



# MINERAL INDUSTRY SURVEYS

U. S. DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES  
WASHINGTON, D. C. 20241



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Explosives, Annual

## APPARENT CONSUMPTION OF INDUSTRIAL EXPLOSIVES AND BLASTING AGENTS IN THE UNITED STATES, 1977

Apparent consumption of explosives and blasting agents in the United States increased 11.4% to 3.7 billion pounds, according to the Bureau of Mines, U.S. Department of the Interior. Apparent consumption is measured by sales reported by manufacturers.

Consumption rose 15.1% for bulk blasting agents (other processed blasting agents and unprocessed ammonium nitrate) and cylindrically packaged blasting agents added together. The reason for consideration of these two classifications as one is explained on page 2, paragraph 4. Use of water gels and slurries declined 6.5%, permissible explosives rose 9.5%, and other high explosives declined 7.2%.

All users except the metal mining industry consumed greater quantities in 1977 than in 1976. More than half (56.4%) of the total weight of explosives and blasting agents was used in coal mining, which consumed 95.4% of permissible explosives, and 62.5% of cylindrically packaged blasting agents and bulk blasting agents combined. Other high explosives were consumed principally in quarrying (33.9%) and construction (27.6%). The major use of water gels and slurries was in metal mining (48.8%).

Seven States collectively consumed 58.8% of all explosives and blasting agents used in the United States in 1977. These were, in order of consumption, Kentucky, Pennsylvania, Alabama, Ohio, West Virginia, Virginia, and Arizona.

## Classification of Industrial Explosives and Blasting Agents

"Apparent consumption" of explosives and blasting agents, as used in this report, means sales reported by manufacturers of such to the Bureau of Mines on Form 6-1439-A, plus sales reported to the Institute of Makers of Explosives (IME) by IME members and provided to the Bureau on a confidential basis. Classification of any particular quantity of explosives (or blasting agents) by type and use appears as reported by the manufacturers. Coverage is substantially complete, but occasional omissions do occur, and the Bureau would welcome notification of them. In particular, any sales of explosives (or blasting agents) imported by nonmanufacturers of explosives (or blasting agents) are not included; these may be locally important. Another unavoidable inaccuracy is caused by the necessity to conceal certain figures to protect company confidentiality.

The main distinction between explosives and blasting agents is related to their safety in handling. Formerly explosives were classified as those materials that were cap-sensitive, and blasting agents were classified as materials requiring a primer. This distinction remains the principal criterion. Only "high" explosives are currently used in industry; "low" explosives (which decompose more slowly than high explosives) included principally black powder, which has not been reported in industrial use since 1971. Explosives vary widely in composition, whereas blasting agents are essentially ammonium nitrate plus a fuel.

Water gel and slurries may be either explosives or blasting agents, but for convenience are classified separately in a recognizable category.

Previously the five product classifications used in this report were the same as those adopted by the Institute of Makers of Explosives (IME); however in 1977 the IME reclassified two categories by expanding number 4, Cylindrically Packaged Blasting Agents, to include Other Processed Blasting Agents, which was formerly part of number 5. IME's number 5 now includes only Unprocessed Ammonium Nitrate. Because the IME reporting of these two classifications to the Bureau differed from the reporting of nonmember companies to the Bureau, the 1977 data are not comparable to prior years. Total quantities derived from combining number 4 and number 5 are essentially accurate. The Bureau of Mines classifications follow:

1. Permissibles.--Grades of high explosives approved by brand name by the U.S. Bureau of Mines or the Mine Safety and Health Administration for use, in a prescribed manner, in underground coal mines.

2. Other High Explosives.--All high explosives EXCEPT

a) permissibles and

b) any water gels or slurries that would otherwise be classified as high explosives

Included in the "Other High Explosives" classification are all formulations packaged in metal containers.

3. Packaged and Bulk Water Gels and Slurries.--All water gels and slurries, packaged or in bulk, made by addition of more than 5% water to high explosives or blasting agents.

4. Cylindrically Packaged Blasting Agents.--Ammonium nitrate and fuel mixtures packaged in paper, burlap, or plastic containers of cylindrical shape, labeled with trade name identification plus diameter and weight or length measurement. The purpose of this classification is to distinguish "down-the-hole" materials from bagged blasting agents for bulk loading.

