

NITROGEN (FIXED)—AMMONIA

(Data in thousand metric tons of nitrogen, unless otherwise noted)

Domestic Production and Use: Ammonia was produced by 24 companies at 39 plants in the United States during 2000. High natural gas prices led to extended shutdowns at some plants during the year, and, as a result, U.S. ammonia producers operated significantly below rated capacity. Fifty-seven percent of total U.S. ammonia production capacity was centered in Louisiana, Oklahoma, and Texas because of their large reserves of natural gas, the dominant domestic feedstock. The United States remained the world's second largest ammonia producer and consumer following China. Urea, ammonium phosphates, ammonium nitrate, nitric acid, and ammonium sulfate were the major derivatives of ammonia in the United States, in descending order of importance.

Approximately 88% of U.S. apparent domestic ammonia consumption was for fertilizer use, including anhydrous ammonia for direct application, urea, ammonium nitrates, ammonium phosphates, and other nitrogen compounds. Ammonia was also used to produce plastics, synthetic fibers and resins, explosives, and numerous other chemical compounds.

Salient Statistics—United States: ¹	1996	1997	1998	1999	2000^e
Production ²	13,400	13,300	13,800	12,900	13,000
Imports for consumption	3,390	3,530	3,460	3,890	4,000
Exports	435	395	614	562	500
Consumption, apparent	16,400	15,800	17,100	16,300	16,500
Stocks, producer, yearend	881	1,530	³ 1,050	³ 996	1,000
Price, dollars per ton, average, f.o.b. Gulf Coast ³	190	173	121	109	170
Employment, plant, number ^e	2,500	2,500	2,500	2,200	2,000
Net import reliance ⁴ as a percent of apparent consumption	19	16	19	21	21

Recycling: None.

Import Sources (1996-99): Trinidad and Tobago, 56%; Canada, 34%; Mexico, 5%; Venezuela, 1%; and other, 4%. In addition, the United States imports significant quantities of ammonia from Russia and Ukraine, but the U.S. Census Bureau quantity data are suppressed, so these data are not included in the calculation of import sources.

Tariff: Item	Number	Normal Trade Relations 12/31/00
Ammonia, anhydrous	2814.10.0000	Free.
Ammonia, aqueous	2814.20.0000	Free.
Urea	3102.10.0000	Free.
Ammonium sulfate	3102.21.0000	Free.
Ammonium nitrate	3102.30.0000	Free.

Depletion Allowance: Not applicable.

Government Stockpile: None.

Events, Trends, and Issues: Escalating natural gas prices led to a corresponding increase in ammonia prices at the beginning of the year. Between mid-February and the beginning of May, U.S. Gulf Coast ammonia prices rose by about \$60 per short ton to reach \$176 per short ton; the price continued to climb and reached more than \$200 per short ton by mid-October. The high cost of natural gas feedstock pushed production costs at some U.S. ammonia plants higher than the ammonia selling price. As a result, some plants, or parts of plants, were closed during part of the year, mostly during the summer months. In June and July portions of plants in Cherokee, AL, Pollack, LA, Yazoo City, MS, and Verdigris, OK, were closed. A 364,000-ton-per-year plant in Geismar, LA, was closed in July, and the company planned to scrap the facility because ammonia did not fit with its core business. A May explosion at an ammonia plant in Donaldsonville, LA, and a July explosion at a plant in Lawrence, KS, idled parts of these facilities for the rest of the year.

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New ammonia capacity came on-stream in Argentina, Egypt, Indonesia, Malaysia, Saudi Arabia, and Venezuela in 2000; one plant in the Netherlands closed. In addition to the new capacity already under construction, plans for new ammonia plants in Algeria, Australia, Egypt, Oman, and Trinidad and Tobago were announced.

In May, the U.S. Department of Commerce reached a suspension agreement with the Ministry of Trade of the Russian Federation regarding ammonium nitrate. Under terms of the agreement, Russia can continue to export specific quotas of ammonium nitrate to the United States, and a minimum price for the U.S. imports was set. The suspension agreement avoids the imposition of a dumping duty of 253.98% ad valorem on imports of ammonium nitrate from Russia. In October, U.S. ammonium nitrate producers filed an antidumping petition with the International Trade Commission claiming that because of the suspension agreement with Russia, ammonium nitrate importers were shifting to material from Ukraine, and this material was injuring U.S. producers.

The President signed Public Law 106-286 granting permanent normal trade relations to China, which paves the way for China to join the World Trade Organization (WTO). The WTO accession agreement includes a separately negotiated fertilizer trade agreement. This fertilizer agreement establishes a tariff rate quota for urea and diammonium phosphate and expands the channels that can be used to import fertilizers into China. This could provide additional markets for U.S. fertilizer producers and would eliminate China's moratorium on imports of urea, which has been in effect since 1997.

Nitrogen compounds are also an environmental concern. Overfertilization and the subsequent runoff of excess fertilizer may contribute to nitrogen accumulation in watersheds. Nitrogen in excess fertilizer runoff has been theorized to be a cause of the hypoxic zone that occurs in the Gulf of Mexico during the summer. Scientists continue to study the effects of fertilization on the Nation's environmental health.

World Ammonia Production, Reserves, and Reserve Base:

	Plant production		Reserves and reserve base ⁵
	1999	2000 ^e	
United States	12,900	13,000	Available atmospheric nitrogen and sources of natural gas for production of ammonia are considered adequate for all listed countries.
Canada	4,140	4,200	
China	28,400	28,000	
Egypt	1,410	1,500	
France	1,570	1,500	
Germany	2,410	2,500	
India	10,400	9,200	
Indonesia	3,700	4,100	
Netherlands	2,430	2,400	
Pakistan	2,000	2,000	
Russia	7,630	6,000	
Saudi Arabia	1,400	1,600	
Trinidad and Tobago	2,720	2,300	
Ukraine	3,710	3,300	
Other countries	<u>22,900</u>	<u>22,400</u>	
World total (rounded)	108,000	104,000	

World Resources: The availability of nitrogen from the atmosphere for fixed nitrogen production is unlimited. Mineralized occurrences of sodium and potassium nitrates, found in the Atacama Desert of Chile, contribute minimally to global nitrogen demand.

Substitutes: Nitrogen is an essential plant nutrient that has no substitute. Also, there are no known practical substitutes for nitrogen explosives and blasting agents.

^eEstimated.

¹U.S. Department of Commerce (DOC) data unless otherwise noted.

²Annual and preliminary data as reported in Current Industrial Reports MA325B and MQ325B (DOC).

³Source: Green Markets.

⁴Defined as imports - exports + adjustments for Government and industry stock changes.

⁵See Appendix C for definitions.