

**Missouri
Agricultural Liming
Materials Report**

July 1 to December 31, 2001

Agricultural Experiment Station

University of Missouri-Columbia

AGRICULTURAL LIMING MATERIALS REPORT

JULY 1 THROUGH DECEMBER 31, 2001

This bulletin is a detailed report of official samples obtained under the Missouri Agricultural Liming Materials Law collected from July 1 through December 31, 2001. There were 856 official samples collected in this period. All samples are analyzed to determine fineness of grind, calcium carbonate equivalent (CCE), and magnesium content (Mg). Effective neutralizing material (ENM) and effective magnesium (EMg) are calculated from this information, as prescribed by Rule, for each dry sample which meets the minimum specifications of at least 90% passing a U.S. No. 8 sieve and minimum 65% CCE. Products not meeting minimum specifications cannot be sold as agricultural liming materials. Forty-three deficient samples are reported, thirty-seven for excessive coarseness and six for low CCE. There were nine "stop sale" order's issued against producer stockpiles for excessive coarseness. Corrective actions taken by the producers have resulted in the release of three of the issued "stop sale" orders.

Table 1 lists registered producers and samples obtained at production sites. Table 2 lists samples obtained from retail distributor stockpiles, by producer.

**MISSOURI AGRICULTURAL LIMING MATERIALS TONNAGE
REPORTED SINCE AUGUST 13, 1976**

YEAR	SPRING	FALL	TOTAL
1976	-----	2,514,500	-----
1977	1,590,700	1,166,600	2,757,300
1978	1,116,100	2,546,250	3,662,350
1979	975,300	3,068,900	4,044,200
1980	1,431,000	2,266,900	3,697,900
1981	1,336,750	1,228,350	2,565,100
1982	825,100	1,029,000	1,854,100
1983	872,700	1,154,700	2,027,400
1984	595,725	899,459	1,495,185
1985	611,050	783,575	1,394,625
1986	967,375	646,115	1,613,490
1987	1,104,358	1,558,171	2,662,529
1988	1,036,917	1,605,444	2,642,361
1989	939,831	1,586,398	2,526,229
1990	504,100	1,204,551	1,708,651
1991	646,864	835,603	1,482,467
1992	859,648	771,536	1,631,184
1993	397,607	686,345	1,083,952
1994	681,464	967,450	1,648,914
1995	720,140	1,207,663	1,927,803
1996	704,151	886,627	1,590,778
1997	779,876	1,063,760	1,843,636
1998	626,186	1,048,308	1,674,494
1999	606,847	1,557,259	2,164,106
2000	886,861	996,123	1,882,984
2001	512,964	1,400,000*	1,912,964*

* PRELIMINARY ESTIMATE

TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMG
76 QUARRY, MANSFIELD, MO Stockpile #1										
Lab #1073	08-23-01	0.8	40.6	9.1	49.5	89.8	11.2	65.1	468	146
Lab #1346	10-04-01	0.3	44.4	10.0	45.3	87.2	10.7	62.4	435	134
Lab #1559	11-05-01	0.2	40.6	8.8	50.4	89.5	10.7	65.8	471	141
Lab #1753	12-03-01	0.6	41.5	8.3	49.6	84.7	10.7	65.0	440	139
ADRIAN ROCK, INC, ADRIAN, MO Stockpile #1										
Lab #1143	09-06-01	0.4	40.7	12.2	46.7	93.3	0.3	64.2	479	4
Lab #1188	09-11-01	0.6	44.7	12.4	42.3	92.6	0.4	60.9	451	5
Lab #1265	09-18-01	0.7	49.9	11.1	38.3	92.6	0.5	57.4	425	6
Lab #1506	10-24-01	1.6	49.6	10.3	38.5	92.0	0.4	57.1	420	5
Lab #1821	12-11-01	0.4	50.1	12.4	37.1	90.6	0.3	57.1	414	3
AIRGAS - MID AMERICA, MOUNTAIN GROVE, MO Stockpile #1										
Lab #1310	09-27-01	0.6	2.2	3.8	93.4	123.0	0.1	96.2	947	2
Lab #1761	12-06-01	0.4	0.5	1.2	97.9	120.4	0.1	98.7	951	2
Lab #1816	12-13-01	0.4	0.9	0.7	98.0	122.7	0.2	98.6	968	4
ALBY QUARRY, CARLINVILLE, IL										
ALLEN QUARRIES INC, LOCKWOOD, MO Stockpile #1										
Lab #1202	09-11-01	1.6	47.8	14.6	36.0	96.8	0.4	56.7	439	5
Lab #1561	11-06-01	2.3	48.2	13.9	35.6	96.0	0.9	56.0	430	10
AMPEL, INC.-HARVEY IOWA PLANT, DES MOINES, IA										
AMPEL, INC.-WEEPING WATER NE PLANT, DES MOINES, IA Stockpile #1										
Lab #0974	08-08-01	0.1	0.8	2.4	96.7	88.7	0.3	98.3	698	6
APAC-MISSOURI, INC. - BOONVILLE, COLUMBIA, MO Stockpile #1										
Lab #0937	08-02-01	0.8	44.5	14.3	40.4	93.5	0.1	60.1	450	1
Lab #1124	08-21-01	1.1	46.8	14.0	38.1	93.9	0.1	58.2	437	1
Lab #1195	09-10-01	1.1	50.0	13.3	35.6	92.5	0.2	56.1	415	2
Lab #1517	10-29-01	2.1	43.7	11.8	42.4	92.8	0.3	60.4	448	4
Lab #1628	11-19-01	0.6	46.3	14.2	38.9	94.1	0.1	59.0	444	1
APAC-MISSOURI, INC., COLUMBIA, MO Stockpile #1										
Lab #0882	08-01-01	0.1	38.2	17.4	44.3	95.7	0.1	64.3	492	1
Lab #1327	10-04-01	0.2	39.7	15.5	44.6	94.5	0.3	63.8	483	4
Lab #1537	11-06-01	0.1	38.5	16.2	45.2	94.7	0.3	64.5	489	4
Stockpile #2										
Lab #0881	08-01-01	7.9	43.1	12.1	36.9	91.2	0.2	54.9	401	2
Lab #1140	09-07-01	9.3	43.5	11.5	35.7	89.4	0.2	53.5	382	2
Lab #1328	10-04-01	5.5	37.7	14.4	42.4	91.5	0.1	60.5	443	1
Lab #1538	11-06-01	9.8	43.5	9.7	37.0	91.7	0.1	53.7	394	1
APAC-MISSOURI, INC. - LANAGAN, SPRINGFIELD, MO Stockpile #1										
Lab #1012	08-13-01	0.4	46.2	13.5	39.9	89.8	0.8	59.6	428	10
Lab #1204	09-12-01	1.6	49.5	14.4	34.5	88.6	1.0	55.5	393	11
Lab #1390	10-08-01	0.6	42.1	14.6	42.7	88.4	1.0	62.0	438	12
Lab #1624	11-12-01	2.0	53.6	11.2	33.2	89.5	0.9	53.3	382	10
Lab #1804	12-10-01	0.2	45.9	13.7	40.2	86.6	0.9	59.9	415	11
APAC-MISSOURI, INC. - LINN CREEK, LINN CREEK, MO Stockpile #2										
Lab #1067	08-21-01	1.1	39.1	16.0	43.8	95.2	12.1	63.2	481	153
Lab #1727	11-29-01	0.5	41.0	15.4	43.1	94.8	11.9	62.6	475	149
APAC-MISSOURI, INC. - MARSHALL, MARSHALL, MO Stockpile #1										
Lab #0938	08-03-01	5.3	44.1	7.4	43.2	87.0	4.9	58.7	408	57
Lab #1101	08-27-01	2.8	54.2	10.7	32.3	91.7	0.2	52.3	383	2
Lab #1197	09-13-01	6.4	47.4	7.3	38.9	90.1	3.7	55.1	397	41
Lab #1460	10-23-01	9.8	46.1	6.5	37.6	84.1	5.4	53.0	357	57
Lab #1609	11-14-01	7.7	49.5	7.7	35.1	86.0	4.3	52.1	358	45
Lab #1785	12-07-01	4.7	54.2	9.6	31.5	87.7	2.5	50.8	356	25
APAC-MISSOURI, INC. - NETTLETON, COLUMBIA, MO Stockpile #1										
Lab #1434	10-17-01	11.7*	45.7	8.4	34.2	78.4	1.3	50.7	0	0

* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
APAC-MISSOURI, INC. - NETTLETON, COLUMBIA, MO										
Stockpile #4										
Lab #1095	08-24-01	0.1	47.5	10.2	42.2	77.1	1.1	60.2	371	13
Lab #1433	10-17-01	5.6	40.5	8.7	45.2	75.8	1.5	60.5	367	18
Lab #1797	12-06-01	4.8	47.8	7.6	39.8	71.9	1.7	56.3	324	19
APAC MO INC CENTRAL COMPANIES DYL, OSAGE BEACH, MO										
Stockpile #1										
Lab #1594	11-05-01	15.0*	36.5	6.6	41.9	87.3	10.6	55.0	0	0
Lab #1725	11-29-01	11.3*	35.7	6.7	46.3	83.9	10.7	59.2	0	0
APAC MISSOURI CENTRAL COMPANIES, OSAGE BEACH, MO										
Stockpile #1										
Lab #1068	08-21-01	1.6	46.2	14.0	38.2	92.0	11.6	58.2	428	135
Lab #1728	11-29-01	1.0	42.8	16.3	39.9	90.3	11.3	60.4	436	136
Stockpile #2										
Lab #1069	08-21-01	2.7	48.4	14.9	34.0	91.0	11.4	55.0	401	125
Lab #1729	11-29-01	2.1	48.0	15.1	34.8	87.8	11.1	55.9	392	124
APAC-MISSOURI INC. - ROARK CREEK, SPRINGFIELD, MO										
Stockpile #1										
Lab #1072	08-23-01	3.2	42.5	8.5	45.8	92.7	11.5	61.5	456	142
Lab #1345	10-04-01	2.0	44.3	8.0	45.7	90.4	11.2	61.6	445	138
Lab #1558	11-05-01	1.5	44.3	7.5	46.7	93.6	10.8	62.3	466	135
Lab #1752	12-03-01	4.4	43.6	8.0	44.0	87.1	10.8	59.7	416	129
ARKANSAS LIME COMPANY, INC., BATESVILLE, AR										
ASC MINERALS PROCESSING, ALLERTON, IL										
ASH GROVE AGGREGATES INC-APPLETON, BUTLER, MO										
Stockpile #1										
Lab #1071	08-24-01	5.0	57.9	8.7	28.4	83.0	1.1	48.1	319	11
Lab #1291	09-13-01	7.1	52.7	7.8	32.4	81.9	0.8	50.3	329	8
ASH GROVE AGGREGATES INC-BUTLER, BUTLER, MO										
Stockpile #1										
Lab #0869	07-30-01	5.9	56.4	9.2	28.5	81.6	0.8	48.1	314	8
Lab #0903	08-01-01	5.5	55.2	9.0	30.3	84.9	0.6	49.5	336	6
Lab #1115	08-28-01	6.3	58.0	9.4	26.3	84.5	0.6	46.4	314	6
Lab #1409	10-16-01	5.9	55.3	7.6	31.2	89.8	0.8	49.6	356	8
Lab #1767	12-03-01	5.6	54.8	9.3	30.3	83.0	0.6	49.6	329	6
Stockpile #2										
Lab #0870	07-30-01	3.0	53.4	10.7	32.9	88.0	0.7	52.7	371	7
Lab #0904	08-01-01	5.2	54.9	9.5	30.4	85.5	0.7	49.8	341	7
Lab #1116	08-28-01	4.9	54.0	10.1	31.0	81.4	0.7	50.6	329	7
Lab #1410	10-16-01	6.9	54.4	10.0	28.7	85.3	0.7	48.3	330	7
Lab #1768	12-03-01	5.1	55.2	9.8	29.9	82.7	0.8	49.6	328	8
ASH GROVE AGGREGATES INC-RICHHILL, BUTLER, MO										
Stockpile #3										
Lab #0999	08-15-01	7.1	55.6	8.1	29.2	86.2	0.6	48.0	331	6
ASH GROVE AGGREGATES INC-LACYGNE, BUTLER, MO										
Stockpile #1										
Lab #0905	08-01-01	2.0	42.2	9.3	46.5	86.3	1.7	62.6	432	21
Lab #1117	08-28-01	2.4	43.7	10.2	43.7	86.0	1.7	60.7	418	21
Lab #1192	09-11-01	0.9	38.1	13.5	47.5	85.1	1.7	65.1	443	22
Lab #1411	10-16-01	3.9	43.4	8.5	44.2	81.9	1.4	60.2	394	17
Lab #1723	11-28-01	1.9	41.5	13.1	43.5	80.9	1.5	61.7	400	19
ASH GROVE AGGREGATES INC-MARSHFIELD, BUTLER, MO										
Stockpile #3										
Lab #1155	09-04-01	2.3	46.0	11.4	40.3	99.1	12.5	58.6	465	147
ASH GROVE AGGREGATES INC-MONTEVALLO, BUTLER, MO										
Stockpile #1										
Lab #0912	08-03-01	3.3	45.8	8.9	42.0	82.3	4.7	58.8	387	55
Lab #1597	11-12-01	4.1	46.9	9.5	39.5	87.5	2.9	56.9	398	33
Lab #1822	12-12-01	4.2	45.8	8.9	41.1	87.6	3.3	57.9	406	38
ASH GROVE AGGREGATES INC-OSCEOLA, BUTLER, MO										
Stockpile #1										
Lab #0910	08-02-01	5.6	47.0	8.0	39.4	81.5	2.3	56.0	365	26
Lab #1378	10-09-01	0.0	31.2	15.3	53.5	96.8	0.5	70.5	546	7
Lab #1606	11-14-01	2.8	40.5	12.7	44.0	91.3	0.7	61.7	451	9

* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton		
		+8	-8+40	-40+60	-60				ENM	EMG	
ASH GROVE AGGREGATES INC-OSCEOLA, BUTLER, MO											
Stockpile #2											
Lab #0911	08-02-01	0.2	32.5	14.4	52.9	93.2	1.4	69.7	519	20	
Lab #1070	08-24-01	0.3	36.3	14.4	49.0	93.3	0.8	66.7	498	11	
Lab #1602	11-14-01	6.4	28.9	13.2	51.5	93.9	0.9	66.6	501	12	
ASH GROVE AGGREGATES INC-FT SCOTT, BUTLER, MO											
Stockpile #1											
Lab #0996	08-13-01	4.6	52.4	10.3	32.7	90.5	0.4	52.0	376	4	
Lab #1415	10-17-01	4.6	50.1	10.2	35.1	88.5	0.4	53.7	381	4	
Lab #1772	12-05-01	7.6	55.1	8.1	29.2	87.5	0.4	47.8	335	4	
ASH GROVE AGGREGATES INC.-STOCKTON, BUTLER, MO											
Stockpile #1											
Lab #0913	08-03-01	7.5	18.4	48.7	25.4	95.7	0.3	59.2	453	4	
Lab #1118	08-30-01	3.2	48.4	12.6	35.8	92.5	0.4	55.5	410	4	
Lab #1332	10-03-01	4.7	48.3	12.4	34.6	95.1	0.2	54.1	412	2	
Lab #1716	11-27-01	4.2	44.4	12.9	38.5	92.4	0.2	57.3	424	2	
Lab #1823	12-12-01	3.4	46.5	12.5	37.6	95.5	0.3	56.7	433	3	
Stockpile #2											
Lab #1119	08-30-01	4.5	49.7	11.7	34.1	95.2	0.2	53.5	408	2	
Lab #1333	10-03-01	6.5	53.7	11.1	28.7	94.5	0.1	48.8	369	1	
Lab #1717	11-27-01	3.3	48.6	13.1	35.0	94.0	0.1	55.0	414	1	
Lab #1824	12-12-01	4.2	49.0	13.1	33.7	94.6	0.1	53.8	407	1	
Stockpile #3											
Lab #1120	08-30-01	6.2	48.1	9.9	35.8	95.1	0.2	53.8	409	2	
Lab #1334	10-03-01	2.3	50.1	12.8	34.8	91.9	0.2	55.0	404	2	
Lab #1718	11-27-01	4.8	49.8	12.3	33.1	92.3	0.2	52.9	391	2	
Lab #1825	12-12-01	2.5	47.4	12.9	37.2	89.9	0.2	56.8	408	2	
ASH GROVE AGGREGATES INC-WHEATLAND, BUTLER, MO											
Stockpile #2											
Lab #0908	08-02-01	4.0	47.8	11.4	36.8	94.1	0.6	55.6	418	7	
Lab #1187	09-10-01	4.3	47.2	10.3	38.2	94.4	0.7	56.2	424	8	
Lab #1376	10-09-01	6.0	48.9	9.5	35.6	95.4	0.5	53.5	409	5	
Lab #1769	12-04-01	4.6	47.8	10.8	36.8	94.3	0.4	55.2	417	4	
ASH GROVE AGGREGATES INC-FT SCOTT E, BUTLER, MO											
ASH GROVE AGGREGATES INC-BOLIVAR, BUTLER, MO											
Stockpile #1											
Lab #0944	08-07-01	0.1	38.1	12.9	48.9	96.8	0.5	66.2	512	7	
Lab #1193	09-12-01	2.1	42.3	8.7	46.9	96.5	0.5	62.7	484	6	
Lab #1373	10-08-01	5.6	38.7	12.7	43.0	95.5	0.7	60.3	461	8	
Lab #1828	12-12-01	6.4	50.4	9.9	33.3	95.5	0.1	51.8	396	1	
Stockpile #2											
Lab #0945	08-07-01	9.9	49.0	8.7	32.4	88.2	0.3	49.9	352	3	
Lab #1194	09-12-01	8.7	54.4	7.6	29.3	91.1	0.4	47.5	346	4	
Lab #1374	10-08-01	7.2	50.4	9.0	33.4	92.1	0.2	51.4	379	2	
Lab #1829	12-12-01	0.0	35.7	14.9	49.4	91.6	0.4	67.3	493	5	
Stockpile #3											
Lab #0946	08-07-01	4.6	48.1	10.1	37.2	93.4	1.0	55.3	413	11	
Lab #1287	09-12-01	2.9	49.9	11.0	36.2	95.9	0.5	55.3	424	6	
Lab #1375	10-08-01	2.8	49.2	11.0	37.0	94.6	0.4	55.9	423	4	
Lab #1830	12-12-01	4.1	50.0	10.0	35.9	96.1	0.4	54.4	418	4	
ASH GROVE AGGREGATES INC-BUFFALO, BUTLER, MO											
Stockpile #1											
Lab #1121	08-31-01	0.0	34.4	16.2	49.4	91.8	11.6	67.7	497	157	
Lab #1379	10-12-01	0.6	39.3	12.7	47.4	88.4	11.1	64.8	459	144	
Lab #1773	12-06-01	0.2	40.2	13.0	46.6	88.2	11.3	64.5	455	146	
AUXVASSE STONE & GRAVEL CO, AUXVASSE, MO											
Stockpile #1											
Lab #0879	08-01-01	3.7	49.4	9.0	37.9	93.2	3.8	55.7	415	42	
Lab #1275	09-14-01	5.0	42.8	10.3	41.9	93.4	2.5	58.8	439	29	
Lab #1491	10-15-01	5.7	40.7	9.6	44.0	95.1	1.0	59.9	456	12	
Lab #1649	11-19-01	4.9	53.8	8.1	33.2	91.9	1.6	51.5	379	16	
BAILEY QUARRIES INC-CHESAPEAKE Q., MT VERNON, MO											
Stockpile #4											
Lab #0924	08-01-01	2.2	41.2	9.0	47.6	92.5	11.4	63.3	468	144	
Lab #0927	08-03-01	1.5	39.3	10.3	48.9	91.0	11.3	64.9	473	147	

* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
BAILEY QUARRIES INC-CHESAPEAKE Q., MT VERNON, MO										
Stockpile #4										
Lab #0978	08-06-01	2.6	40.8	10.2	46.4	91.4	11.5	62.7	459	144
Lab #1531	10-30-01	3.2	45.0	7.8	44.0	91.8	11.3	59.9	440	135
BAILEY QUARRIES INC-JANE, JANE, MO										
Stockpile #2										
Lab #1011	08-13-01	5.2	41.3	8.0	45.5	93.0	11.7	60.6	451	142
Lab #1203	09-12-01	5.2	42.2	7.4	45.2	93.3	11.9	60.2	449	143
Lab #1389	10-08-01	3.5	44.3	8.1	44.1	94.0	11.7	60.0	451	140
Lab #1623	11-12-01	3.5	44.4	9.0	43.1	90.7	11.4	59.6	432	136
Lab #1803	12-10-01	4.7	44.5	8.1	42.7	92.0	11.6	58.7	432	136
BAILEY QUARRIES, INC.-MADRY QUARRY, VERONA, MO										
Stockpile #1										
Lab #0979	08-06-01	3.9	45.4	7.0	43.7	92.4	11.4	59.3	438	135
Lab #1394	10-12-01	4.3	47.5	5.2	43.0	91.7	11.3	58.0	425	131
Lab #1564	11-07-01	4.5	47.3	6.4	41.8	92.5	11.1	57.5	425	128
Stockpile #3										
Lab #0980	08-06-01	12.3*	56.3	7.5	23.9	86.9	0.7	42.5	0	0
BAILEY QUARRIES INC-STOCKTON, STOCKTON, MO										
Stockpile #2										
Lab #0914	08-03-01	4.2	43.8	12.0	40.0	95.5	0.2	58.2	444	2
Lab #1335	10-03-01	0.3	45.5	16.2	38.0	96.1	0.1	59.1	454	1
Lab #1719	11-27-01	0.2	44.5	15.8	39.5	92.9	0.1	60.1	447	1
Lab #1826	12-12-01	0.8	42.8	15.7	40.7	94.5	0.1	60.8	460	1
BARBER & SONS AGGREGATES, LEE'S SUMMIT, MO										
Stockpile #1										
Lab #0933	08-01-01	8.3	53.4	7.4	30.9	85.2	1.4	48.7	332	14
Lab #1318	09-25-01	6.6	51.9	8.0	33.5	85.0	1.3	51.3	349	13
BASE ROCK MINERALS, BONNE TERRE, MO										
JAMES ELROD TRUCK SERVICE, BELLE, MO										
Stockpile #1										
Lab #0896	07-30-01	0.3	29.9	15.5	54.3	94.9	1.6	71.1	540	23
Lab #1106	08-27-01	0.7	32.1	12.6	54.6	98.7	3.2	70.2	554	45
Lab #1246	09-17-01	0.3	32.1	12.9	54.7	98.0	3.2	70.5	552	45
Lab #1554	10-25-01	0.4	30.3	11.4	57.9	96.7	2.9	72.3	559	42
Lab #1695	11-29-01	0.6	31.2	11.3	56.9	96.2	3.2	71.5	550	46
BLUFF CITY MINERALS CO., ALTON, IL										
Stockpile #1										
Lab #1137	09-06-01	0.1	5.0	5.6	89.3	92.6	2.9	93.9	696	54
Lab #1630	11-13-01	0.3	5.3	6.6	87.8	90.6	2.1	93.1	675	39
BOONE QUARRIES INC, COLUMBIA, MO										
Stockpile #1										
Lab #0884	08-01-01	4.9	30.7	7.6	56.8	100.3	3.5	69.0	554	48
Lab #1142	09-07-01	1.6	32.6	11.4	54.4	91.9	3.4	69.4	510	47
Lab #1330	10-04-01	0.4	27.0	8.4	64.2	97.6	3.1	76.0	593	47
Lab #1540	11-06-01	0.4	32.3	10.0	57.3	98.1	3.2	71.4	560	46
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO										
Stockpile #1										
Lab #0867	07-19-01	0.0	29.3	10.5	60.2	97.4	3.5	73.8	575	52
Lab #1057	08-13-01	0.1	39.2	12.8	47.9	97.1	2.7	65.4	508	35
Lab #1236	09-11-01	0.2	38.8	13.6	47.4	97.1	2.9	65.3	507	38
Lab #1550	10-22-01	0.2	41.4	12.3	46.1	97.0	2.4	63.8	495	31
Lab #1620	11-13-01	0.2	33.8	12.3	53.7	97.4	3.1	69.5	542	43
Lab #1834	12-10-01	0.1	33.9	12.4	53.6	96.8	3.2	69.5	538	44
CALCIUM PRODUCTS, INC., GILMORE CITY, IA										
CAPITAL QUARRIES INC-HOLTS SUMMIT 1, JEFFERSON CITY, MO										
CAPITAL QUARRIES, INC-STADIUM WEST, JEFFERSON CITY, MO										
Stockpile #2										
Lab #0853	07-03-01	1.9	41.4	10.0	46.7	89.1	11.4	63.1	449	144
Lab #0901	08-02-01	0.8	39.8	11.0	48.4	92.9	11.6	65.0	483	151
Lab #1170	09-06-01	0.6	38.0	10.7	50.7	82.7	10.4	66.6	441	139
Lab #1477	10-15-01	1.1	37.5	8.9	52.5	85.6	10.6	67.2	460	142
Lab #1697	11-30-01	1.2	38.7	9.2	50.9	84.7	10.7	66.1	448	141
CAPITAL QUARRIES INC-ROLLA Q #4, JEFFERSON CITY, MO										
CAPITAL QUARRIES CO. INC-HWY Y, JEFFERSON CITY, MO										