5. Other Processed Blasting Agents and Unprocessed Ammonium Nitrate.--

- a) Ammonium nitrate and fuel mixtures sold in bulk or packaged in paper, plastic or burlap bags, or other containers designed for bulk loading, and
- b) Prilled or grained ammonium nitrate for explosives use.

#### Acknowledgment

The data in this report have been assembled from information provided by the Institute of Makers of Explosives (IME) and from data collected through voluntary responses by nonmembers of the IME to a Bureau of Mines canvass. Certain small quantities included are industry estimates of unreported sales. Companies covered, including IME members, are:

American Cyanamid Company - Princeton, New Jersey  
Apache Powder Company - Benson, Arizona  
Atlas Powder Company - Dallas, Texas  
Austin Powder Company - Cleveland, Ohio  
Collier Carbon & Chemical Corporation - Los Angeles, California  
Columbia Nitrogen Corp. - Augusta, Georgia  
E. I. duPont de Nemours & Co., Inc. - Wilmington, Delaware  
Energy Sciences & Consultants, Inc. - Biwabik, Minnesota  
Goex Inc. - Cleburne, Texas  
Gulf Oil Chemicals Company - Merriam, Kansas  
Hawkeye Chemical Company - Clinton, Iowa  
Hercules, Inc. - Wilmington, Delaware  
Independent Explosives Company - Cleveland, Ohio  
Ireco Chemicals - Salt Lake City, Utah  
Monsanto Agricultural Products Co. - St. Louis, Missouri  
Nipak, Inc. - Dallas, Texas  
Nitrox Products Company - Charleston, West Virginia  
Phillips Chemical Co. - Bartlesville, Oklahoma  
Sierra Chemical Company - Reno, Nevada  
Trojan - U.S. Powder - Allentown, Pennsylvania  
USS Agri-Chemicals - Atlanta, Georgia

TABLE 1. - Salient statistics of industrial explosives and blasting agents  
sold for consumption in the United States, 1976-77

(Thousand pounds)

Class	1976	1977
Permissibles-----	44,641	48,891
Other high explosives-----	201,308	186,758
Water gels and slurries-----	339,372	317,194
Cylindrically packaged blasting agents-----	350,168	<u>1</u> /1,014,941
Other processed blasting agents and unprocessed ammonium nitrate	2,393,040	<u>1</u> /2,141,966
<b>Total-----</b>	<b>3,328,529</b>	<b>3,709,750</b>

1/ Data not comparable to prior years due to change in reporting by the Institute of Makers of Explosives.

TABLE 2. - Industrial explosives and blasting agents sold for consumption  
in the United States by class and use, 1976-77  
(Thousand pounds)

Class	Coal mining		Metal mining		Quarrying and nonmetal mining		Construction work		All other purposes		Total	
	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976	1977
Permissibles-----	41,123	46,663	204	225	1,090	694	1,990	1,081	234	228	44,641	48,891
Other high explosives-----	34,521	34,407	24,265	25,174	65,891	63,378	64,001	51,590	12,630	12,209	201,308	186,758
Water gels and slurries---	30,871	42,406	205,429	154,704	74,176	75,062	28,743	43,653	153	1,369	339,372	317,194
Cylindrically packaged blasting agents-----	269,778	<u>1/634,283</u>	3,471	<u>1/59,059</u>	65,922	<u>1/189,266</u>	9,522	<u>1/130,393</u>	1,475	<u>1/1,940</u>	350,168	<u>1/1,014,941</u>
Other processed blasting agents and unprocessed ammonium nitrate-----	1,422,580	<u>1/1,335,553</u>	255,284	<u>1/207,244</u>	286,577	<u>1/194,278</u>	234,981	<u>1/123,505</u>	193,618	<u>1/281,386</u>	2,393,040	<u>1/2,141,966</u>
Total-----	1,798,873	2,093,312	488,653	446,406	493,656	522,678	339,237	350,222	208,110	297,132	3,328,529	3,709,750

1/ Data not comparable to prior years due to change in reporting by the Institute of Makers of Explosives.

