

SODIUM SULFATE

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: The domestic natural sodium sulfate industry consisted of two producers operating a total of two plants in California and Texas. Total production of natural and synthetic sodium sulfate decreased an estimated 5% compared with that of 1997. Approximately 47% of total production was a byproduct from facilities that manufacture rayon and various chemicals. The total value of natural and synthetic sodium sulfate sold was an estimated \$55 million.

Estimates of U.S. sodium sulfate consumption by end use were soap and detergents, 45%; textiles, 18%; pulp and paper, 13%; glass, 10%; and miscellaneous, 14%.

Salient Statistics—United States:	1994	1995	1996	1997	1998^e
Production: Natural	298	327	306	318	290
Synthetic ¹	293	318	296	262	260
Total	591	645	602	580	550
Imports for consumption	190	206	177	150	140
Exports	65	66	86	86	85
Consumption, apparent (natural and synthetic)	724	803	690	636	598
Price: Quoted, sodium sulfate (100% Na ₂ SO ₄), bulk, f.o.b. works, East, dollars per short ton	114.00	114.00	114.00	114.00	114.00
Average sales value (natural source), f.o.b. mine or plant, dollars per metric ton	81.25	84.55	88.90	109.13	100.00
Stocks, producer, yearend, natural	34	16	19	26	33
Employment, well and plant, number	240	240	240	240	240
Net import reliance ² as a percent of apparent consumption	18	17	13	9	8

Recycling: There was some recycling of sodium sulfate by consumers, particularly in the pulp and paper industry, but no recycling by sodium sulfate producers.

Import Sources (1994-97): Canada, 95%; Mexico, 4%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations (NTR) 12/31/98	Non-NTR³ 12/31/98
Disodium sulfate:			
Saltcake (crude)	2833.11.1000	Free	Free.
Other	2833.11.5000	0.4% ad val.	3.6% ad val.
Anhydrous	2833.11.5010	0.4% ad val.	3.6% ad val.
Other	2833.11.5050	0.4% ad val.	3.6% ad val.

Depletion Allowance: 14% (Domestic), 14% (Foreign); for natural only.

Government Stockpile: None.

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Events, Trends, and Issues: Economic problems in Asia reduced sodium sulfate exports to several countries in Asia and Australia. The decline in the domestic textile industry, with U.S. textile manufacturers moving overseas because of cheaper labor costs and imports of inexpensive clothing, resulted in a decrease in sodium sulfate consumption. Sodium sulfate production in Mexico increased slightly because of an increase in textile production and detergent manufacturing that consume large quantities of product.

In the United States, the use of sodium sulfate as a filler in powdered home laundry detergents remained the major consuming sector. About one-half of all detergents sold in the country are powdered and the remainder are liquid, which are growing at a faster rate than the powdered. Although some liquids contained some sodium sulfate in their formulations, automatic dishwasher liquid detergents are now competing with a tablet form of detergent that does not use any sodium sulfate.

The outlook for sodium sulfate in 1999 is forecast to be slightly lower than that for 1998, with detergents remaining the largest sodium sulfate-consuming sector. World production and consumption of sodium sulfate are expected to grow in the next few years, especially in Asia and South America.

World Production, Reserves, and Reserve Base:

	Production		Reserves ⁴	Reserve base ⁴
	1997	1998 ^e		
Natural:				
United States	318	290	860,000	1,400,000
Argentina	15	15	NA	NA
Canada	305	290	84,000	270,000
China	1,450	1,500	NA	NA
Iran	280	280	NA	NA
Mexico	525	550	170,000	230,000
Spain	600	615	180,000	270,000
Turkey	300	290	100,000	NA
Turkmenistan ⁵	100	75	NA	200
Other countries	97	50	100,000	200,000
World total, natural (may be rounded)	3,990	3,960	⁶ 3,300,000	⁷ 4,600,000
World total, synthetic (rounded)	1,530	1,600	—	—
World total (may be rounded)	5,520	5,600	—	—

World Resources: Sodium sulfate resources are sufficient to last hundreds of years at the present rate of world consumption. In addition to the countries listed in World Production, the following countries also contain identified resources of sodium sulfate: Botswana, China, Egypt, Italy, Mongolia, Romania, and South Africa. Commercial production from domestic resources is from deposits in California and Texas. The brine in Searles Lake, CA, contains about 450 million metric tons of sodium sulfate resource, representing about 35% of the lake brine. In Utah, about 12% of the dissolved salts in the Great Salt Lake is sodium sulfate, representing about 400 million tons of resource. An irregular, 21-meter-thick mirabilite deposit is associated with clay beds 4.5 to 9.1 meters below the lake bottom near Promontory Point, UT. Several playa lakes in west Texas contain underground sodium sulfate-bearing brines and crystalline material. Other economic and subeconomic deposits of sodium sulfate are near Rhodes Marsh, NV; Grenora, ND; Okanogan County, WA; and Bull Lake, WY. Sodium sulfate can also be obtained as a byproduct from the production of ascorbic acid, boric acid, cellulose, chromium chemicals, lithium carbonate, rayon, resorcinol, and silica pigments. The quantity and availability of byproduct sodium sulfate are dependent on the production capabilities of the primary industries and the sulfate recovery rates.

Substitutes: In pulp and paper, emulsified sulfur and caustic soda (sodium hydroxide) can replace sodium sulfate. In detergents, a variety of products can substitute for sodium sulfate. In glassmaking, soda ash and calcium sulfate have been substituted for sodium sulfate with less-than-perfect results.

^eEstimated. NA Not available.

¹Source: Bureau of the Census. Synthetic production data are revised in accordance with recent updated Census statistics.

²Defined as imports - exports + adjustments for Government and industry stock changes.

³See Appendix B.

⁴See Appendix D for definitions.

⁵Part of the Former Soviet Union. Data are inadequate to formulate reliable estimates for individual countries of the Former Soviet Union.

⁶Excludes Argentina, China, Iran, and Turkmenistan. Includes nonproducing nations.

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