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AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
CAPITAL QUARRIES INC-CALIFORNIA Q#5, JEFFERSON CITY, MO										
Stockpile #1										
Lab #0950	08-06-01	0.2	42.7	11.0	46.1	88.7	3.6	63.4	450	46
Lab #1126	08-22-01	0.8	42.0	10.9	46.3	87.1	3.9	63.3	441	49
Lab #1320	10-01-01	0.4	46.5	11.5	41.6	88.2	3.3	60.1	424	40
Lab #1608	11-12-01	1.8	42.4	11.2	44.6	88.3	3.6	61.9	437	45
CAPITAL QUARRIES CO., INC-LINN, JEFFERSON CITY, MO										
CAPITAL QUARRIES INC-HWY 63 N Q #10, JEFFERSON CITY, MO										
CAPITAL QUARRIES INC-SULLIVAN, JEFFERSON CITY, MO										
Stockpile #1										
Lab #1750	12-05-01	0.3	28.1	19.0	52.6	101.2	12.5	71.0	575	178
CARROLL COUNTY STONE, INC., BERRYVILLE, AR										
Stockpile #1										
Lab #0981	08-07-01	0.4	37.5	13.8	48.3	92.8	11.7	66.0	490	154
Lab #1201	09-10-01	0.6	37.8	11.8	49.8	92.9	11.4	66.3	493	151
Lab #1444	10-19-01	1.6	37.1	11.5	49.8	89.1	11.0	66.0	470	145
Lab #1702	11-30-01	4.2	39.6	10.7	45.5	87.0	11.0	61.8	430	136
CARTHAGE CRUSHED LIMESTONE, CARTHAGE, MO										
Stockpile #1										
Lab #1303	09-25-01	5.7	25.4	6.4	62.5	94.8	0.2	72.7	551	3
Lab #1495	10-22-01	0.5	9.2	4.6	85.7	95.9	0.2	90.8	696	4
CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO										
Stockpile #1										
Lab #0960	08-08-01	2.1	28.5	11.4	58.0	93.0	0.3	72.0	535	4
Lab #1220	09-11-01	1.3	29.5	12.1	57.1	93.3	0.4	71.7	535	6
Lab #1485	10-12-01	7.0	33.5	9.8	49.7	93.3	0.2	64.0	477	3
Lab #1643	11-19-01	7.6	36.8	9.9	45.7	93.2	0.3	60.8	454	4
Stockpile #2										
Lab #0961	08-08-01	0.5	21.7	13.1	64.7	85.5	1.2	78.0	533	19
Lab #1221	09-11-01	1.1	28.3	13.5	57.1	91.6	0.2	72.3	530	3
Lab #1486	10-12-01	0.6	26.0	13.1	60.3	89.3	0.2	74.7	533	3
Lab #1644	11-19-01	0.6	25.6	13.0	60.8	94.0	0.4	75.0	564	6
Stockpile #3										
Lab #0962	08-08-01	2.6	26.6	14.8	56.0	95.0	1.3	71.5	544	19
Lab #1222	09-11-01	0.1	22.9	15.4	61.6	99.5	2.7	76.6	609	41
Stockpile #4										
Lab #1223	09-11-01	0.5	14.6	8.1	76.8	90.6	0.2	85.3	618	3
Lab #1487	10-12-01	0.4	22.0	11.0	66.6	85.9	0.5	78.7	541	8
CENTRAL STONE COMPANY - BETHEL, BETHEL, MO										
Stockpile #1										
Lab #1084	08-20-01	5.1	46.9	9.9	38.1	94.0	1.2	55.8	419	13
Lab #1253	09-18-01	6.4	46.5	8.4	38.7	94.0	1.1	55.4	416	12
Lab #1456	10-18-01	4.4	44.7	9.4	41.5	93.8	1.4	58.3	438	16
Lab #1638	11-15-01	6.2	42.4	9.5	41.9	94.1	1.1	58.2	438	13
CENTRAL STONE CO - FORT BELLE, FLORISSANT, MO										
Stockpile #1										
Lab #1138	09-06-01	0.2	0.7	0.9	98.2	91.8	1.6	98.9	726	32
Lab #1381	10-11-01	0.1	0.5	0.7	98.7	96.5	4.7	99.2	766	93
Lab #1631	11-13-01	0.1	0.1	1.3	98.5	93.1	1.2	99.3	740	24
Lab #1812	12-13-01	0.0	0.1	1.5	98.4	88.4	1.6	99.3	702	32
CENTRAL STONE COMPANY - GREENSBURG, HANNIBAL, MO										
CENTRAL STONE COMPANY - PARIS, PARIS, MO										
Stockpile #1										
Lab #0874	08-03-01	6.2	46.8	11.9	35.1	77.1	0.2	53.9	333	2
Lab #1252	09-14-01	10.0	44.2	10.7	35.1	75.6	0.3	52.6	318	3
Lab #1463	10-15-01	8.8	44.8	10.7	35.7	74.8	0.2	53.3	319	2
Lab #1632	11-14-01	8.0	45.3	11.0	35.7	75.9	0.2	53.6	326	2
CENTRAL STONE COMPANY - NEW LONDON, NEW LONDON, MO										
CENTRAL STONE COMPANY - CURRYVILLE, CURRYVILLE, MO										
Stockpile #2										
Lab #1043	08-15-01	5.1	44.3	8.5	42.1	87.5	1.3	58.3	408	15
Lab #1230	09-13-01	3.8	44.5	8.5	43.2	85.5	1.8	59.4	406	21
Lab #1323	10-03-01	4.2	45.2	8.7	41.9	86.8	1.5	58.4	406	18
Lab #1591	11-08-01	4.4	42.2	9.8	43.6	90.5	1.5	60.0	435	18

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		+8	-8+40	-40+60	-60			ENM	EMg		
CENTRAL STONE COMPANY - PERRY, HANNIBAL, MO											
	Stockpile #1										
Lab #0959	08-08-01	6.9	41.8	9.4	41.9	90.0	2.3	58.0	418	27	
Lab #1478	10-19-01	10.0	42.1	7.7	40.2	86.5	1.8	55.3	383	20	
CENTRAL STONE COMPANY - EWING, HANNIBAL, MO											
	Stockpile #1										
Lab #1225	09-11-01	4.7	32.4	9.6	53.3	83.9	0.7	67.2	451	9	
Lab #1742	12-04-01	4.4	32.1	8.7	54.8	84.6	1.3	68.0	461	18	
CENTRAL STONE COMPANY - TAYLOR, TAYLOR, MO											
	Stockpile #1										
Lab #0963	08-08-01	7.4	48.9	10.9	32.8	91.4	0.7	51.6	377	7	
Lab #1224	09-11-01	7.5	46.7	11.3	34.5	91.5	0.7	53.0	388	7	
Lab #1488	10-12-01	7.3	48.2	10.6	33.9	92.4	0.8	52.3	387	8	
Lab #1736	11-26-01	6.7	47.7	11.2	34.4	89.4	0.8	53.0	379	8	
	Stockpile #2										
Lab #0964	08-08-01	5.5	47.3	12.4	34.8	82.4	0.4	54.1	356	4	
CLEVER STONE CO, CLEVER, MO											
	Stockpile #1										
Lab #1014	08-15-01	1.8	49.8	13.1	35.3	94.7	0.2	55.6	421	2	
Lab #1302	09-24-01	2.2	51.2	13.0	33.6	94.8	0.2	54.2	411	2	
Lab #1528	10-29-01	2.4	49.9	13.1	34.6	94.2	0.2	54.9	414	2	
Lab #1699	11-26-01	0.5	50.3	13.9	35.3	93.0	0.1	56.2	418	1	
COLONIAL LIMESTONE INC-PRINCETON, MILAN, MO											
	Stockpile #1										
Lab #0873	08-02-01	2.2	53.3	10.3	34.2	85.8	0.5	53.7	369	5	
Lab #1286	09-21-01	1.3	50.9	10.4	37.4	89.1	1.4	56.4	402	16	
Lab #1512	10-23-01	1.6	53.3	9.1	36.0	85.1	0.5	54.8	373	5	
Lab #1672	11-21-01	1.0	45.9	10.9	42.2	84.0	1.1	60.2	405	13	
CONCO QUARRIES, SPRINGFIELD, MO											
CONCO QUARRIES INC Q US 160, WILLARD, MO											
	Stockpile #1										
Lab #1075	08-20-01	0.1	9.0	14.3	76.6	97.6	0.5	87.4	683	9	
Lab #1498	10-25-01	0.0	9.2	12.3	78.5	95.0	0.3	88.2	670	5	
Lab #1755	12-04-01	0.0	11.1	14.2	74.7	97.1	0.2	86.0	668	3	
	Stockpile #4										
Lab #1076	08-20-01	0.1	9.1	15.2	75.6	98.0	0.4	87.0	682	7	
Lab #1499	10-25-01	0.0	9.6	14.5	75.9	98.9	0.2	87.0	688	3	
Lab #1756	12-04-01	0.1	10.9	14.9	74.1	97.3	0.2	85.8	668	3	
COUNTY LINE QUARRY, WELLSVILLE, MO											
	Stockpile #1										
Lab #1083	08-17-01	3.1	48.3	9.8	38.8	95.9	2.8	56.8	435	32	
Lab #1469	10-17-01	2.6	47.6	7.2	42.6	90.6	6.7	58.8	426	79	
CRAWFORD LIME & MATERIAL CO, CUBA, MO											
	Stockpile #1										
Lab #0861	07-10-01	5.0	48.6	6.9	39.5	91.5	11.3	55.8	408	126	
Lab #1005	08-08-01	3.8	40.8	9.0	46.4	91.2	11.4	62.0	452	141	
Lab #1169	09-05-01	7.8	48.3	6.1	37.8	89.6	11.4	53.5	384	122	
Lab #1837	12-13-01	3.9	46.3	7.0	42.8	90.9	11.9	58.6	426	139	
CRIDER BROTHERS LIME CO, EMINENCE, MO											
	Stockpile #2										
Lab #1172	09-04-01	3.2	53.4	11.9	31.5	97.1	11.0	52.0	404	114	
Lab #1483	10-22-01	0.2	52.6	12.7	34.5	94.9	10.0	55.3	420	111	
Lab #1775	12-03-01	4.5	52.8	11.4	31.3	95.2	11.1	51.3	391	114	
CRIDER BROS LIME CO. INC.-VAN BUREN, EMINENCE, MO											
DOSS & HARPER STONE CO., HOUSTON, MO											
	Stockpile #1										
Lab #1305	09-26-01	0.5	39.4	15.5	44.6	90.9	11.4	63.8	464	145	
Lab #1806	12-12-01	1.1	40.8	13.7	44.4	88.6	11.1	62.8	445	139	
	Stockpile #2										
Lab #1306	09-26-01	4.0	43.9	11.8	40.3	85.2	10.9	58.4	398	127	
DOSS & HARPER STONE CO, WEST PLAINS, MO											
	Stockpile #1										
Lab #1307	09-26-01	0.9	47.1	8.7	43.3	83.3	10.4	60.3	402	125	
Lab #1807	12-12-01	3.0	48.4	7.8	40.8	84.1	10.4	57.6	387	120	