TABLE 3. - Industrial explosives and blasting agents sold for consumption  
in the United States, by State and use, 1977  
(Thousand pounds)

State	Use					Total
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	221,791	198	31,109	19,996	14,462	287,556
Alaska-----	193	2	---	7,806	168	8,169
Arizona-----	4,445	153,716	5,002	1,012	9,906	174,081
Arkansas-----	2,675	1,616	6,456	3,816	9,154	23,717
California-----	---	24,546	15,023	11,468	510	51,547
Colorado-----	6,459	27,179	2,168	3,533	351	39,690
Connecticut-----	---	---	4,998	6,869	59	11,926
Delaware-----	---	---	100	---	38	138
District of Columbia <u>1/</u>	---	---	---	---	---	---
Florida-----	---	1	13,514	8,271	---	21,786
Georgia-----	218	---	19,830	2,964	441	23,453
Hawaii-----	---	---	361	291	---	652
Idaho-----	---	2,389	946	2,213	---	5,548
Illinois-----	57,365	15	38,508	1,307	1,278	98,473
Indiana-----	128,953	129	15,899	1,742	195	146,918
Iowa-----	2,239	---	24,671	2,904	5,209	35,023
Kansas-----	3,657	---	8,329	415	516	12,917
Kentucky-----	540,289	166	36,123	25,140	17,232	618,950
Louisiana-----	22	---	4,415	286	1,767	6,490
Maine-----	---	340	778	802	---	1,920
Maryland-----	7,267	---	10,019	1,630	---	18,916
Massachusetts-----	---	---	4,035	1,125	22	5,182
Michigan-----	157	25,835	17,488	2,298	9,461	55,239
Minnesota-----	15	64,161	4,857	5,958	16,004	90,995
Mississippi-----	---	2	325	72	1,083	1,482
Missouri-----	12,715	6,619	26,143	13,901	1,078	60,456
Montana-----	8,226	227	346	810	2,528	12,137
Nebraska-----	---	---	1,275	596	136	2,007
Nevada-----	704	14,398	4,314	179	---	19,595
New Hampshire-----	2	8	672	1,703	---	2,385
New Jersey-----	53	334	2,518	919	10	3,834
New Mexico-----	33,894	58,394	10,940	4,192	43	107,463
New York-----	431	5,936	11,280	5,293	474	23,414
North Carolina-----	80	137	18,558	10,875	---	29,650
North Dakota-----	---	---	168	---	574	742
Ohio-----	171,337	---	29,604	9,573	9,514	220,028
Oklahoma-----	33,480	---	7,416	1,945	1,104	43,945
Oregon-----	---	12	856	12,506	20	13,394
Pennsylvania:						
Anthracite-----	138,333	71	39,864	28,440	8,437	496,651
Bituminous-----	281,506	---	---	---	---	---
Rhode Island-----	---	---	78	150	---	228
South Carolina-----	---	---	4,134	789	---	4,923
South Dakota-----	---	239	---	15	38	292
Tennessee-----	38,389	9,467	30,090	46,667	18,466	143,079
Texas-----	33,700	98	17,954	24,973	3,024	79,749
Utah-----	705	33,867	12	2,256	304	37,144
Vermont-----	42	---	475	1,894	13	2,424
Virginia-----	135,880	494	26,010	20,489	945	183,818
Washington-----	328	1,026	51	15,098	65	16,568
West Virginia-----	151,144	31	6,718	31,903	11,647	201,443
Wisconsin-----	---	5,755	9,680	616	933	16,984
Wyoming-----	76,618	8,998	8,568	2,522	2,115	98,821
Undistributed-----	<u>2/</u>	<u>2/</u>	<u>2/</u>	---	147,808	147,808
Total-----	2,093,312	446,406	522,678	350,222	297,132	3,709,750

1/ Included with Maryland.

2/ Quantities included in "all other purposes" to avoid disclosing individual company data.

