

Mineral Industry Surveys

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SULFUR IN DECEMBER 2023

During December 2023, production of recovered elemental sulfur was 703,000 metric tons (t), which was 5% higher than the revised amount in November 2023 and 7% higher than that in December 2022. Total production for January through December 2023 was 8.02 million metric tons (Mt), which was unchanged from that in 2022. Shipments in December 2023 were 694,000 t, which was 5% higher than the revised amount in November 2023 and 6% higher than that in December 2022. Total shipments for January through December 2023 were 8.02 Mt, which were unchanged from those in 2022. Producers' ending stocks for December 2023 were 121,000 t (table 1).

Imports of recovered sulfur in December 2023 were estimated to be 121,000 t; exports were 102,000 t. Total imports of recovered sulfur for January through December 2023 were estimated to be 1.46 Mt, which were 12% lower than those in 2022. Total exports of recovered sulfur for January through December 2023 were 1.91 Mt, which were 10% higher than those in 2022 (tables 2, 4).

Imports of sulfuric acid in December 2023 were 325,000 t; exports were 12,000 t. Total imports for January through

December 2023 were 3.32 Mt, which were 3% higher than those in 2022. Total exports of sulfuric acid for January through December 2023 were 197,000 t, which were 48% lower than that in 2022 (tables 3, 4).

U.S. sulfur consumption, calculated as shipments minus exports plus imports, was estimated to be 712,000 t in December 2023. This was 21% higher than the revised amount in November 2023 and 14% higher than that in December 2022. Total consumption for January through December 2023 was estimated to be 7.57 Mt, which was 4% lower than that in 2022 (table 5).

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TABLE 1
SALIENT SULFUR STATISTICS¹

(Thousand metric tons)

Period	Production			Shipments, all sources	Stocks, end of period ²
	Petroleum ³	Natural gas	Total		
2022:					
January–December	7,490	516	8,010	7,990	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	665 ^r	36	700	698	105
August	637	20	658 ^r	663	99
September	627 ^r	23	650 ^r	653	96 ^r
October	620 ^r	27	647 ^r	639 ^r	104
November	627 ^r	43	671 ^r	663 ^r	112
December ^p	663	40	703	694	121
January–December	7,600	422	8,020	8,020	121

^pPreliminary. ^rRevised.

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

²Subject to inventory adjustments.

³Includes a small quantity from coking operations.

TABLE 2
U.S. IMPORTS OF SULFUR¹

(Thousand metric tons and thousand dollars)

Period	Canada		Total, all countries ²	
	Quantity	Value ³	Quantity	Value ³
2022:				
January–December	1,490	283,000	1,670	338,000
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 ^e	7,130	122 ^e	8,720
November	120 ^e	7,870	121 ^e	8,880
December	120 ^e	8,690	121 ^e	9,650
January–December	1,340 ^e	110,000	1,460 ^e	138,000

^eEstimated.

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

²May include other countries not listed.

³Declared customs valuation.

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

TABLE 3
U.S. IMPORTS OF SULFURIC ACID¹

(Thousand metric tons and thousand dollars)

Period	Canada			Mexico			Total, all countries ²		
	Quantity	Sulfur content	Value ³	Quantity	Sulfur content	Value ³	Quantity	Sulfur content	Value ³
2022:									
January–December	1,820	594	173,000	720	235	140,000	3,230	1,060	469,000
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
December	144	47	16,500	61	20	8,350	325	106	34,600
January–December	1,800	589	243,000	617	202	87,500	3,320	1,080	413,000

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

²May include other countries not listed.

³Declared customs valuation.

TABLE 4
U.S. EXPORTS OF SULFUR AND SULFURIC ACID¹

(Thousand metric tons and thousand dollars)

Period	Sulfur		Sulfuric acid		
	Quantity	Value ²	Quantity	Sulfur content	Value ²
2022:					
January–December	1,740	479,000	377	123	36,800
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
December	102	12,400	12	4	1,810
January–December	1,910	241,000	197	64	38,200

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

²Declared 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 SULFUR¹

(Thousand metric tons)

Period	Domestic sources ²	Imports	Consumption
2022:			
January–December	6,250	1,670	7,920
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	552 ^r	177	729 ^r
August	393 ^r	127	520 ^r
September	528 ^r	112	640 ^r
October	403 ^r	122 ^e	525 ^{r,e}
November	466 ^r	121 ^e	587 ^{r,e}
December ^p	592	121 ^e	712 ^e
January–December	6,110	1,460 ^e	7,570 ^e

^eEstimated. ^pPreliminary. ^rRevised.

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

²Calculated as shipments minus exports.

TABLE 6
RECOVERED SULFUR PRODUCED AND SHIPPED IN THE UNITED STATES,
BY PAD (PETROLEUM ADMINISTRATION FOR DEFENSE) DISTRICT¹

(Thousand metric tons)

District and source	January–December 2022 ²		November 2023		December 2023 ^p		January–December 2023 ^{p, 2}	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
PAD 1:								
Petroleum and coke	194	193	15	16	15	14	162	162
Natural gas	13	13	1	1	1	1	13	13
Total	207	207	16	17	16	15	175	175
PAD 2:								
Petroleum and coke	1,380	1,380	111	110	122	121	1,380	1,370
Natural gas	--	--	--	--	--	--	--	--
Total	1,380	1,380	111	110	122	121	1,380	1,370
PAD 3:								
Petroleum and coke	4,550	4,540	396	390	411	408	4,710	4,710
Natural gas	92	88	6	5	6	6	69	70
Total	4,650	4,630	402	396	416	414	4,780	4,780
PAD 4 and 5:								
Petroleum and coke	1,370	1,370	105 ^r	107 ^r	114	111	1,350	1,350
Natural gas	410	418	37	33	33	33	339	337
Total	1,780	1,780	142 ^r	140 ^r	148	144	1,690	1,690
Grand total	8,010	7,990	671 ^r	663 ^r	703	694	8,020	8,020

^pPreliminary. ^rRevised. -- Zero.

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

²May include revisions to previously published data.

TABLE 7
COMPARATIVE SULFUR AND SULFURIC ACID STATISTICS¹

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

	2022	November	December	January– December
Production	8.01	8.16 ^r	8.28 ^p	8.02
Shipments	7.99	8.06 ^r	8.17 ^p	8.02
Exports of sulfur	1.74	2.39	1.20	1.91
Imports of sulfur:				
Canada	1.49	1.46	1.41	1.34
Total ²	1.67	1.47	1.42	1.46
Exports of H ₂ SO ₄	0.38	0.18	0.14	0.20
Imports of H ₂ SO ₄ :				
Canada	1.82	1.54	1.70	1.80
Mexico	0.72	0.61	0.72	0.62
Total ²	3.23	2.91	3.82	3.32
Consumption:				
Domestic sources	6.25	5.67 ^r	6.97	6.11
Imports	1.67	1.47	1.42	1.46
Total	7.92	7.14 ^r	8.39	7.57
Sulfur export values ³	275	118	121	126
Sulfur import values: ³				
Canada	190	66	72	82
Average ³	203	73	80	95
H ₂ SO ₄ export values ³	98	170	155	194
H ₂ SO ₄ import values: ³				
Canada	95	116	115	135
Mexico	195	139	136	142
Average ²	145	116	107	124

^pPreliminary. ^rRevised.

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

²Includes other countries not listed.

³Average value per ton.