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		+8	-8+40	-40+60	-60			ENM	EMg		
EVERETT QUARRIES #1-LATHROP, PLATTSBURG, MO											
Stockpile #2											
Lab #1010	08-14-01	7.2	52.9	8.1	31.8	86.5	1.3	49.9	345	13	
Lab #1209	09-13-01	5.8	54.0	9.0	31.2	87.2	1.3	50.1	349	13	
Lab #1479	10-21-01	3.8	50.5	10.8	34.9	88.0	0.7	54.0	380	8	
Lab #1661	11-14-01	6.8	50.8	8.7	33.7	83.1	1.4	51.6	343	14	
EVERETT QUARRIES #6-KING, PLATTSBURG, MO											
Stockpile #1											
Lab #1096	08-24-01	7.5	49.3	8.4	34.8	89.4	1.6	52.2	373	17	
Lab #1435	10-17-01	7.2	44.3	7.7	40.8	88.0	1.7	56.5	398	19	
Lab #1798	12-06-01	6.8	48.2	8.3	36.7	87.9	2.2	53.7	378	24	
Stockpile #2											
Lab #1097	08-24-01	7.7	46.7	8.9	36.7	88.7	2.2	53.7	381	24	
Lab #1436	10-17-01	9.3	46.6	8.2	35.9	88.7	1.7	52.5	372	18	
Lab #1799	12-06-01	5.9	49.3	8.1	36.7	88.7	2.3	53.9	382	25	
EVERETT QUARRIES #53-CAMERON, PLATTSBURG, MO											
EVERETT QUARRIES #54-GOWER, PLATTSBURG, MO											
Stockpile #3											
Lab #1009	08-10-01	7.1	51.3	9.0	32.6	83.7	0.7	50.8	340	7	
Lab #1214	09-10-01	6.0	48.5	9.4	36.1	79.7	0.7	53.9	343	8	
Lab #1480	10-21-01	10.5*	49.8	8.2	31.5	84.6	0.6	48.9	0	0	
Lab #1660	11-14-01	9.6	47.3	9.1	34.0	81.1	0.7	51.3	333	7	
Lab #1748	12-06-01	8.8	48.8	7.6	34.8	80.0	0.6	51.6	330	6	
Lab #1809	12-12-01	9.8	49.8	7.7	32.7	82.9	0.7	49.8	330	7	
EVERETT QUARRIES #59-STANBERRY, PLATTSBURG, MO											
Stockpile #1											
Lab #0965	08-09-01	5.0	46.8	10.4	37.8	81.0	1.3	55.7	361	14	
Lab #1256	09-13-01	6.8	47.7	8.6	36.9	78.8	1.9	54.0	340	21	
Lab #1452	10-18-01	6.6	48.8	8.6	36.0	80.9	1.5	53.4	345	16	
Lab #1662	11-14-01	6.2	47.3	8.3	38.2	78.5	1.6	55.0	345	18	
FALL VALLEY STONE, INC., MT VERNON, MO											
Stockpile #1											
Lab #0923	08-01-01	0.3	45.9	10.9	42.9	102.3	12.7	60.9	499	155	
Lab #1530	10-30-01	0.2	41.0	11.5	47.3	98.2	12.1	64.5	506	156	
FISCHER QUARRIES LLC, HUGHESVILLE, MO											
Stockpile #2											
Lab #0940	08-03-01	4.2	50.1	10.3	35.4	98.3	1.1	54.1	425	12	
Lab #1103	08-27-01	4.9	47.7	10.6	36.8	97.8	1.7	55.1	431	19	
Lab #1199	09-13-01	4.6	45.1	11.3	39.0	98.2	1.6	57.1	448	18	
Lab #1502	10-23-01	10.2*	46.0	9.8	34.0	98.1	1.2	51.4	0	0	
Lab #1612	11-14-01	5.0	48.8	10.4	35.8	97.5	1.6	54.2	423	17	
Lab #1665	11-16-01	6.1	45.2	12.8	35.9	96.4	1.2	54.9	423	13	
Lab #1629	11-19-01	7.9	47.6	10.1	34.4	97.8	1.3	52.4	410	14	
Lab #1787	12-07-01	7.2	48.1	10.4	34.3	96.1	1.3	52.6	404	14	
Stockpile #3											
Lab #1503	10-23-01	11.3*	48.7	6.3	33.7	87.9	7.3	49.7	0	0	
Lab #1613	11-14-01	13.5*	49.4	6.0	31.1	87.9	7.3	47.1	0	0	
FULLERTON STONE COMPANY INC, GRANBY, MO											
Stockpile #1											
Lab #1205	09-12-01	6.3	45.8	12.2	35.7	93.3	0.2	54.5	407	2	
Lab #1391	10-08-01	5.9	44.5	11.6	38.0	90.9	0.2	56.1	408	2	
Lab #1625	11-12-01	9.1	45.2	11.1	34.6	90.4	0.1	52.6	380	1	
Lab #1805	12-10-01	4.9	45.8	11.4	37.9	85.1	0.2	56.2	383	2	
GABEL STONE COMPANY INC., WILLOW SPRINGS, MO											
Stockpile #1											
Lab #1808	12-13-01	3.4	46.6	11.3	38.7	92.0	11.4	57.1	420	130	
GLASGOW QUARRIES INC, GLASGOW, MO											
Stockpile #4											
Lab #1020	08-13-01	13.4*	36.2	7.6	42.8	88.4	6.2	56.4	0	0	
Lab #1267	09-17-01	6.8	35.2	7.6	50.4	89.5	6.1	63.8	457	78	
Lab #1428	10-17-01	7.0	36.0	8.0	49.0	87.3	5.8	62.8	439	73	
Lab #1656	11-15-01	8.6	35.6	7.4	48.4	88.8	5.9	61.7	439	73	
GLASGOW QUARRIES-GILLIAM, GILLIAM, MO											
Stockpile #1											
Lab #1019	08-13-01	6.8	43.9	7.7	41.6	89.8	6.5	57.2	411	74	