TABLE 4. - Industrial explosives and blasting agents sold for consumption in the United States, by State and class, 1977 (Thousand pounds)

State	Class					Total
	Fixed high explosives		Water gels and slurries	Cylindrically packaged <sup>1/</sup>	Blasting agents	
	Permissibles	Other high explosives				
Alabama-----	3,617	3,027	7,075	57,718	216,119	287,556
Alaska-----	101	2,547	4,549	949	23	8,169
Arizona-----	---	5,069	33,692	15,129	120,191	174,081
Arkansas-----	---	1,356	3,068	4,154	15,139	23,717
California-----	---	3,234	19,869	9,348	19,096	51,547
Colorado-----	107	5,258	14,890	1,485	17,950	39,690
Connecticut-----	---	1,755	3,772	2,084	4,315	11,926
Delaware-----	---	9	29	100	---	138
District of Columbia <sup>2/</sup> -----	---	---	---	---	---	---
Florida-----	---	7,435	6,865	3,686	3,800	21,786
Georgia-----	48	2,695	5,354	13,931	1,425	23,453
Hawaii-----	---	324	328	---	---	652
Idaho-----	---	1,551	640	483	2,874	5,548
Illinois-----	1,138	7,044	8,191	60,224	21,876	98,473
Indiana-----	131	1,579	5,543	90,925	48,740	146,918
Iowa-----	139	4,664	6,917	1,288	22,015	35,023
Kansas-----	---	1,079	846	6,029	4,963	12,917
Kentucky-----	21,828	12,541	9,964	216,548	358,069	618,950
Louisiana-----	---	1,901	755	234	3,600	6,490
Maine-----	---	628	588	704	---	1,920
Maryland-----	1	2,000	4,448	11,987	480	18,916
Massachusetts-----	---	1,530	1,156	1,796	700	5,182
Michigan-----	---	1,629	21,931	14,412	17,267	55,239
Minnesota-----	---	400	55,780	11,021	23,794	90,995
Mississippi-----	---	972	304	12	194	1,482
Missouri-----	27	10,648	7,380	15,878	26,523	60,456
Montana-----	92	2,909	746	2,105	6,285	12,137
Nebraska-----	---	796	182	469	560	2,007
Nevada-----	---	542	230	6,927	11,896	19,595
New Hampshire-----	---	1,645	184	556	---	2,385
New Jersey-----	---	1,456	891	1,487	---	3,834
New Mexico-----	14	7,253	5,154	17,744	77,298	107,463
New York-----	---	4,756	2,442	5,812	10,404	23,414
North Carolina-----	---	4,250	6,361	16,918	2,121	29,650
North Dakota-----	---	574	135	33	---	742
Ohio-----	1,541	7,130	5,037	61,189	145,131	220,028
Oklahoma-----	---	1,956	2,127	11,802	28,060	43,945
Oregon-----	---	4,208	1,329	3,357	4,500	13,394
Pennsylvania-----	1,620	24,014	26,401	63,227	381,389	496,651
Rhode Island-----	---	95	---	133	---	228
South Carolina-----	---	419	1,207	3,136	161	4,923
South Dakota-----	---	25	239	---	28	292
Tennessee-----	931	9,852	4,585	67,262	60,449	143,079
Texas-----	---	5,615	3,660	1,217	69,257	79,749
Utah-----	538	3,169	7,749	430	25,258	37,144
Vermont-----	10	598	999	817	---	2,424
Virginia-----	9,244	9,392	4,307	114,840	46,035	183,818
Washington-----	---	4,439	1,970	564	9,595	16,568
West Virginia-----	7,696	5,785	3,278	62,329	122,355	201,443
Wisconsin-----	2	2,029	6,405	1,873	6,675	16,984
Wyoming-----	66	2,976	7,642	30,589	57,548	98,821
Undistributed-----	---	---	---	---	147,808	147,808
Total-----	48,891	186,758	317,194	1,014,941	2,141,966	3,709,750

<sup>1/</sup> Data not comparable to prior years due to change in reporting by the Institute of Makers of Explosives.

<sup>2/</sup> Included with Maryland.

