

Mineral Industry Surveys

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SULFUR IN MARCH 2023

During March 2023, production of recovered elemental sulfur was 681,000 metric tons (t), which was 8% higher than that in February 2023 and slightly higher than that in March 2022. Total production for January through March was 1.98 million metric tons (Mt), which was 3% higher than that in the same period of 2022. Shipments in March 2023 were 691,000 t, which was 9% higher than the revised amount in February 2023 and 4% higher than that in March 2022. Total shipments for January through March were 2.00 Mt, which were 4% higher than those in the same period of 2022. Producers' ending stocks for March 2023 were 104,000 t (table 1).

Imports of recovered sulfur in March 2023 were estimated to be 101,000 t; exports were 177,000 t. Total imports of recovered sulfur for January through March were estimated to be 346,000 t, which were 38% lower than those in the same period of 2022. Total exports of recovered sulfur for January through March were 537,000 t, which were 72% higher than those in the same period of 2022 (tables 2, 4).

Imports of sulfuric acid in March 2023 were 236,000 t; exports were 19,000 t. Total imports for January through March

were 746,000 t, which were 6% lower than those in the same period of 2022. Total exports of sulfuric acid for January through March were 253,000 t, which were about 5.8 times greater than those in the same period of 2022 (tables 3, 4).

U.S. sulfur consumption, calculated as shipments minus exports plus imports, was estimated to be 615,000 t in March 2023. This was 4% higher than the revised amount in February 2023 and 23% lower than that in March 2022. Total consumption for January through March was estimated to be 1.80 Mt, which was 16% lower than that in the same period of 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	7,500	504	8,000	7,990	125
January–March	1,790	126	1,920	1,910	115 ^r
March	623	44	668	665	115
April	613	40	653	652	116
May	636	33	670	665	121
June	640	34	674	682	112
July	651	47	697	688	122
August	651	48	699	707	114
September	623	43	666	661	119
October	629	45	673	671	121
November	650	45	696	691	126
December	615	43	658	659	125
2023:					
January	621 ^r	45	666 ^r	674 ^r	117
February	587 ^r	42	629	631 ^r	114 ^r
March ^p	636	45	681	691	104
January–March	1,840	131	1,970	2,000	104

^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
January–March	394 ^r	66,800	557 ^r	113,000
March	144	26,900	197	43,700
April	146	23,300	147	24,400
May	141	32,800	141	33,800
June	144	37,300	146	38,500
July	145	43,900	146	44,800
August	151	35,800	152	36,500
September	85	11,200	86	12,100
October	85	12,100	87	13,100
November	98	9,360	98	10,000
December	106	10,400	106	11,300
2023:				
January	100 ^e	9,850	101 ^e	10,600
February	90 ^e	10,900	144 ^e	20,800
March	100 ^e	10,300	101 ^e	11,300
January–March	290 ^e	31,050	346 ^e	42,700

^eEstimated. ^rRevised.

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
January–March	448	146	26,200	210	69	41,300	794	260	99,600
March	168	55	10,100	104	34	22,100	328	107	45,200
April	153	50	13,300	67	22	13,600	360	118	54,700
May	163	53	14,500	55	18	11,800	249	81	36,400
June	153	50	14,500	69	23	14,200	254	83	39,600
July	154	50	17,400	66	22	14,400	266	87	45,700
August	167	55	19,400	53	17	10,100	300	98	45,500
September	149	49	17,200	44	14	7,770	269	88	41,500
October	149	49	18,100	45	15	7,580	223	73	33,400
November	142	46	16,600	37	12	7,050	213	70	30,000
December	140	46	16,200	74	24	12,600	302	99	42,100
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
January–March	448	146	74,800	176	58	25,600	746	244	118,000

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.

Source: U.S. Census Bureau.

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	504,000	607	199	36,600
January–March	313	74,700	44	14	5,030
March	68	22,000	22	7	2,660
April	170	67,900	36	12	5,200
May	113	43,500	29	9	3,840
June	132	63,800	16	5	2,230
July	193	87,500	21	7	2,920
August	136	39,600	17	6	2,760
September	166	22,900	68	22	2,710
October	244	59,600	54	18	4,140
November	132	27,100	51	17	3,540
December	139	17,600	272	89	4,290
2023:					
January	176	23,100	222	73	3,650
February	185	27,300	13	4	3,620
March	177	30,900	19	6	2,920
January–March	537	81,300	253	83	10,200

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

²Declared f.a.s. (free alongside ship) valuation.

Source: U.S. Census Bureau.

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
January–March	1,600	557 ^r	2,160
March	597	197	794
April	481	147	628
May	552	141	694
June	550	146	695
July	495	146	640
August	571	152	722
September	494	86	580
October	427	87	514
November	559	98	657
December	520	106	626
2023:			
January	498 ^r	101 ^e	599 ^{r,e}
February	446 ^r	144 ^e	590 ^{r,e}
March ^p	514	101 ^e	615 ^e
January–March	1,460	346 ^e	1,800 ^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–March 2022 ²		February 2023		March 2023 ^p		January–March 2023 ^{p, 2}	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
PAD 1:								
Petroleum and coke	44	45	14	13	13	13	41	41
Natural gas	3	3	1	1	1	1	3	3
Total	47	49	15	15	14	14	44	44
PAD 2:								
Petroleum and coke	367	366	111	112	117	120	347	350
Natural gas	--	--	--	--	--	--	--	--
Total	367	366	111	112	117	120	347	350
PAD 3:								
Petroleum and coke	1,040	1,030	357 ^r	359	391	396	1,120	1,140
Natural gas	16	15	7	7	7	7	22	22
Total	1,060	1,050	364 ^r	366	399	404	1,140	1,160
PAD 4 and 5:								
Petroleum and coke	339	343	105 ^r	104 ^r	114	117	336	339
Natural gas	107	108	33	34	36	37	106	105
Total	446	452	138 ^r	138 ^r	150	154	441	444
Grand total	1,920	1,910	629	631 ^r	681	691	1,970	2,000

^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)

	2023			
	2022	February	March	January– March
Production	8.00	8.19	8.02 ^P	8.01
Shipments	7.99	8.23 ^r	8.13 ^P	8.09
Exports of sulfur	1.74	2.41	2.08	2.18
Imports of sulfur:				
Canada	1.49	1.17	1.18	1.18
Total ²	1.67	1.87	1.19	1.40
Exports of H ₂ SO ₄	0.61	0.17	0.22	1.03
Imports of H ₂ SO ₄ :				
Canada	1.82	2.05	1.70	1.82
Mexico	0.72	0.62	0.82	0.71
Total ²	3.23	3.09	2.77	3.02
Consumption:				
Domestic sources	6.25	5.82 ^r	6.06	5.92
Imports	1.67	1.87	1.19	1.40
Total	7.92	7.69 ^r	7.25	7.32
Sulfur export values ³	290	148	175	151
Sulfur import values: ³				
Canada	190	121	103	107
Average ³	203	145	113	124
H ₂ SO ₄ export values ³	60	283	156	40
H ₂ SO ₄ import values: ³				
Canada	95	171	172	167
Mexico	195	155	120	145
Average ²	145	155	153	158

^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.