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TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg Factor	Fineness		Pounds/Ton	
		+8	-8+40	-40+60	-60			ENM	EMg		
GLASGOW QUARRIES-GILLIAM, GILLIAM, MO											
Stockpile #1											
Lab #1266	09-17-01	3.4	45.6	7.9	43.1	90.1	6.5	59.2	427	77	
Lab #1427	10-17-01	3.2	46.4	7.0	43.4	91.1	6.7	59.2	431	79	
Lab #1654	11-15-01	3.1	46.5	7.6	42.8	89.9	6.5	59.0	424	77	
Lab #1782	12-06-01	3.1	45.3	7.0	44.6	88.1	6.8	60.1	424	82	
GLASGOW QUARRIES - MARCELINE, MARCELINE, MO											
Stockpile #3											
Lab #1042	08-16-01	12.4*	38.8	5.5	43.3	89.9	6.4	56.3	0	0	
HART LIME STONE, FARMINGTON, MO											
Stockpile #2											
Lab #1107	08-29-01	0.0	23.9	23.2	52.9	93.4	10.6	72.8	544	154	
Lab #1366	10-11-01	0.0	21.0	12.5	66.5	89.1	10.1	79.3	565	160	
Lab #1688	11-27-01	0.0	35.6	18.9	45.5	91.9	10.2	65.7	483	134	
HERZOG CONTRACTING CORP, ST JOSEPH, MO											
Stockpile #1											
Lab #1128	08-27-01	1.1	1.8	3.2	93.9	71.6	1.5	96.3	551	29	
Lab #1213	09-10-01	6.7	4.2	4.2	84.9	72.4	1.9	88.5	512	34	
Lab #1350	10-01-01	0.7	4.3	6.6	88.4	54.3*	1.3	93.4	0	0	
HIGGINS - MEEKER QUARRIES LLC, DEEPWATER, MO											
Stockpile #1											
Lab #1144	09-06-01	17.6*	39.5	6.4	36.5	70.9	6.3	50.2	0	0	
Lab #1293	09-13-01	16.8*	40.9	6.6	35.7	67.9	6.0	49.9	0	0	
Stockpile #2											
Lab #1336	10-01-01	3.4	47.1	8.5	41.0	69.8	6.3	57.9	323	73	
Lab #1340	10-05-01	2.1	39.7	9.4	48.8	66.6	5.8	64.4	343	75	
Lab #1601	11-13-01	3.3	46.9	8.1	41.7	70.0	5.9	58.3	326	69	
HILTY QUARRIES, INC. - QUARLES, CLINTON, MO											
Stockpile #1											
Lab #0997	08-14-01	6.9	53.0	11.3	28.8	79.9	0.7	48.8	312	7	
Lab #1431	10-18-01	2.8	48.6	9.7	38.9	75.1	0.8	56.9	342	9	
Lab #1730	11-30-01	5.2	47.1	10.4	37.3	75.1	0.9	55.3	332	10	
Stockpile #2											
Lab #0998	08-14-01	0.1	47.6	14.1	38.2	81.0	1.0	58.6	379	12	
Lab #1432	10-18-01	0.3	45.4	13.2	41.1	81.0	1.0	60.4	391	12	
HILTY QUARRIES, INC. - MONTROSE, CLINTON, MO											
Stockpile #1											
Lab #0943	08-06-01	7.0	47.0	6.9	39.1	84.5	0.7	55.0	372	8	
Lab #1292	09-13-01	1.6	47.0	12.2	39.2	85.6	0.6	58.3	399	7	
Stockpile #3											
Lab #1652	11-19-01	1.3	42.7	11.6	44.4	92.1	1.0	62.0	457	12	
HILTY QUARRIES, INC. - MT. ZION, CLINTON, MO											
Stockpile #1											
Lab #0955	08-09-01	0.1	38.9	16.1	44.9	95.6	0.1	64.3	492	1	
HILTY QUARRIES, INC- SOUTH-DELL JCT, CLINTON, MO											
Stockpile #1											
Lab #0958	08-09-01	0.3	41.0	14.0	44.7	89.4	0.3	63.4	453	4	
Lab #1337	10-05-01	0.6	47.9	12.5	39.0	94.4	0.5	58.5	442	6	
Lab #1598	11-13-01	0.9	44.5	12.5	42.1	92.0	0.3	60.7	447	4	
Lab #1819	12-10-01	0.9	43.9	13.6	41.6	96.4	0.3	60.7	468	4	
HILTY QUARRIES, INC - TIGHTWAD, CLINTON, MO											
Stockpile #1											
Lab #0956	08-09-01	0.5	45.2	12.4	41.9	91.8	0.3	60.6	445	4	
Lab #1338	10-05-01	1.1	42.4	12.5	44.0	93.3	0.9	62.1	464	11	
Lab #1599	11-13-01	0.6	47.8	11.9	39.7	91.5	0.9	58.8	430	11	
Lab #1817	12-10-01	1.7	43.6	11.0	43.7	92.5	0.4	61.2	453	5	
Stockpile #2											
Lab #0957	08-09-01	0.4	41.6	13.2	44.8	96.0	0.2	63.1	485	3	
Lab #1339	10-05-01	0.6	42.7	12.0	44.7	94.6	0.4	62.6	474	5	
Lab #1600	11-13-01	5.4	41.0	12.9	40.7	95.3	0.4	58.7	447	5	
Lab #1818	12-10-01	0.8	40.8	12.9	45.5	95.5	0.4	63.4	485	5	
HILTY QUARRIES, INC. - URICH, CLINTON, MO											
Stockpile #4											
Lab #0942	08-06-01	3.7	44.4	11.1	40.8	97.3	0.6	58.6	456	7	
Lab #1651	11-19-01	1.9	43.7	11.9	42.5	94.3	0.7	60.6	457	8	

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
HILTY QUARRIES INC.-WARRENSBURG, CLINTON, MO										
Stockpile #4										
Lab #0935	08-01-01	2.7	47.5	13.5	36.3	78.2	1.4	56.3	352	16
Lab #1457	10-22-01	0.2	46.7	12.3	40.8	69.6	1.1	59.9	333	13
Lab #1732	11-26-01	0.8	53.4	11.8	34.0	69.0	1.3	54.4	300	14
HUNT MIDWEST MINING-BLUE MOUND, DAWN, MO										
Stockpile #2										
Lab #1241	09-07-01	3.8	53.0	7.4	35.8	84.6	1.3	53.5	362	14
Lab #1300	09-26-01	4.6	49.9	8.3	37.2	83.5	1.3	54.7	365	14
Lab #1535	11-02-01	5.9	49.9	8.6	35.6	84.1	1.2	53.2	358	13
Lab #1843	12-13-01	3.5	48.5	8.6	39.4	85.8	1.2	56.7	389	14
HUNT MIDWEST MINING, INC.-TRENTON, EDINBURG, MO										
Stockpile #4										
Lab #1050	08-20-01	4.5	51.4	8.5	35.6	85.8	1.0	53.6	368	11
Lab #1298	09-24-01	6.3	48.2	8.0	37.5	86.2	0.9	54.4	375	10
Lab #1714	11-26-01	5.3	48.3	8.6	37.8	82.6	0.9	55.0	364	10
HUNT MIDWEST MINING - HWY 10 QUARRY, RAYVILLE, MO										
Stockpile #2										
Lab #0952	08-07-01	5.4	55.6	9.4	29.6	89.2	0.8	49.1	351	8
Lab #1196	09-12-01	5.3	55.8	9.4	29.5	89.3	0.8	49.1	351	8
Lab #1505	10-24-01	5.7	53.8	9.4	31.1	88.2	0.9	50.2	354	9
Lab #1802	12-03-01	6.6	57.9	8.6	26.9	89.3	0.7	46.5	332	7
HUNT MIDWEST QUARRY - STET QUARRY, RICHMOND, MO										
Stockpile #1										
Lab #1098	08-24-01	8.3	55.0	6.4	30.3	89.2	0.6	47.9	342	6
Lab #1536	11-02-01	6.6	54.6	9.0	29.8	87.9	0.6	48.9	344	6
Lab #1800	12-06-01	6.6	55.0	7.5	30.9	86.9	0.6	49.2	342	6
Lab #1844	12-14-01	7.0	54.7	7.9	30.4	85.2	0.5	48.8	333	5
HUTCHENS CONSTRUCTION-PURDY, CASSVILLE, MO										
Stockpile #2										
Lab #0984	08-10-01	1.7	46.7	14.9	36.7	89.4	0.2	57.3	410	2
Lab #1159	09-07-01	2.0	47.6	13.3	37.1	87.0	0.1	57.0	397	1
Lab #1393	10-12-01	3.0	50.7	10.9	35.4	86.6	0.2	54.6	378	2
Lab #1563	11-07-01	2.2	48.9	12.2	36.7	88.3	0.1	56.2	397	1
HUTCHENS CONSTRUCTION-EAGLE ROCK, CASSVILLE, MO										
Stockpile #2										
Lab #0925	08-02-01	0.2	36.6	10.4	52.8	92.7	11.5	68.2	506	157
Lab #1342	10-02-01	0.2	38.5	9.8	51.5	89.4	11.3	67.0	479	151
Lab #1497	10-23-01	0.5	36.7	9.7	53.1	89.5	11.1	68.1	488	151
Lab #1762	12-07-01	1.2	36.8	10.1	51.9	87.8	11.3	67.2	472	152
HUTCHENS CONSTRUCTION-WASHBURN, CASSVILLE, MO										
IDEKER INC. - NEW POINT QUARRY, ST JOSEPH, MO										
IDEKER INC. - AMAZONIA, ST JOSEPH, MO										
Stockpile #1										
Lab #1007	08-09-01	4.2	45.1	11.5	39.2	87.5	0.7	57.4	402	8
Lab #1210	09-10-01	4.0	41.8	13.5	40.7	92.6	0.4	59.3	439	5
Lab #1386	10-02-01	5.3	43.5	11.9	39.3	87.4	0.9	57.3	401	10
Lab #1659	11-13-01	2.9	46.3	11.4	39.4	81.9	1.6	57.8	379	19
IOWA LIMESTONE CO-WEeping WATER NE, WEeping WATER, NE										
Stockpile #1										
Lab #0972	08-08-01	0.0	0.4	1.9	97.7	97.8	0.2	98.9	774	4
Lab #1682	11-27-01	0.1	0.6	2.0	97.3	97.4	0.3	98.7	769	6
IOWA MINERAL PROCESSING, INC., ALDEN, IA										
JENKINS QUARRY, CASSVILLE, MO										
Stockpile #1										
Lab #1254	09-17-01	0.1	44.2	8.5	47.2	91.1	11.4	63.4	462	144
Lab #1395	10-12-01	0.2	40.3	10.4	49.1	84.6	8.7	65.4	443	114
Lab #1443	10-18-01	0.0	41.1	10.5	48.4	88.7	10.7	65.0	461	139
Lab #1565	11-07-01	0.0	46.5	8.4	45.1	89.8	10.9	61.8	444	135
LEO JOURNAGAN CONST CO-GAINESVILLE, SPRINGFIELD, MO										
Stockpile #1										
Lab #1344	10-03-01	0.5	40.0	9.1	50.4	81.8	10.2	65.9	431	134
Lab #1566	11-08-01	0.3	37.6	10.4	51.7	81.4	9.6	67.3	439	129