TABLE 5. - Permissible explosives sold for consumption in the United States,  
by State and use, 1977  
(Thousand pounds)

State	Use					Total
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	3,355	---	---	262	---	3,617
Alaska-----	101	---	---	---	---	101
Arizona-----	---	---	---	---	---	---
Arkansas-----	---	---	---	---	---	---
California-----	---	---	---	---	---	---
Colorado-----	103	4	---	---	---	107
Connecticut-----	---	---	---	---	---	---
Delaware-----	---	---	---	---	---	---
District of Columbia <u>1/</u>	---	---	---	---	---	---
Florida-----	---	---	---	---	---	---
Georgia-----	48	---	---	---	---	48
Hawaii-----	---	---	---	---	---	---
Idaho-----	---	---	---	---	---	---
Illinois-----	995	---	143	---	---	1,138
Indiana-----	105	---	23	---	3	131
Iowa-----	139	---	---	---	---	139
Kansas-----	---	---	---	---	---	---
Kentucky-----	21,657	---	2	110	59	21,828
Louisiana-----	---	---	---	---	---	---
Maine-----	---	---	---	---	---	---
Maryland-----	1	---	---	---	---	1
Massachusetts-----	---	---	---	---	---	---
Michigan-----	---	---	---	---	---	---
Minnesota-----	---	---	---	---	---	---
Mississippi-----	---	---	---	---	---	---
Missouri-----	25	---	2	---	---	27
Montana-----	---	---	---	---	92	92
Nebraska-----	---	---	---	---	---	---
Nevada-----	---	---	---	---	---	---
New Hampshire-----	---	---	---	---	---	---
New Jersey-----	---	---	---	---	---	---
New Mexico-----	5	---	---	9	---	14
New York-----	---	---	---	---	---	---
North Carolina-----	---	---	---	---	---	---
North Dakota-----	---	---	---	---	---	---
Ohio-----	1,065	---	443	20	13	1,541
Oklahoma-----	---	---	---	---	---	---
Oregon-----	---	---	---	---	---	---
Pennsylvania:						
Anthracite-----	529	---	22	224	1	1,620
Bituminous-----	844	---	---	---	---	---
Rhode Island-----	---	---	---	---	---	---
South Carolina-----	---	---	---	---	---	---
South Dakota-----	---	---	---	---	---	---
Tennessee-----	777	11	4	139	---	931
Texas-----	---	---	---	---	---	---
Utah-----	353	181	---	4	---	538
Vermont-----	9	---	---	1	---	10
Virginia-----	9,243	---	1	---	---	9,244
Washington-----	---	---	---	---	---	---
West Virginia-----	7,303	29	52	312	---	7,696
Wisconsin-----	---	---	2	---	---	2
Wyoming-----	6	---	---	---	60	66
Total-----	46,663	225	694	1,081	228	48,891

1/ Included with Maryland.



TABLE 6. - Other high explosives sold for consumption in the United States, by State and use, 1977  
(Thousand pounds)

