

# Mineral Industry Surveys

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## SULFUR IN DECEMBER 2018

During December 2018, production of recovered elemental sulfur was 820,000 metric tons (t), which was 9% higher than that of November 2018 and slightly higher than that of December 2017. Total production for the entire year was 9.01 million metric tons (Mt), which was slightly lower than that of 2017. Shipments in December 2018 were 803,000 t, which was 5% higher than those of November 2018 and essentially unchanged from those of December 2017. Total shipments in 2018 were 9.02 Mt, which was slightly lower than those in 2017. Producers' ending stocks for December 2018 were 122,000 t (table 1).

Imports of recovered sulfur for December 2018 were estimated to be 173,000 t; exports were 346,000 t. Total imports of recovered sulfur in 2018 were 2.23 Mt, which was 20% more than those in 2017. Total exports for 2018 of recovered sulfur were 2.42 Mt, which was 3% more than those of 2017 (tables 2, 4).

Imports of sulfuric acid for December 2018 were 272,000 t; exports were 28,000 t. Total imports in 2018 were 3.05 Mt, which was 4% higher than those in 2017. Total exports for 2018 of sulfuric acid were 315,000 t, which was 29% higher than those in 2017 (tables 3, 4).

U.S. sulfur consumption, calculated as shipments minus exports plus imports, was 630,000 t in December 2018. This was 16% lower than that of November 2018 and 10% lower than that of December 2017. Total consumption in 2018 was 8.83 Mt, which was slightly higher than that in 2017 (table 5).

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

(Thousand metric tons)

Period	Production			Shipments, all sources	Stocks, end of period <sup>3</sup>
	Petroleum <sup>2</sup>	Natural gas	Total		
2017:					
January–December	8,410 <sup>r</sup>	662	9,070 <sup>r</sup>	9,120 <sup>r</sup>	124 <sup>r</sup>
December	748	55	803	806	124
2018:					
January	675	56	731	749	111
February	594	55	649	665	99
March	706	55	761	739	122
April	686	55	741	748	115
May	704	55	759	754	121
June	719	53	772	765	128
July	728	44	772	789	112
August	751	54	805	809	107
September	690	38	728	722	113
October	663	53	717	713	117
November	696 <sup>r</sup>	54 <sup>r</sup>	750 <sup>r</sup>	762 <sup>r</sup>	105 <sup>r</sup>
December <sup>p</sup>	766	54	820	803	122
January–December	8,380	627	9,010	9,020	122

<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		Mexico		Total, all countries <sup>2</sup>	
	Quantity	Value <sup>3</sup>	Quantity	Value <sup>3</sup>	Quantity	Value <sup>3</sup>
2017:						
January–December	1,380 <sup>r</sup>	49,600	15	753	1,850 <sup>r</sup>	107,000
December	102	5,890	--	--	104	7,220
2018:						
January	115	6,510	(4)	4	152	15,000
February	119	6,380	(4)	7	169	14,800
March	124	7,830	--	--	188	17,400
April	110	6,090	--	--	151	12,200
May	129	5,000	--	--	177	12,500
June	144	7,400	--	--	278	25,300
July	98	6,250	--	--	198	20,700
August	151	9,040	--	--	214	18,800
September	120	8,200	--	--	155	13,700
October	139 <sup>r</sup>	9,310	--	--	190 <sup>r</sup>	17,700
November	135 <sup>r</sup>	9,250	--	--	185 <sup>r</sup>	18,800
December <sup>e</sup>	125	9,380	--	--	173	18,400
January–December	1,510	90,600	(4)	11	2,230	205,000

<sup>e</sup>Estimated. <sup>r</sup>Revised. -- Zero.

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

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

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

<sup>4</sup>Less than ½ unit.

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>
2017:									
January–December	1,890 <sup>r</sup>	619	80,800	518 <sup>r</sup>	169	14,100	2,920	954	124,000
December	143	47	4,600	46	15	1,210	227	74	8,760
2018:									
January	165	54	6,630	54	18	1,400	263	86	9,980
February	132	43	5,430	37	12	1,440	198	65	8,950
March	158	52	6,510	39	13	1,500	255	83	12,700
April	146	48	7,000	12	4	465	235	77	16,100
May	176	58	8,870	32	10	1,200	298	97	17,100
June	171	56	8,250	48	16	1,830	279	91	16,000
July	166	54	8,030	49	16	2,990	275	90	16,800
August	149	49	6,720	39	13	1,420	236	77	14,200
September	153	50	6,420	33	11	1,260	252	82	13,300
October	164	54	7,990	21	7	780	266	87	16,300
November	136	44	6,810	46	15	1,870	220	72	14,000
December	187	61	9,480	57	19	2,200	272	89	15,000
January–December	1,900	622	88,100	467	153	18,400	3,050	997	170,000

<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.