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton		
		+8	-8+40	-40+60	-60				ENM	EMg	
LEO JOURNAGAN CONST CO-HOLLISTER SO, SPRINGFIELD, MO											
Stockpile #1											
Lab #1074	08-23-01	1.7	48.8	11.7	37.8	94.6	0.7	57.0	432	8	
Lab #1347	10-04-01	2.0	48.2	11.8	38.0	93.1	0.6	57.1	426	7	
Lab #1560	11-05-01	2.4	47.6	12.2	37.8	94.1	0.6	57.0	429	7	
Lab #1754	12-03-01	3.8	47.7	11.7	36.8	92.0	0.7	55.7	410	8	
LEO JOURNAGAN CONST CO INC-OZARK, SPRINGFIELD, MO											
Stockpile #1											
Lab #1013	08-15-01	0.5	42.8	14.8	41.9	96.3	0.2	61.5	474	2	
Lab #1301	09-24-01	0.7	42.8	14.3	42.2	95.9	0.2	61.5	472	2	
Lab #1527	10-29-01	0.5	43.5	13.7	42.3	95.8	0.3	61.4	471	4	
Lab #1698	11-26-01	0.8	44.2	13.7	41.3	92.8	0.3	60.6	450	4	
LEO JOURNAGAN CONST CO INC-AVA, SPRINGFIELD, MO											
LEO JOURNAGAN CONST. - SHELL KNOB, SHELL KNOB, MO											
Stockpile #1											
Lab #0926	08-02-01	1.2	40.2	8.8	49.8	89.8	11.1	65.1	468	145	
Lab #1343	10-02-01	3.2	41.5	8.1	47.2	90.2	11.4	62.4	451	142	
Lab #1496	10-23-01	2.9	42.2	7.9	47.0	91.9	11.2	62.3	458	140	
Lab #1763	12-07-01	3.9	42.4	7.1	46.6	89.0	11.5	61.5	438	141	
JOPLIN STONE CO Q DUENWEG, JOPLIN, MO											
Stockpile #2											
Lab #1015	08-16-01	0.2	15.7	22.5	61.6	97.2	0.1	79.0	614	2	
Lab #1255	09-18-01	3.9	17.3	21.0	57.8	96.8	0.2	74.7	579	3	
Lab #1441	10-15-01	0.4	17.0	20.8	61.8	96.9	0.1	78.5	609	2	
Lab #1758	12-05-01	0.2	16.2	21.8	61.8	93.5	0.1	78.9	590	2	
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO											
Stockpile #1											
Lab #1085	08-20-01	5.2	40.1	9.8	44.9	92.1	1.0	60.8	448	12	
Lab #1277	09-18-01	7.5	46.6	8.3	37.6	93.7	0.9	54.2	407	10	
Lab #1453	10-18-01	5.6	39.8	7.1	47.5	87.3	2.8	61.7	431	35	
Lab #1635	11-15-01	6.4	39.4	8.8	45.4	92.2	1.1	60.5	446	13	
Stockpile #3											
Lab #1086	08-20-01	0.3	0.7	0.3	98.7	98.6	0.8	99.1	781	16	
Lab #1278	09-18-01	2.8	14.3	3.5	79.4	93.6	0.9	85.1	637	15	
Lab #1454	10-18-01	0.1	0.7	0.6	98.6	98.1	0.8	99.1	778	16	
Lab #1636	11-15-01	2.2	10.3	2.7	84.8	96.5	0.9	89.0	687	16	
Stockpile #4											
Lab #1087	08-20-01	2.8	18.1	3.4	75.7	90.7	0.8	82.3	597	13	
Lab #1279	09-18-01	2.0	11.9	3.2	82.9	89.0	1.0	87.8	625	18	
Lab #1455	10-18-01	2.6	16.6	3.3	77.5	91.9	1.0	83.6	615	17	
Lab #1637	11-15-01	4.8	14.5	3.7	77.0	89.5	0.9	82.8	593	15	
KELLEY QUARRY, CROCKER, MO											
Stockpile #2											
Lab #0856	07-05-01	0.6	38.2	12.5	48.7	89.6	11.3	65.8	471	149	
Lab #1232	09-10-01	6.8	42.3	9.2	41.7	87.2	11.0	57.8	403	127	
Lab #1447	10-19-01	4.5	41.4	9.1	45.0	86.8	10.6	60.8	422	129	
KERFORD LIMESTONE CO, WEEPING WATER, NE											
Stockpile #1											
Lab #0973	08-08-01	0.0	0.1	0.1	99.8	90.1	0.6	99.9	720	12	
Lab #1683	11-27-01	0.0	0.2	0.1	99.7	95.0	0.4	99.8	759	8	
KEYSTONE QUARRY, WARRENSBURG, MO											
Stockpile #1											
Lab #0936	08-01-01	0.9	59.7	10.6	28.8	76.2	0.6	50.1	305	6	
Lab #1123	08-20-01	0.4	59.5	9.3	30.8	73.5	0.5	51.3	301	5	
Lab #1185	09-06-01	0.1	50.3	11.8	37.8	71.3	0.6	57.5	328	7	
Lab #1462	10-22-01	0.2	55.6	10.9	33.3	69.3	0.9	53.7	298	10	
Lab #1733	11-26-01	0.1	50.4	14.1	35.4	63.3*	1.3	56.5	0	0	
KNOX COUNTY STONE CO, EDINA, MO											
Stockpile #1											
Lab #1134	09-04-01	3.9	47.2	11.0	37.9	89.8	1.9	56.3	404	21	
Lab #1321	10-01-01	4.0	46.7	9.7	39.6	89.7	2.0	57.1	410	23	
Lab #1541	11-01-01	4.6	46.5	9.9	39.0	90.1	2.4	56.6	408	27	
Lab #1739	12-03-01	4.0	44.3	10.9	40.8	87.4	1.9	58.4	408	22	