State	Use					Total
	Coal Mining	Metal Mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	1,291	---	758	782	196	3,027
Alaska-----	---	2	---	2,377	168	2,547
Arizona-----	115	4,418	85	422	29	5,069
Arkansas-----	28	6	797	515	10	1,356
California-----	---	184	415	2,627	8	3,234
Colorado-----	23	4,728	89	177	241	5,258
Connecticut-----	---	---	335	1,420	---	1,755
Delaware-----	---	---	---	---	9	9
District of Columbia <sup>1/</sup>	---	---	---	---	---	---
Florida-----	---	1	4,221	3,213	---	7,435
Georgia-----	67	---	2,017	611	---	2,695
Hawaii-----	---	---	81	243	---	324
Idaho-----	---	829	121	601	---	1,551
Illinois-----	347	---	6,122	453	122	7,044
Indiana-----	115	4	1,370	90	---	1,579
Iowa-----	84	---	4,072	508	---	4,664
Kansas-----	37	---	587	147	308	1,079
Kentucky-----	6,712	---	4,072	1,578	179	12,541
Louisiana-----	22	---	424	82	1,373	1,901
Maine-----	---	---	155	473	---	628
Maryland-----	317	---	1,293	390	---	2,000
Massachusetts-----	---	---	978	552	---	1,530
Michigan-----	---	407	957	190	75	1,629
Minnesota-----	15	144	135	106	---	400
Mississippi-----	---	2	166	72	732	972
Missouri-----	57	4,459	3,782	2,112	238	10,648
Montana-----	86	60	44	470	2,249	2,909
Nebraska-----	---	---	345	315	136	796
Nevada-----	---	319	94	129	---	542
New Hampshire-----	2	---	250	1,393	---	1,645
New Jersey-----	2	36	930	488	---	1,456
New Mexico-----	1,137	5,030	97	946	43	7,253
New York-----	---	646	1,933	2,019	158	4,756
North Carolina-----	---	4	2,398	1,848	---	4,250
North Dakota-----	---	---	---	---	574	574
Ohio-----	1,757	---	4,517	849	7	7,130
Oklahoma-----	535	---	299	302	820	1,956
Oregon-----	---	---	138	4,070	---	4,208
Pennsylvania:						
Anthracite-----	7,030	5	6,958	4,289	47	24,014
Bituminous-----	5,685	---	---	---	---	---
Rhode Island-----	---	---	32	63	---	95
South Carolina-----	---	---	148	271	---	419
South Dakota-----	---	---	---	15	10	25
Tennessee-----	1,044	990	4,422	3,306	90	9,852
Texas-----	---	2	1,059	1,993	2,561	5,615
Utah-----	200	1,876	---	885	208	3,169
Vermont-----	16	---	69	513	---	598
Virginia-----	2,880	113	4,235	2,154	10	9,392
Washington-----	317	228	---	3,834	60	4,439
West Virginia-----	3,839	---	575	1,330	41	5,785
Wisconsin-----	---	238	1,512	279	---	2,029
Wyoming-----	647	443	291	88	1,507	2,976
Total-----	34,407	25,174	63,378	51,590	12,209	186,758

<sup>1/</sup> Included with Maryland.

TABLE 7. - Packaged and bulk water gels and slurries sold for consumption in the United States, by State and use, 1977  
(Thousand pounds)

State	Use					Total
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	4,835	---	1,199	1,005	36	7,075
Alaska-----	92	---	---	4,457	---	4,549
Arizona-----	80	33,380	17	215	---	33,692
Arkansas-----	181	254	1,653	980	---	3,068
California-----	---	12,327	1,906	5,634	2	19,869
Colorado-----	506	13,281	447	606	50	14,890
Connecticut-----	---	---	1,010	2,762	---	3,772
Delaware-----	---	---	---	---	29	29
District of Columbia <u>1/</u>	---	---	---	---	---	---
Florida-----	---	---	2,213	4,652	---	6,865
Georgia-----	103	---	4,629	617	5	5,354
Hawaii-----	---	---	280	48	---	328
Idaho-----	---	296	135	209	---	640
Illinois-----	3,625	15	4,400	72	79	8,191
Indiana-----	2,345	---	3,096	96	6	5,543
Iowa-----	337	---	5,908	672	---	6,917
Kansas-----	320	---	526	---	---	846
Kentucky-----	8,109	40	928	848	39	9,964
Louisiana-----	---	---	166	204	385	755
Maine-----	---	203	303	82	---	588
Maryland-----	174	---	3,806	468	---	4,448
Massachusetts-----	---	---	925	231	---	1,156
Michigan-----	---	20,388	1,475	68	---	21,931
Minnesota-----	---	53,302	2,033	443	2	55,780
Mississippi-----	---	---	159	---	145	304
Missouri-----	218	386	4,899	1,872	5	7,380
Montana-----	232	81	20	273	140	746
Nebraska-----	---	---	160	22	---	182
Nevada-----	---	175	5	50	---	230
New Hampshire-----	---	4	178	2	---	184
New Jersey-----	---	85	701	105	---	891
New Mexico-----	156	4,606	36	356	---	5,154
New York-----	---	1,052	1,047	342	1	2,442
North Carolina-----	40	53	3,458	2,810	---	6,361
North Dakota-----	---	---	135	---	---	135
Ohio-----	567	---	3,489	981	---	5,037
Oklahoma-----	757	---	1,171	192	7	2,127
Oregon-----	---	12	126	1,171	20	1,329
Pennsylvania:						
Anthracite-----	1,366	---	10,645	1,943	5	26,401
Bituminous-----	12,442	---	---	---	---	---
Rhode Island-----	---	---	---	---	---	---
South Carolina-----	---	---	1,160	47	---	1,207
South Dakota-----	---	239	---	---	---	239
Tennessee-----	184	801	2,223	1,365	12	4,585
Texas-----	---	---	2,314	1,095	251	3,660
Utah-----	---	6,370	12	1,367	---	7,749
Vermont-----	---	---	382	617	---	999
Virginia-----	513	13	3,361	420	---	4,307
Washington-----	11	28	51	1,875	5	1,970
West Virginia-----	1,554	---	754	955	15	3,278
Wisconsin-----	---	5,323	967	115	---	6,405
Wyoming-----	3,659	1,990	554	1,309	130	7,642
Total-----	42,406	154,704	75,062	43,653	1,369	317,194