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>
2017:					
January–December	2,340	253,000	245	80	31,500
December	209	29,500	31	10	3,580
2018:					
January	191	30,500	24	8	2,690
February	109	13,100	26	9	2,830
March	217	25,900	38	12	3,010
April	175	19,600	46	15	2,810
May	225	29,200	15	5	2,630
June	200	25,200	19	6	2,960
July	204	26,600	33	11	4,730
August	173	23,200	25	8	3,820
September	217	30,100	32	10	4,110
October	172	24,300	15	5	2,210
November	193	27,000	16	5	2,750
December	346	30,200	28	9	4,050
January–December	2,420	305,000	315	104	38,600

<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
2017:			
January–December	6,780 <sup>r</sup>	1,850 <sup>r</sup>	8,630 <sup>r</sup>
December	598	104	702
2018:			
January	558	152	710
February	556	169	725
March	522	188	710
April	573	151	724
May	529	177	706
June	565	278	843
July	585	198	783
August	636	214	850
September	505	155	660
October	541	190 <sup>r</sup>	731 <sup>r</sup>
November	569 <sup>r</sup>	185 <sup>r</sup>	754 <sup>r</sup>
December <sup>p</sup>	457	173	630
January–December	6,600	2,230	8,830

<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–December 2017 <sup>2</sup>		November 2018		December 2018 <sup>P</sup>		January–December 2018 <sup>P,2</sup>	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
<b>PAD 1:</b>								
Petroleum and coke	216	217	20	19	18	18	241	241
Natural gas	13	13	1	1	1	1	13	13
<b>Total</b>	<b>230</b>	<b>231</b>	<b>21</b>	<b>21</b>	<b>19</b>	<b>19</b>	<b>254</b>	<b>253</b>
<b>PAD 2:</b>								
Petroleum and coke	1,400	1,400	109	106	131	131	1,340	1,340
Natural gas	7	6	1	--	--	--	6	6
<b>Total</b>	<b>1,410</b>	<b>1,400</b>	<b>110</b>	<b>106</b>	<b>131</b>	<b>132</b>	<b>1,340</b>	<b>1,350</b>
<b>PAD 3:</b>								
Petroleum and coke	5,300	5,320	441 <sup>r</sup>	454 <sup>r</sup>	477	470	5,280	5,280
Natural gas	146	146	9 <sup>r</sup>	10 <sup>r</sup>	10	9	127	126
<b>Total</b>	<b>5,450</b>	<b>5,460</b>	<b>450 <sup>r</sup></b>	<b>464 <sup>r</sup></b>	<b>488</b>	<b>479</b>	<b>5,410</b>	<b>5,410</b>
<b>PAD 4 and 5:</b>								
Petroleum and coke	1,490	1,520	126	129	140	136	1,520	1,530
Natural gas	496	501	43	42	43	38	481	475
<b>Total</b>	<b>1,990</b>	<b>2,020</b>	<b>170</b>	<b>171</b>	<b>182</b>	<b>173</b>	<b>2,000</b>	<b>2,010</b>
<b>Grand total</b>	<b>9,070</b>	<b>9,120</b>	<b>750 <sup>r</sup></b>	<b>762 <sup>r</sup></b>	<b>820</b>	<b>803</b>	<b>9,010</b>	<b>9,020</b>

<sup>P</sup>Preliminary. <sup>r</sup>Revised. -- Zero.

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

<sup>2</sup>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)

	2018			
	2017	November	December	January– December
Production	9.07	9.13 <sup>r</sup>	9.65 <sup>p</sup>	9.01
Shipments	9.12	9.27 <sup>r</sup>	9.45 <sup>p</sup>	9.02
Exports of sulfur	2.34	2.35	4.07	2.42
Imports of sulfur:				
Canada	1.38	1.64 <sup>r</sup>	1.47	1.51
Mexico	0.02	--	--	(2)
Total <sup>3</sup>	1.85	2.25 <sup>r</sup>	2.04	2.23
Exports of H <sub>2</sub> SO <sub>4</sub>	0.25	0.19	0.33	0.32
Imports of H <sub>2</sub> SO <sub>4</sub> :				
Canada	1.89 <sup>r</sup>	1.65	2.20	1.90
Mexico	0.52	0.56	0.67	0.47
Total <sup>3</sup>	2.92	2.68	3.20	3.05
Consumption:				
Domestic sources	6.78	6.92 <sup>r</sup>	5.38	6.60
Imports	1.85	2.25 <sup>r</sup>	2.04	2.23
Total	8.63	9.17 <sup>r</sup>	7.42	8.83
Sulfur export values <sup>4</sup>	108	140	87	126
Sulfur import values: <sup>4</sup>				
Canada	36	69 <sup>r</sup>	75	60
Mexico	50	XX	XX	64
Average <sup>3</sup>	58	102 <sup>r</sup>	106	92
H <sub>2</sub> SO <sub>4</sub> export values <sup>4</sup>	129	172	145	123
H <sub>2</sub> SO <sub>4</sub> import values: <sup>4</sup>				
Canada	43	50	51	46
Mexico	27	41	39	39
Average <sup>3</sup>	41	64	55	56

<sup>p</sup>Preliminary. <sup>r</sup>Revised. XX Not applicable. -- Zero.

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

<sup>2</sup>Less than ½ unit.

<sup>3</sup>Includes other countries not listed.

<sup>4</sup>Average value per ton.