



U.S. Department of the Interior • Bureau of Mines

MINERAL INDUSTRY SURVEYS

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Explosives, Annual

APPARENT CONSUMPTION OF INDUSTRIAL EXPLOSIVES AND BLASTING AGENTS IN THE UNITED STATES, 1989

U.S. manufacturers of industrial explosives and blasting agents reported total sales of 4.81 billion pounds in 1989, indicative of 1.5% annual growth in apparent domestic consumption, according to the Bureau of Mines, U.S. Department of the Interior. Apparent domestic consumption refers to domestic sales of intermediate and processed explosives products by U.S. manufacturers.

Unprocessed ammonium nitrate, ammonium nitrate-fuel oil (ANFO) and "water gels and slurries" rose 1.8% to a total of 4.64 billion pounds in 1989, and accounted for about 97% of apparent U.S. explosives demand. Unprocessed ammonium nitrate was up 7%, while ANFO and "water gels and slurries" fell 12% and 2%, respectively. Apparent demand for high explosives continued to trend downwards; "other high explosives" fell 7%, while permissibles declined by a precipitous 18%.

Explosives sales by consuming industries in 1988-89 were estimated as shown in table 2. Correlation patterns between explosives sales and end use sectors were developed from Bureau of Mines time series data and leading indicators of industrial production and economics as reported by the Department of Energy, Federal Reserve Board, Department of Transportation and Bureau of the Census.¹

Coal mining has typically accounted for about 65% of U.S. explosives consumption, quarrying and nonmetal mining 15%, metal mining 10%, construction work 6%-7%, and miscellaneous use, 3%-4%. According to available industrial indicators, coal output increased 3% in 1989, metal mining 15%, nonmetal mining 7%, and construction work, 2%.

Nine States were collectively responsible for between 62%-63% of all explosives and blasting agents consumed in the United States in 1989. Kentucky accounted for 17% of total consumption, followed by West Virginia, 10%; Pennsylvania, Indiana, Ohio, and Wyoming, 6% each; and Alabama, Nevada, and Arizona, 4% each.

^{1/} The publication of explosives demand by consuming industries on a State-by-State basis was discontinued in 1988 because of a significant decline in the responses of those canvassed.

El Dorado Chemical Co. purchased American Cyanamid's idle nitric acid plant at Hannibal, MO, and moved the plant and equipment to El Dorado, AR. Annual ammonium nitrate production capacity was to increase by 100% to 600,000 tons. LaRoche Industries Inc. purchased Chevron's idle 550-ton-per-day nitric acid plant at Ft. Madison, IA, and moved the unit to its Cherokee, AL, facility for nitrogen solutions production. Arcadian Corp. purchased the former ammonium nitrate production facilities of Columbia Nitrogen Corp., Hawkeye Chemical Co., and Nitrex. Total solid ammonium nitrate annual capacity was quoted at 800,000 tons. Imperial Chemical Industries(ICI) of the United Kingdom purchased Atlas Powder Co's. 230,000-ton-per-year ammonium nitrate plant at Joplin, MO, and associated explosives business. Coastal Chemical Co. was to commence construction of a 130,000-ton-per-year ammonium nitrate plant near Elko, NV, during 1990. Unocal Corp. was constructing new ammonium nitrate capacity at West Sacramento, CA.

Companies covered by this report, including IME members, are as follows:¹

- Apache Powder Co.--Benson, Arizona
- Atlas Power Co.--Dallas, Texas²
- Austin Powder Co.--Cleveland, Ohio
- H. L. & A. G. Balsinger, Inc.--Cuddy, Pennsylvania
- C-I-L Inc.--North York, Ontario, Canada
- Coastal Chemical Inc.--Cheyenne, Wyoming³
- * Columbia Nitrogen Corp.--Augusta, Georgia/Garden City, Georgia⁴
- Amos L. Dolby Company, Corsica, Pennsylvania
- El Dorado Chemical Co.--St. Louis, Missouri
- Ensign Bickford Co.--Simsbury, Connecticut
- Explosives Technologies International, Inc. (ETI)--Wilmington, Delaware⁵
- * Farmland Industries, Inc. Kansas City, Missouri
- Goex Inc.--Cleburne, Texas
- * Hawkeye Chemical Co.--Clinton, Iowa⁴
- Ireco Inc.--Salt Lake City, Utah
- * LaRoche Ind., Inc.--Atlanta, Georgia
- Mining Services International--Salt Lake City, Utah
- Mt. State Bit Service, Inc.--Morgantown, West Virginia
- * Nitrex--Memphis, Tennessee⁴
- Nitrochem Energy Corp.--Allentown, Pennsylvania
- Sierra Chemical Co.--Reno, Nevada
- Southeastern Energy, Inc.--Louisville, Tennessee
- * Thermex Energy Corp.--Dallas, Texas
- Trojan Corp.--Salt Lake City, Utah
- * Unocal Corp.--Los Angeles, California

*Indicates non-IME members

¹American Cyanamid Co. closed Hannibal, MO, ammonium nitrate facility during 1988.