1/ Included with Maryland.

TABLE 8. - Cylindrically packaged blasting agents sold for consumption in the United States, by State and Use, 1977 <sup>1/</sup>  
(Thousand pounds)

State	Use					Total
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	30,192	---	16,286	10,423	817	57,718
Alaska-----	---	---	---	949	---	949
Arizona-----	350	13,589	788	375	27	15,129
Arkansas-----	1,265	---	1,829	1,060	---	4,154
California-----	---	7,851	979	518	---	9,348
Colorado-----	115	202	320	848	---	1,485
Connecticut-----	---	---	739	1,286	59	2,084
Delaware-----	---	---	100	---	---	100
District of Columbia <sup>2/</sup>	---	---	---	---	---	---
Florida-----	---	---	3,280	406	---	3,686
Georgia-----	---	---	12,184	1,736	11	13,931
Hawaii-----	---	---	---	---	---	---
Idaho-----	---	360	123	---	---	483
Illinois-----	47,454	---	11,938	782	50	60,224
Indiana-----	79,047	125	10,237	1,516	---	90,925
Iowa-----	---	---	928	360	---	1,288
Kansas-----	---	---	5,761	268	---	6,029
Kentucky-----	180,241	---	17,947	18,360	---	216,548
Louisiana-----	---	---	225	---	9	234
Maine-----	---	137	320	247	---	704
Maryland-----	6,775	---	4,464	748	---	11,987
Massachusetts-----	---	---	1,432	342	22	1,796
Michigan-----	157	3,433	10,379	438	5	14,412
Minnesota-----	---	10,715	228	77	1	11,021
Mississippi-----	---	---	---	---	12	12
Missouri-----	7,745	1,440	4,410	2,283	---	15,878
Montana-----	1,670	86	282	67	---	2,105
Nebraska-----	---	---	210	259	---	469
Nevada-----	---	2,992	3,935	---	---	6,927
New Hampshire-----	---	4	244	308	---	556
New Jersey-----	51	213	887	326	10	1,487
New Mexico-----	145	9,186	5,871	2,542	---	17,744
New York-----	40	600	3,686	1,171	315	5,812
North Carolina-----	40	80	10,602	6,196	---	16,918
North Dakota-----	---	---	33	---	---	33
Ohio-----	46,256	---	8,584	6,349	---	61,189
Oklahoma-----	6,542	---	3,662	1,321	277	11,802
Oregon-----	---	---	41	3,316	---	3,357
Pennsylvania:						
Anthracite-----	10,759	16	11,182	8,992	5	63,227
Bituminous-----	32,273	---	---	---	---	---
Rhode Island-----	---	---	46	87	---	133
South Carolina-----	---	---	2,665	471	---	3,136
South Dakota-----	---	---	---	---	---	---
Tennessee-----	27,600	789	13,046	25,827	---	67,262
Texas-----	---	96	601	500	20	1,217
Utah-----	---	430	---	---	---	430
Vermont-----	17	---	24	763	13	817
Virginia-----	83,045	368	13,713	17,714	---	114,840
Washington-----	---	---	---	564	---	564
West Virginia-----	48,153	2	3,477	10,440	257	62,329
Wisconsin-----	---	137	1,578	158	---	1,873
Wyoming-----	24,351	6,208	---	---	30	30,589
Total-----	634,283	59,059	189,266	130,393	1,940	1,014,941

<sup>1/</sup> Data not comparable to prior years due to change in reporting by the Institute of Makers of Explosives.

