SULFUR

(Data in thousand metric tons of sulfur unless otherwise noted)

Domestic Production and Use: In 2006, elemental sulfur and byproduct sulfuric acid were produced at 113 operations in 29 States and the U.S. Virgin Islands. Total shipments were valued at about $320 million. Elemental sulfur production was 8.5 million tons; Louisiana and Texas accounted for about 45% of domestic production. Elemental sulfur was recovered at petroleum refineries, natural-gas-processing plants, and coking plants by 42 companies at 107 plants in 26 States and the U.S. Virgin Islands. Byproduct sulfuric acid, representing about 8% of production of sulfur in all forms, was recovered at six nonferrous smelters in five States by six companies. Domestic elemental sulfur provided 62% of domestic consumption, and byproduct acid accounted for 5%. The remaining 33% of sulfur consumed was provided by imported sulfur and sulfuric acid. About 90% of sulfur was consumed in the form of sulfuric acid. Agricultural chemicals (primarily fertilizers) composed 62% of reported sulfur demand; petroleum refining, 26%; and metal mining, 3%. Other uses, accounting for 9% of demand, were widespread because a multitude of industrial products required sulfur in one form or another during some stage of their manufacture.

Salient Statistics—United States:	**2002**	**2003**	**2004**	**2005**	**2006[e]**
Production:					
Recovered elemental	8,500	8,920	9,380	8,750	8,500
Other forms	772	683	739	711	740
Total (may be rounded)	9,270	9,600	10,100	9,460	9,240
Shipments, all forms	9,260	9,600	10,100	9,430	9,200
Imports for consumption:					
Recovered, elemental[e]	2,560	2,870	2,850	2,820	3,100
Sulfuric acid, sulfur content	346	297	784	877	900
Exports:					
Recovered, elemental	709	840	949	684	700
Sulfuric acid, sulfur content	48	67	67	110	100
Consumption, apparent, all forms	11,400	12,000	12,800	12,300	12,400
Price, reported average value, dollars per ton of elemental sulfur, f.o.b., mine and/or plant	11.84	28.71	32.50	30.92	28.00
Stocks, producer, yearend	181	206	185	160	180
Employment, mine and/or plant, number	2,700	2,700	2,700	2,700	2,700
Net import reliance[1] as a percentage of apparent consumption	19	20	21	24	26

Recycling: Between 3 million and 5 million tons of spent sulfuric acid was reclaimed from petroleum refining and chemical processes.

Import Sources (2002-05): Elemental: Canada, 72%; Mexico, 18%; Venezuela, 7%; and other, 3%. Sulfuric acid: Canada, 71%; Mexico, 13%; Germany, 4%; and other, 12%. Total sulfur imports: Canada, 72%; Mexico, 17%; Venezuela, 6%; and other, 5%.

Tariff: Item	**Number**	**Normal Trade Relations 12-31-06**
Sulfur, crude or unrefined	2503.00.0010	Free.
Sulfur, all kinds, other	2503.00.0090	Free.
Sulfur, sublimed or precipitated	2802.00.0000	Free.
Sulfuric acid	2807.00.0000	Free.

Depletion Allowance: 22% (Domestic and foreign).

Government Stockpile: None.

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SULFUR

Events, Trends, and Issues: Total U.S. sulfur production was slightly lower in 2006 than it was in 2005 because of slow recovery from the two hurricanes that hit the Gulf Coast region in 2005 and complete implementation of an acid-gas reinjection project at a major natural-gas-processing plant in Wyoming. Decreased production of elemental sulfur from petroleum refineries is not expected to establish a new trend, but rather a temporary downturn. Recovery from refineries is expected to return to normal early in 2006 and to resume its upward trend, supported by new facilities being installed to increase refining capacity and the capability of current operations to handle higher sulfur crude oil. Recovered sulfur from domestic natural gas processing is expected to decline as a result of the natural depletion of some large natural gas deposits and projects to reinject acid gas. Byproduct sulfuric acid production is expected to remain relatively stable unless one or more of the remaining nonferrous smelters closes. World sulfur production did not change because the decreased production in the United States countered increases in other parts of the world.

Domestic phosphate rock consumption was 15% lower in 2006 than in 2005, which resulted in decreased demand for sulfur to process the phosphate rock into phosphate fertilizers. Worldwide sulfur prices decreased from the high levels seen in 2005, although they remained relatively strong compared to recent history. Some Canadian sulfur stocks were remelted to meet increased demand for overseas trade, while material in areas less accessible to markets was stockpiled.

World Production, Reserves, and Reserve Base:

	Production—All forms		Reserves and reserve base[2]
	2005	2006[e]	
United States	9,460	9,240	Previously published reserves and reserve base data are outdated and inadequate for this tabulation because of changes in the world sulfur industry. For this reason, specific country data have been omitted from this report.
Australia	1,010	1,000	
Canada	8,973	9,000	
Chile	1,660	1,700	
China	7,710	7,800	
Finland	720	750	
France	945	930	
Germany	2,520	2,500	Reserves of sulfur in crude oil, natural gas, and sulfide ores are large. Because most sulfur production is a result of the processing of fossil fuels, supplies should be adequate for the foreseeable future. Because petroleum and sulfide ores can be processed long distances from where they are produced, actual sulfur production may not be in the country for which the reserves were attributed. For instance, sulfur from Saudi Arabian oil actually may be recovered at refineries in the United States.
India	1,130	1,200	
Iran	1,460	1,500	
Italy	685	680	
Japan	3,260	3,300	
Kazakhstan	2,030	2,500	
Korea, Republic of	1,690	1,700	
Kuwait	700	700	
Mexico	1,717	1,600	
Netherlands	535	550	
Poland	1,220	800	
Russia	6,950	7,000	
Saudi Arabia	2,300	2,300	
South Africa	793	650	
Spain	616	600	
United Arab Emirates	1,950	2,000	
Uzbekistan	520	500	
Venezuela	800	800	
Other countries	4,660	4,800	
World total (rounded)	66,000	66,000	

World Resources: Resources of elemental sulfur in evaporite and volcanic deposits and sulfur associated with natural gas, petroleum, tar sands, and metal sulfides amount to about 5 billion tons. The sulfur in gypsum and anhydrite is almost limitless, and some 600 billion tons is contained in coal, oil shale, and shale rich in organic matter, but low-cost methods have not been developed to recover sulfur from these sources. The domestic resource is about one-fifth of the world total.

Substitutes: Substitutes for sulfur at present or anticipated price levels are not satisfactory; some acids, in certain applications, may be substituted for sulfuric acid.

[e]Estimated.
[1]Defined as imports – exports + adjustments for Government and industry stock changes.
[2]See Appendix C for definitions.