²Purchased by Imperial Chemical Industries (ICI) of the United Kingdom during 1989.

³Wycon Chemical Co. assumed parent Co.'s name effective mid-1989.

⁴Acquired by Arcadian Corporation July-November 1989.

⁵Acquired from E. I. du Pont during 1988. Formed Canadian subsidiary, with primary production facility located at North Bay, Ontario, Canada.

Table 1.--Salient statistics of industrial explosives and blasting agents sold for consumption in the United States, 1988-89
(Thousand pounds)

Class	1988	1989
Permissibles-----	27,670	22,784
Other high explosives-----	150,769	140,896
Water gels, slurries, and emulsions-----	658,273	642,042
Ammonium nitrate-fuel oil blasting agents-----	867,393	766,956
Unprocessed ammonium nitrate-----	r/3,032,597	3,232,573
Total-----	r/4,736,702	4,805,251

r/Revised.

Table 2.--Industrial explosives and blasting agents sold for consumption in the United States, by class and use, 1988-891/

Class	Coal mining		Metal mining		Quarrying and nonmetal mining		Construction work		All other purposes		Total2/	
	1988e/	1989e/	1988e/	1989e/	1988e/	1989e/	1988e/	1989e/	1988e/	1989e/	1988	1989
Permissibles-----	27,000	22,000	--	--	250	210	200	170	--	--	27,670	22,784
Other high explosives-----	20,000	19,000	10,000	9,000	65,000	61,000	45,000	42,000	10,000	9,000	150,769	140,896
Water gels and slurries-----	240,000	234,000	100,000	98,000	220,000	215,000	80,000	78,000	20,000	20,000	658,273	642,042
Ammonium nitrate-fuel oil blasting agents-----	515,000	456,000	60,000	53,000	180,000	159,000	90,000	80,000	20,000	18,000	867,393	766,956
Unprocessed ammonium nitrate-----	2,335,000	2,444,000	270,000	320,000	r/130,000	195,000	105,000	130,000	r/195,000	143,000	r/3,032,597	3,232,573
Total-----	3,137,000	3,175,000	440,000	480,000	r/595,250	630,210	320,200	330,170	r/245,000	190,000	r/4,736,702	4,805,251

e/Estimated. r/Revised.

1/Distribution of industrial explosives and blasting agents by consuming industry in 1988 and 1989 estimated from indices of industrial production and economics as reported by the Department of Energy, Federal Reserve Board, Department of Transportation and Bureau of the Census.

2/Data may not add to totals shown because of independent rounding.

Table 3.--Industrial explosives and blasting agents sold for consumption
in the United States, by State and class, 1989
(Thousand pounds)

