

Mineral Industry Surveys

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SULFUR IN OCTOBER 2023

During October 2023, production of recovered elemental sulfur was 649,000 metric tons (t), which was unchanged from that in September 2023 and 4% lower than that in October 2022. Total production for January through October was 6.65 million metric tons (Mt), which was unchanged from that in the same period of 2022. Shipments in October 2023 were 641,000 t, which was slightly lower than that in September 2023 and 4% lower from that in October 2022. Total shipments for January through October were 6.67 Mt, which were unchanged from the revised amount in the same period of 2022. Producers' ending stocks for October 2023 were 105,000 t (table 1).

Imports of recovered sulfur in October 2023 were estimated to be 122,000 t; exports were 236,000 t. Total imports of recovered sulfur for January through October were estimated to be 1.22 Mt, which were 17% lower than those in the same period of 2022. Total exports of recovered sulfur for January through October were 1.61 Mt, which were 11% higher than those in the same period of 2022 (tables 2, 4).

Imports of sulfuric acid in October 2023 were 235,000 t; exports were 11,000 t. Total imports for January through

October were 2.75 Mt, which were essentially unchanged from those in the same period of 2022. Total exports of sulfuric acid for January through October were 170,000 t, which were 41% 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 525,000 t in October 2023. This was 18% lower than that in September 2023 and 3% lower than that in October 2022. Total consumption for January through October was 6.27 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 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
January–October	6,230	427 ^r	6,650	6,650 ^r	121
October	629	45	673	671	121
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	652	98
October ^p	621	27	649	641	105
January–October	6,310	338	6,650	6,670	105

^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–October	1,290 ^r	263,000	1,460 ^r	317,000
October	85	12,100	87	13,000
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 ^e	7,130	122 ^e	8,720
January–October	1,100 ^e	93,900	1,220 ^e	120,000

^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–October	1,540	502	140,000	609	199	121,000	2,720	888	396,000
October	149	49	18,100	45	15	7,580	223	73	33,400
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
January–October	1,530	500	212,000	506	165	72,200	2,750	900	350,000

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
January–October	1,440 ^r	443,000 ^r	286 ^r	94 ^r	28,900 ^r
October	219	37,000	54	18	4,130
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
January–October	1,610	205,000	170	56	33,900

^rRevised.

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
January–October	5,200 ^r	1,460 ^r	6,660 ^r
October	453	87	540
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	528	112	639
October ^p	405	122 ^e	525 ^e
January–October	5,060	1,220 ^e	6,270 ^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–October 2022 ²		September 2023 ^P		October 2023 ^P		January–October 2023 ^{P, 2}	
	Production	Shipments	Production	Shipments	Production	Shipments	Production	Shipments
PAD 1:								
Petroleum and coke	161	159	16	15	15	15	131	133
Natural gas	11	11	1	1	1	1	11	11
Total	172	170	17	17	17	16	142	144
PAD 2:								
Petroleum and coke	1,150	1,150	115	115	115	114	1,140	1,140
Natural gas	--	--	--	--	--	--	--	--
Total	1,150	1,150	115	115	115	114	1,140	1,140
PAD 3:								
Petroleum and coke	3,780	3,770	381	388	378	371	3,900	3,910
Natural gas	77	73	6	6	6	6	58	59
Total	3,860	3,850	387	394	384	377	3,960	3,970
PAD 4 and 5:								
Petroleum and coke	1,130	1,130	116	114	113	112	1,130	1,140
Natural gas	339	344	16	13	20	21	269	272
Total	1,470	1,480	132	127	133	133	1,400	1,410
Grand total	6,650	6,650	651	652	649	641	6,650	6,670

^PPreliminary. -- 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	2023		
		September	October	January– October
Production	8.01	7.92	7.64 ^P	7.98
Shipments	7.99	7.94	7.55 ^P	8.00
Exports of sulfur	1.74	1.52	2.78	1.93
Imports of sulfur:				
Canada	1.49	1.35	1.41	1.32
Total ²	1.67	1.36	1.43	1.46
Exports of H ₂ SO ₄	0.38	0.35	0.14	0.20
Imports of H ₂ SO ₄ :				
Canada	1.82	1.84	1.58	1.84
Mexico	0.72	0.69	0.30	0.61
Total ²	3.23	3.50	2.77	3.30
Consumption:				
Domestic sources	6.25	6.42	4.76	6.07
Imports	1.67	1.36	1.43	1.46
Total	7.92	7.77	6.18	7.53
Sulfur export values ³	275	72	99	128
Sulfur import values: ³				
Canada	190	57	59	85
Average ³	203	66	72	99
H ₂ SO ₄ export values ³	98	228	174	199
H ₂ SO ₄ import values: ³				
Canada	95	127	116	138
Mexico	195	141	236	143
Average ²	145	122	117	127

^PPreliminary.

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.