

# Mineral Industry Surveys

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## SULFUR IN NOVEMBER 2023

During November 2023, production of recovered elemental sulfur was 672,000 metric tons (t), which was 4% higher than that in October 2023 and 3% lower than that in November 2022. Total production for January through November was 7.32 million metric tons (Mt), which was unchanged from the revised amount in the same period of 2022. Shipments in November 2023 were 664,000 t, which was 4% higher than that in October 2023 and 4% lower from that in November 2022. Total shipments for January through November were 7.33 Mt, which were unchanged from the revised amount in the same period of 2022. Producers' ending stocks for November 2023 were 112,000 t (table 1).

Imports of recovered sulfur in November 2023 were estimated to be 121,000 t; exports were 197,000 t. Total imports of recovered sulfur for January through November were estimated to be 1.34 Mt, which were 14% lower than those in the same period of 2022. Total exports of recovered sulfur for January through November were 1.80 Mt, which were 13% higher than those in the same period of 2022 (tables 2, 4).

Imports of sulfuric acid in November 2023 were 239,000 t; exports were 15,000 t. Total imports for January through

November were 2.99 Mt, which were slightly higher than those in the same period of 2022. Total exports of sulfuric acid for January through November were 185,000 t, which were 45% lower than that in the same period of 2022 (tables 3, 4).

U.S. sulfur consumption, calculated as shipments minus exports plus imports, was estimated to be 588,000 t in November 2023. This was 12% higher than the revised amount in October 2023 and 7% lower than that in November 2022. Total consumption for January through November was estimated to be 6.86 Mt, which was 6% lower than the revised amount in the same period of 2022 (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>2</sup>
	Petroleum <sup>3</sup>	Natural gas	Total		
2022:					
January–December	7,490	516	8,010	7,990	125
January–November	6,880	473 <sup>r</sup>	7,350 <sup>r</sup>	7,340 <sup>r</sup>	125 <sup>r</sup>
November	649	45	695	690	125
December	614	43	657	657	125
2023:					
January	620	45	664	673	116
February	586	42	628	630	114
March	636	45	680	691	103
April	616	33	648	640	111
May	655	36	691	700	103
June	644	32	676	676	103
July	664	36	700	698	105
August	637	20	657	663	99
September	628	23	651	653 <sup>r</sup>	97 <sup>r</sup>
October	621	27	649	641	104 <sup>r</sup>
November <sup>p</sup>	629	43	672	664	112
January–November	6,940	382	7,320	7,330	112

<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>Subject to inventory adjustments.

<sup>3</sup>Includes a small quantity from coking operations.

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>
2022:				
January–December	1,490	283,000	1,670	338,000
January–November	1,390	273,000	1,560	327,000
November	98	9,360	98	10,000
December	106	10,400	106	11,300
2023:				
January	101	9,850	103	10,600
February	117	10,900	171	20,800
March	117	10,300	119	11,300
April	90	16,400	91	18,000
May	78	9,660	79	11,200
June	117	7,800	118	8,830
July	123	8,900	177	14,900
August	125	6,770	127	8,060
September	111	6,310	112	7,370
October	120 <sup>e</sup>	7,130	122 <sup>e</sup>	8,720
November	120 <sup>e</sup>	7,870	121 <sup>e</sup>	8,880
January–November	1,220 <sup>e</sup>	102,000	1,340 <sup>e</sup>	129,000

<sup>e</sup>Estimated.

<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>
2022:									
January–December	1,820	594	173,000	720	235	140,000	3,230	1,060	469,000
January–November	1,680	550 <sup>†</sup>	157,000	646	211	128,000	2,930	959 <sup>†</sup>	427,000
November	146	48	17,000	37	12	7,050	217	71	30,400
December	136	44	15,800	74	24	12,600	298	97	41,700
2023:									
January	147	48	23,200	59	19	9,950	273	89	45,100
February	157	51	26,800	47	15	7,310	237	77	36,700
March	144	47	24,800	70	23	8,340	236	77	36,100
April	146	48	18,000	51	17	6,380	269	88	33,700
May	154	50	21,400	24	8	3,240	265	87	29,100
June	176	58	22,100	57	19	7,380	308	101	35,200
July	157	51	20,300	62	20	8,030	318	104	37,100
August	164	54	20,200	53	17	7,510	322	105	34,700
September	151	49	19,100	57	19	7,990	288	94	35,200
October	134	44	15,500	26	8	6,030	235	77	27,500
November	127	41	14,700	50	16	6,960	239	78	27,700
January–November	1,660	542	226,000	556	182	79,100	2,990	978	378,000

<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>May include other countries not listed.