State	Class					
	Fixed high explosives		Water gels, slurries, and emulsions	Blasting Agents		
	Permissibles	Other high explosives		Ammonium nitrate-fuel oil blasting agents	Unprocessed ammonium nitrate	Total
Alabama-----	100	1,452	6,908	11,801	183,319	203,580
Alaska-----	--	6,190	1,307	3,769	2	11,268
Arizona-----	--	1,755	12,075	16,283	153,148	183,261
Arkansas-----	--	1,000	3,407	8,498	123	13,028
California-----	--	2,431	14,484	10,917	78,732	106,564
Colorado-----	13	1,735	9,165	8,843	62,610	82,366
Connecticut-----	--	3,964	1,592	3,470	5,265	14,291
Delaware-----	--	--	--	--	--	--
District of Columbia1/-----	--	--	--	--	--	--
Florida-----	22	1,780	36,265	1,135	1,338	40,540
Georgia-----	--	3,861	11,627	11,162	13,326	39,976
Hawaii-----	--	302	86	386	--	774
Idaho-----	--	2,399	3,994	2,242	29,086	37,721
Illinois-----	74	3,992	51,435	48,317	52,737	156,555
Indiana-----	54	2,907	48,860	95,617	135,243	282,681
Iowa-----	63	3,646	3,202	3,325	13,208	23,444
Kansas-----	--	881	1,475	10,926	170	13,452
Kentucky-----	14,337	9,843	122,773	111,464	536,361	794,778
Louisiana-----	--	134	148	7	--	289
Maine-----	--	888	564	886	--	2,338
Maryland-----	22	1,673	6,097	2,698	3,249	13,739
Massachusetts-----	--	3,699	4,071	4,204	937	12,911
Michigan-----	23	2,710	10,387	12,415	35,541	61,076
Minnesota-----	1	717	15,013	13,614	89,243	118,588
Mississippi-----	--	527	--	1,599	--	2,126
Missouri-----	--	8,901	8,201	43,010	103,796	163,908
Montana-----	4	2,070	16,456	1,551	138,568	158,649
Nebraska-----	--	214	--	480	2,597	3,291
Nevada-----	--	2,336	20,588	23,182	145,903	192,009
New Hampshire-----	3	1,848	969	2,562	--	5,382
New Jersey-----	1	2,039	4,939	2,149	1,618	10,746
New Mexico-----	--	1,446	1,510	1,983	129,496	134,435
New York-----	--	3,867	5,465	5,963	5,378	20,673
North Carolina-----	2	5,317	11,448	3,251	62,426	82,444
North Dakota-----	--	10	119	272	1,242	1,643
Ohio-----	103	3,109	27,035	51,587	194,598	276,432
Oklahoma-----	--	1,235	2,732	8,526	3,760	16,253
Oregon-----	--	1,981	770	4,877	17,001	24,629
Pennsylvania-----	725	13,481	51,244	57,939	183,535	306,924
Rhode Island-----	--	385	219	306	220	1,130
South Carolina-----	--	980	1,875	321	--	3,176
South Dakota-----	13	171	2,344	465	10,004	12,997
Tennessee-----	292	7,284	11,267	15,554	40,169	74,566
Texas-----	--	3,939	3,403	15,748	41,537	64,627
Utah-----	386	2,086	1,014	169	43,782	47,437
Vermont-----	--	641	618	253	--	1,512
Virginia-----	3,114	5,469	13,048	16,640	121,984	160,255
Washington-----	6	3,735	3,874	21,610	25,757	54,982
West Virginia-----	3,390	5,634	39,159	87,756	347,628	483,567
Wisconsin-----	19	1,405	2,810	1,404	6,390	12,028
Wyoming-----	17	2,827	46,000	15,820	211,546	276,210
Total-----	22,784	140,896	642,042	766,956	3,232,573	4,805,251

1/Included with Maryland.

Table 4.- Supply trends U.S. industrial explosives
(Thousand short tons)

Calendar Year	Ammonium Nitrate	ANFO	Water Gels & Slurries	Other High Explosives	Permissibles	Total Supply ^{1/}
1980	1,121	698	202	88	28	2,137
1981	1,217	609	240	79	26	2,171
1982	1,189	520	164	59	23	1,955
1983	1,300	289	206	51	19	1,865
1984	1,555	318	235	51	20	2,178
1985	1,324	320	193	69	18	1,924
1986	1,344	324	210	66	18	1,961
1987	1,605	315	241	72	17	2,249
1988	r/1,516	434	329	75	14	r/2,368
1989	1,616	383	321	70	11	2,403

r/Revised.

^{1/}Data may not add to totals shown because of independent rounding.

Source: Branch of Industrial Minerals, Bureau of Mines.

Table 5.- Demand trends U.S. industrial explosives
(Thousand short tons)

Calendar Year	Coal Mining	Quarrying & NonMetal Mining	Metal Mining	Construction Work	Other Purposes	Total Demand ^{1/}
1980	1,264	316	285	210	63	2,137
1981	1,250	278	368	166	107	2,171
1982	1,233	237	267	134	84	1,955
1983	1,135	252	244	148	86	1,865
1984	1,441	255	226	152	105	2,178
1985	1,203	269	197	124	131	1,924
1986	1,283	293	160	129	96	1,961
1987	1,610	259	170	154	55	2,249
1988 ^{2/}	1,568	r/298	220	160	r/122	r/2,368
1989 ^{2/}	1,588	315	240	165	95	2,403

