

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 two plants in California and Texas. Fifteen companies operating 17 plants in 15 States recovered byproduct sodium sulfate from various manufacturing processes, including ascorbic acid, battery reclamation, cellulose, rayon, and silica pigments. More than one-half of total production was as byproduct from these facilities. 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:

	1996	1997	1998	1999	2000^e
Production: Total (natural and synthetic) ¹	602	640	571	599	525
Imports for consumption	177	150	110	87	80
Exports	86	86	90	137	125
Consumption, apparent (natural and synthetic)	690	697	591	549	480
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
Employment, well and plant, number ^e	225	225	225	225	225
Net import reliance ² as a percent of apparent consumption	13	9	3	E	E

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 (1996-99): Canada, 95%; Mexico, 4%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations 12/31/00
Disodium sulfate:		
Saltcake (crude)	2833.11.1000	Free.
Other:	2833.11.5000	0.4% ad val.
Anhydrous	2833.11.5010	0.4% ad val.
Other	2833.11.5050	0.4% ad val.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

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Events, Trends, and Issues: In July, a petition for the imposition of an antidumping duty on imports of anhydrous sodium sulfate from Canada was filed with the U.S. International Trade Commission (USITC) by the two U.S. natural sodium sulfate companies. The petitioners claimed that the imported Canadian product was sold at less than fair market value and at prices lower than the Canadian producers' cost of production. The domestic producers cited that the low-priced product adversely affected their sales to domestic customers. In August, the USITC issued its determination that there was no reasonable indication that imported anhydrous sodium sulfate from Canada materially injured or threatened the U.S. sodium sulfate industry.

A Canadian-based mining company announced details of its plans to construct an iodine heap-leaching facility in Chile that would also produce potassium nitrate and sodium sulfate. The first phase of the proposed project at Aguas Blancas was scheduled to come on-stream in the first quarter of 2001. Production of sodium sulfate will begin in the project's third phase of development, which may be as late as 2007. Because of the reduced demand for sodium sulfate during the past 2 years, the company intended to wait until the demand for sodium sulfate in developing countries improved. Once in operation, the facility will have an annual capacity of 300,000 tons and be one of the lowest-cost producers in the world.

Sodium sulfate production and consumption in 2001 is expected to be slightly lower than that for 2000, with detergents remaining the largest sodium sulfate-consuming sector. World production and consumption of sodium sulfate have been stagnant but are expected to grow in the next few years, especially in Asia and South America.

World Production, Reserves, and Reserve Base: Although data on mine production for natural sodium sulfate are not available, total world production of natural sodium sulfate is estimated to be about 4 million tons. Total world production of byproduct sodium sulfate is estimated between 1.5 million and 2.0 million tons.

	Reserves³	Reserve base³
Natural:		
United States	860,000	1,400,000
Canada	84,000	270,000
Mexico	170,000	230,000
Spain	180,000	270,000
Turkey	100,000	NA
Other countries	<u>100,000</u>	<u>200,000</u>
World total, natural (rounded)	3,300,000	4,600,000

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 above with reserves, 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 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 effective results.

¹Estimated. E Net exporter. NA Not available.

²Source: U.S. Census Bureau. Synthetic production data are revised in accordance with recent updated Census statistics.

³Defined as imports - exports + adjustments for Government and industry stock changes (if available).

³See Appendix C for definitions.