data.

TABLE 7  
COMPARATIVE SULFUR AND SULFURIC ACID STATISTICS<sup>1</sup>

(Million metric tons per year [annualized basis] and dollars per metric ton for period shown)

|  | 2019 | 2020              |                   |                       |
|--|------|-------------------|-------------------|-----------------------|
|  |      | August            | September         | January–<br>September |
| Production   | 8.11 | 6.85              | 6.55 <sup>P</sup> | 7.45                  |
| Shipments  | 8.10 | 6.67              | 6.51 <sup>P</sup> | 7.45                  |
| Exports of sulfur  | 2.20 | 1.48              | 0.94              | 1.46                  |
| Imports of sulfur:   |      |                   |                   |                       |
| Canada   | 1.45 | 1.28 <sup>r</sup> | 1.59              | 1.58                  |
| Total <sup>2</sup>   | 1.85 | 1.90 <sup>r</sup> | 2.27              | 2.21                  |
| Exports of H <sub>2</sub> SO <sub>4</sub>                  | 0.22 | 0.20              | 0.20              | 0.21                  |
| Imports of H <sub>2</sub> SO <sub>4</sub> :                |      |                   |                   |                       |
| Canada   | 1.92 | 1.88              | 1.90              | 1.94                  |
| Mexico   | 0.49 | 0.55              | 1.11              | 0.67                  |
| Total <sup>2</sup>   | 2.97 | 3.77              | 4.07              | 3.65                  |
| Consumption:   |      |                   |                   |                       |
| Domestic sources   | 5.90 | 5.19              | 5.58              | 6.01                  |
| Imports  | 1.85 | 1.90 <sup>r</sup> | 2.27              | 2.21                  |
| Total  | 7.75 | 7.10 <sup>r</sup> | 7.84              | 8.22                  |
| Sulfur export values <sup>3</sup>                          | 78   | 66                | 70                | 66                    |
| Sulfur import values: <sup>3</sup>                         |      |                   |                   |                       |
| Canada   | 45   | 44                | 34                | 37                    |
| Average <sup>3</sup>                                       | 74   | 63 <sup>r</sup>   | 50                | 53                    |
| H <sub>2</sub> SO <sub>4</sub> export values <sup>3</sup>  | 142  | 119               | 128               | 131                   |
| H <sub>2</sub> SO <sub>4</sub> import values: <sup>3</sup> |      |                   |                   |                       |
| Canada   | 78   | 50                | 50                | 66                    |
| Mexico   | 61   | 77                | 63                | 75                    |
| Average <sup>2</sup>                                       | 81   | 57                | 57                | 67                    |

<sup>P</sup>Preliminary. <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>Includes other countries not listed.

<sup>3</sup>Average value per ton.