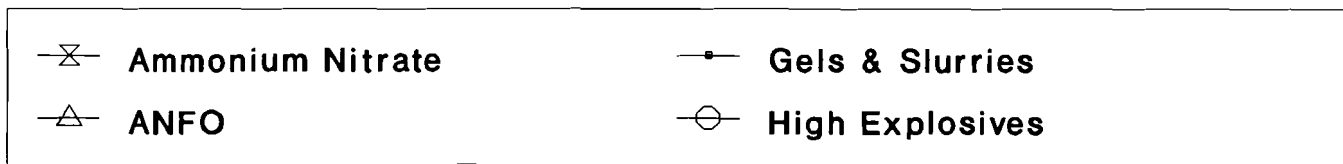
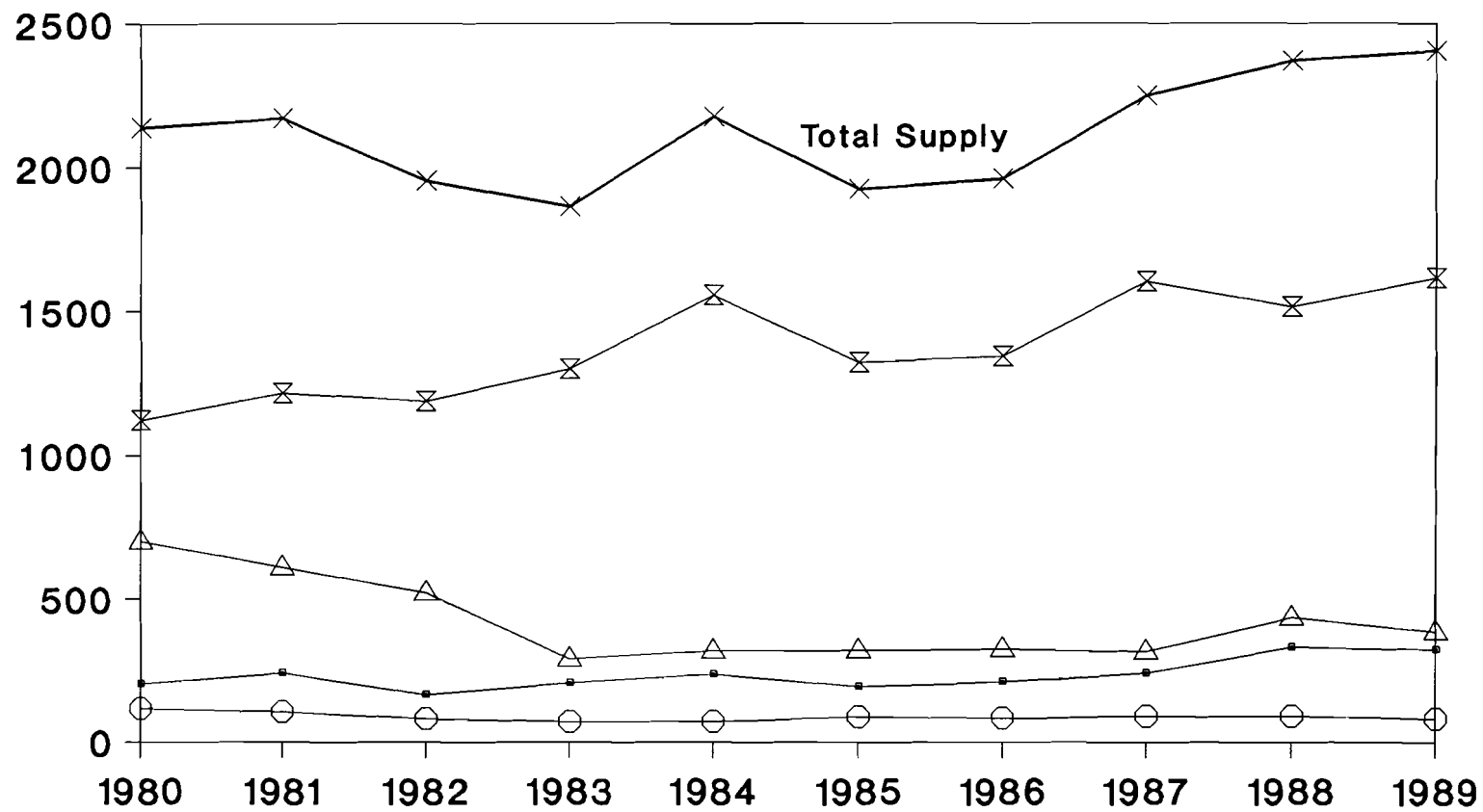
r/Revised.

^{1/}Data may not add to totals shown because of independent rounding.

^{2/}Distribution of total demand, estimated.

Source: Branch of Industrial Minerals, Bureau of Mines.

Fig 1.-Supply trends U.S. industrial explosives
(Thousand short tons)



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**Fig 2.-Demand trends U.S. industrial explosives
 (Thousand short tons)**