<sup>2/</sup> Included with Maryland.

TABLE 9. - Other processed blasting agents and unprocessed ammonium nitrate sold for consumption in the United States, by State and use, 1977 <sup>1/</sup>  
(Thousand pounds)

State	Use					Total
	Coal mining	Metal mining	Quarrying and nonmetal mining	Construction work	All other purposes	
Alabama-----	182,118	198	12,866	7,524	13,413	216,119
Alaska-----	---	---	---	23	---	23
Arizona-----	3,900	102,329	4,112	---	9,850	120,191
Arkansas-----	1,201	1,356	2,177	1,261	9,144	15,139
California-----	---	4,184	11,723	2,689	500	19,096
Colorado-----	5,712	8,964	1,312	1,902	60	17,950
Connecticut-----	---	---	2,914	1,401	---	4,315
Delaware-----	---	---	---	---	---	---
District of Columbia <sup>2/</sup>	---	---	---	---	---	---
Florida-----	---	---	3,800	---	---	3,800
Georgia-----	---	---	1,000	---	425	1,425
Hawaii-----	---	---	---	---	---	---
Idaho-----	---	904	567	1,403	---	2,874
Illinois-----	4,944	---	15,905	---	1,027	21,876
Indiana-----	47,341	---	1,173	40	186	48,740
Iowa-----	1,679	---	13,763	1,364	5,209	22,015
Kansas-----	3,300	---	1,455	---	208	4,963
Kentucky-----	323,570	126	13,174	4,244	16,955	358,069
Louisiana-----	---	---	3,600	---	---	3,600
Maine-----	---	---	---	---	---	---
Maryland-----	---	---	456	24	---	480
Massachusetts-----	---	---	700	---	---	700
Michigan-----	---	1,607	4,677	1,602	9,381	17,267
Minnesota-----	---	---	2,461	5,332	16,001	23,794
Mississippi-----	---	---	---	---	194	194
Missouri-----	4,670	334	13,050	7,634	835	26,523
Montana-----	6,238	---	---	---	47	6,285
Nebraska-----	---	---	560	---	---	560
Nevada-----	704	10,912	280	---	---	11,896
New Hampshire-----	---	---	---	---	---	---
New Jersey-----	---	---	---	---	---	---
New Mexico-----	32,451	39,572	4,936	339	---	77,298
New York-----	391	3,638	4,614	1,761	---	10,404
North Carolina-----	---	---	2,100	21	---	2,121
North Dakota-----	---	---	---	---	---	---
Ohio-----	121,692	---	12,571	1,374	9,494	145,131
Oklahoma-----	25,646	---	2,284	130	---	28,060
Oregon-----	---	---	551	3,949	---	4,500
Pennsylvania:						
Anthracite-----	118,649	50	11,057	12,992	8,379	381,389
Bituminous-----	230,262	---	---	---	---	---
Rhode Island-----	---	---	---	---	---	---
South Carolina-----	---	---	161	---	---	161
South Dakota-----	---	---	---	---	28	28
Tennessee-----	8,784	6,876	10,395	16,030	18,364	60,449
Texas-----	33,700	---	13,980	21,385	192	69,257
Utah-----	152	25,010	---	---	96	25,258
Vermont-----	---	---	---	---	---	---
Virginia-----	40,199	---	4,700	201	935	46,035
Washington-----	---	770	---	8,825	---	9,595
West Virginia-----	90,295	---	1,860	18,866	11,334	122,355
Wisconsin-----	---	57	5,621	64	933	6,675
Wyoming-----	47,955	357	7,723	1,125	388	57,548
Undistributed-----	<sup>3/</sup>	<sup>3/</sup>	<sup>3/</sup>	---	147,808	147,808
Total-----	1,335,553	207,244	194,278	123,505	281,386	2,141,966

<sup>1/</sup> Data not comparable to prior years due to change in reporting by the Institute of Makers of Explosives.

<sup>2/</sup> Included with Maryland.

<sup>3/</sup> Quantities included in "All other purposes" to avoid disclosing individual company data.