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

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>
2022:					
January–December	1,740	479,000	377	123	36,800
January–November	1,600	461,000 <sup>r</sup>	337 <sup>r</sup>	110	32,500 <sup>r</sup>
November	156	18,400	51	17	3,550
December	139	17,600	39	13	4,300
2023:					
January	176	23,100	32	10	3,650
February	185	27,300	13	4	3,620
March	177	30,900	19	6	2,920
April	155	21,500	10	3	2,210
May	55	7,120	17	5	4,350
June	83	8,630	16	5	4,550
July	146	17,600	12	4	1,880
August	271	36,600	13	4	2,210
September	125	8,990	29	9	6,490
October	236	23,400	11	4	1,990
November	197	23,300	15	5	2,510
January–November	1,800	228,000	185	61	36,400

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

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

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

(Thousand metric tons)

Period	Domestic sources <sup>2</sup>	Imports	Consumption
2022:			
January–December	6,250	1,670	7,920
January–November	5,740 <sup>r</sup>	1,560	7,300 <sup>r</sup>
November	534	98	632
December	518	106	624
2023:			
January	498	103	600
February	445	171	616
March	515	119	633
April	485	91	576
May	645	79	724
June	594	118	712
July	551	177	728
August	392	127	519
September	529 <sup>r</sup>	112	641
October	405	122 <sup>e</sup>	526 <sup>r, e</sup>
November <sup>p</sup>	468	121 <sup>e</sup>	588 <sup>e</sup>
January–November	5,530	1,340 <sup>e</sup>	6,860 <sup>e</sup>

<sup>e</sup>Estimated. <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–November 2022 <sup>2</sup>		October 2023		November 2023 <sup>p</sup>		January–November 2023 <sup>p, 2</sup>	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
<b>PAD 1:</b>								
Petroleum and coke	179	178	15	15	15	16	146	149
Natural gas	12	12	1	1	1	1	12	12
Total	191	190	17	16	16	17	158	161
<b>PAD 2:</b>								
Petroleum and coke	1,260	1,270	115	114	111	110	1,250	1,250
Natural gas	--	--	--	--	--	--	--	--
Total	1,260	1,270	115	114	111	110	1,250	1,250
<b>PAD 3:</b>								
Petroleum and coke	4,190	4,170	378	371	396	390	4,300	4,300
Natural gas	85	81	6	6	6	5	64	64
Total	4,270	4,250	384	377	402	396	4,360	4,370
<b>PAD 4 and 5:</b>								
Petroleum and coke	1,250	1,250	113	112	107	109	1,240	1,250
Natural gas	376	384	20	21	37	33	306	305
Total	1,620	1,630	133	133	144	142	1,550	1,550
Grand total	7,350	7,340	649	641	672	664	7,320	7,330

<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)

	2023			
	2022	October	November	January– November
Production	8.01	7.64	8.18 <sup>P</sup>	8.00
Shipments	7.99	7.55	8.08 <sup>P</sup>	8.01
Exports of sulfur	1.74	2.78	2.39	1.97
Imports of sulfur:				
Canada	1.49	1.41	1.46	1.33
Total <sup>2</sup>	1.67	1.43	1.47	1.46
Exports of H <sub>2</sub> SO <sub>4</sub>	0.38	0.14	0.18	0.20
Imports of H <sub>2</sub> SO <sub>4</sub> :				
Canada	1.82	1.58	1.54	1.81
Mexico	0.72	0.30	0.61	0.61
Total <sup>2</sup>	3.23	2.77	2.91	3.27
Consumption:				
Domestic sources	6.25	4.76	5.69	6.04
Imports	1.67	1.43	1.47	1.46
Total	7.92	6.20 <sup>r</sup>	7.15	7.50
Sulfur export values <sup>3</sup>	275	99	118	127
Sulfur import values: <sup>3</sup>				
Canada	190	59	66	83
Average <sup>3</sup>	203	72	73	96
H <sub>2</sub> SO <sub>4</sub> export values <sup>3</sup>	98	174	170	197
H <sub>2</sub> SO <sub>4</sub> import values: <sup>3</sup>				
Canada	95	116	116	137
Mexico	195	236	139	142
Average <sup>2</sup>	145	117	116	126

<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.