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMG
L & W QUARRIES INC., KAHOKA, MO										
Stockpile #1										
Lab #1135	09-05-01	6.2	45.7	9.3	38.8	88.1	0.3	55.8	393	3
Lab #1322	10-02-01	3.5	45.9	10.8	39.8	92.3	0.6	57.8	426	7
Lab #1542	11-02-01	0.9	39.5	12.8	46.8	91.1	0.2	64.4	469	3
Lab #1740	12-04-01	0.4	36.4	11.4	51.8	78.6	0.3	67.7	426	4
Stockpile #2										
Lab #1136	09-05-01	8.0	45.0	9.6	37.4	92.6	0.3	54.4	403	3
Lab #1525	11-02-01	7.0	46.1	9.0	37.9	91.8	0.4	54.8	403	4
Lab #1741	12-04-01	6.6	49.0	4.7	39.7	90.4	0.5	54.8	396	5
LAFARGE QUARRY, SEDALIA, MO										
Stockpile #1										
Lab #1459	10-23-01	7.2	53.8	7.4	31.6	89.5	4.9	49.5	354	49
Lab #1610	11-14-01	7.1	51.4	8.1	33.4	90.4	4.7	51.1	370	48
Lab #1784	12-07-01	10.1*	51.0	8.4	30.5	89.2	1.7	48.3	0	0
Stockpile #3										
Lab #1783	12-07-01	5.2	51.3	9.8	33.7	82.8	3.7	52.4	347	39
Lab #1831	12-10-01	5.8	51.8	9.4	33.0	87.2	3.4	51.6	360	35
Lab #1832	12-14-01	7.0	50.9	8.9	33.2	87.7	3.8	51.3	360	39
LAFARGE CORPORATION, SEDALIA, MO										
Stockpile #1										
Lab #0941	08-03-01	6.5	50.8	9.4	33.3	96.3	0.9	51.6	398	9
Lab #1104	08-27-01	6.9	49.1	10.0	34.0	96.3	1.1	52.3	403	12
Lab #1200	09-13-01	6.9	51.4	9.1	32.6	95.8	1.3	50.9	390	13
Lab #1504	10-23-01	6.3	49.3	8.9	35.5	94.4	1.6	53.2	402	17
Lab #1788	12-07-01	5.1	49.4	10.0	35.5	89.4	2.6	53.9	385	28
LAFARGE CORPORATION, SEDALIA, MO										
LAFARGE CONSTRUCTION MATERIALS, ST CHARLES, MO										
LAFARGE CONSTRUCTION MATERIALS, WARRENTON, MO										
Stockpile #1										
Lab #0864	07-18-01	5.0	50.8	8.0	36.2	94.4	3.3	53.7	406	35
Lab #1062	08-15-01	4.7	49.4	8.4	37.5	95.9	3.4	54.9	421	37
Lab #1237	09-11-01	5.9	53.3	8.4	32.4	95.8	3.4	50.8	389	35
Lab #1551	10-23-01	6.1	52.2	7.7	34.0	97.4	4.2	51.7	403	43
Lab #1795	12-06-01	6.0	46.7	8.6	38.7	93.8	4.1	55.5	417	46
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Stockpile #1										
Lab #0889	07-23-01	0.7	13.1	19.3	66.9	92.1	11.1	81.8	602	181
Lab #1108	08-29-01	0.2	1.8	4.7	93.3	91.6	11.2	96.6	708	216
Lab #1365	10-11-01	0.1	2.4	10.4	87.1	90.0	10.7	93.9	676	201
Lab #1689	11-27-01	0.1	1.7	11.7	86.5	87.9	10.7	93.9	661	201
LILE QUARRY INC., STRAFFORD, MO										
Stockpile #1										
Lab #1156	09-04-01	0.6	52.1	7.5	39.8	88.1	11.1	57.3	404	127
Lab #1392	10-11-01	2.6	49.0	5.9	42.5	84.7	10.9	58.3	395	127
LIMPUS QUARRIES, INC. (BATES CITY), BATES CITY, MO										
Stockpile #3										
Lab #1021	08-15-01	4.0	57.0	8.1	30.9	92.6	0.7	50.0	370	7
Lab #1181	09-04-01	4.3	55.1	8.1	32.5	92.3	0.6	51.1	378	6
Lab #1271	09-20-01	3.7	55.8	8.4	32.1	92.4	0.5	51.1	378	5
Lab #1426	10-16-01	3.2	51.4	9.1	36.3	89.7	0.6	54.6	392	7
Lab #1666	11-21-01	3.8	48.4	9.6	38.2	89.1	0.4	56.1	400	4
LIMPUS QUARRIES, INC. (GARDEN CITY), HARRISONVILLE, MO										
LIMPUS QUARRIES, INC. (GALLATIN), HARRISONVILLE, MO										
Stockpile #2										
Lab #1052	08-22-01	7.1	50.4	7.6	34.9	72.3	0.6	52.1	301	6
Lab #1404	09-27-01	7.2	54.9	6.5	31.4	73.9	0.5	49.0	290	5
Lab #1523	10-29-01	7.0	52.5	7.6	32.9	73.8	0.7	50.6	299	7
Lab #1705	11-27-01	7.9	55.0	8.0	29.1	72.4	0.5	47.7	276	5
LIMPUS QUARRIES, INC. (HARRISONVILLE), HARRISONVILLE, MO										
Stockpile #2										
Lab #0954	08-08-01	6.4	53.0	8.5	32.1	89.7	0.5	50.5	362	5
Lab #1132	09-05-01	5.7	51.7	8.4	34.2	88.8	0.6	52.2	371	6
Lab #1595	11-06-01	6.8	53.1	8.4	31.7	91.4	0.9	50.0	366	9

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg Factor	Fineness		Pounds/Ton	
		+8	-8+40	-40+60	-60			ENM	EMg		
LIMPUS QUARRIES, INC. (HOLDEN), HOLDEN, MO											
Stockpile #2											
Lab #0934	08-01-01	7.2	48.4	9.1	35.3	79.4	3.2	52.9	336	34	
Lab #1184	09-06-01	6.1	50.8	7.8	35.3	74.9	2.8	52.7	316	30	
Lab #1458	10-22-01	8.1	47.2	7.1	37.6	76.7	2.6	53.7	329	28	
Lab #1731	11-26-01	5.9	48.2	8.0	37.9	75.2	2.7	54.8	329	30	
MAGRUDER LIMESTONE CO-ASHLEY, BOWLING GREEN, MO											
Stockpile #1											
Lab #1089	08-22-01	0.4	45.7	12.2	41.7	98.4	0.3	60.4	476	4	
Lab #1281	09-19-01	0.3	48.5	11.7	39.5	97.2	0.7	58.6	456	8	
Lab #1380	10-10-01	0.2	51.5	8.7	39.6	84.0	2.4	57.7	388	28	
MAGRUDER LIMESTONE CO, INC.-BOWLING, BOWLING GREEN, MO											
Stockpile #1											
Lab #1046	08-15-01	0.2	43.4	12.4	44.0	76.3	0.8	62.3	380	10	
Lab #1218	09-13-01	0.1	43.3	12.6	44.0	81.1	1.1	62.4	405	14	
MAGRUDER LIMESTONE CO-FRANKFORD, BOWLING GREEN, MO											
Stockpile #1											
Lab #1044	08-15-01	1.1	37.7	12.5	48.7	98.7	2.1	65.6	518	28	
Lab #1231	09-13-01	1.4	39.3	12.3	47.0	97.9	1.6	64.2	503	21	
Lab #1324	10-03-01	0.2	35.1	13.8	50.9	97.2	2.2	68.0	528	30	
Lab #1592	11-08-01	0.1	38.3	13.0	48.6	97.8	2.2	66.0	516	29	
MAGRUDER LIMESTONE - SILEX QUARRY, TROY, MO											
Stockpile #1											
Lab #0885	08-02-01	3.1	52.0	9.6	35.3	90.7	3.1	54.1	392	34	
Lab #1226	09-12-01	2.5	48.8	8.2	40.5	90.0	3.2	57.6	415	37	
Lab #1465	10-16-01	4.3	49.5	7.6	38.6	85.2	3.1	55.5	379	34	
Lab #1639	11-16-01	5.2	49.7	8.9	36.2	96.9	3.3	54.0	418	36	
MAGRUDER LIMESTONE CO Q TROY, TROY, MO											
Stockpile #1											
Lab #0888	08-02-01	4.4	53.1	7.6	34.9	85.8	3.3	52.7	362	35	
Lab #1229	09-12-01	1.8	49.5	8.3	40.4	86.4	3.3	57.8	399	38	
Lab #1468	10-16-01	1.2	50.9	9.2	38.7	84.3	2.9	56.9	384	33	
Lab #1641	11-16-01	2.3	51.7	8.0	38.0	84.7	2.8	55.7	378	31	
Stockpile #2											
Lab #0887	08-02-01	1.9	50.7	8.3	39.1	86.0	3.4	56.8	390	39	
Lab #1228	09-12-01	2.5	53.0	8.1	36.4	85.1	3.1	54.5	371	34	
Lab #1467	10-16-01	6.2	51.0	7.4	35.4	85.0	3.2	52.6	358	34	
Lab #1642	11-16-01	2.8	51.7	8.5	37.0	85.5	3.2	55.0	376	35	
MANSFIELD LIME & STONE, MANSFIELD, MO											
Stockpile #2											
Lab #1157	09-05-01	0.0	45.3	8.3	46.4	86.2	10.8	62.7	432	135	
Lab #1311	09-27-01	0.1	47.8	8.7	43.4	83.6	10.4	60.6	405	126	
Lab #1532	11-01-01	0.3	46.4	8.2	45.1	82.3	10.0	61.6	406	123	
MARTIN MARIETTA AGGREGATES-JEFFRIES, DAVIS CITY, IA											
Stockpile #3											
Lab #0852	07-02-01	11.3*	47.6	9.0	32.1	88.2	1.0	49.4	0	0	
Lab #1038	08-01-01	11.5*	48.2	7.5	32.8	89.2	1.1	49.4	0	0	
Lab #1284	09-20-01	7.9	48.4	7.7	36.0	87.9	1.2	52.7	371	13	
Lab #1840	12-12-01	12.6*	47.3	6.4	33.7	88.2	1.1	49.4	0	0	
Stockpile #4											
Lab #1283	09-20-01	7.5	48.0	8.4	36.1	89.2	0.9	53.1	379	10	
Lab #1841	12-12-01	11.0*	49.7	7.0	32.3	87.9	1.1	48.9	0	0	
MARTIN MARIETTA AGGREGATES-MERCER, MERCER, MO											
Stockpile #1											
Lab #1032	08-14-01	8.9	47.2	7.7	36.2	81.0	0.9	52.6	341	9	
Lab #1509	10-23-01	9.1	44.8	7.4	38.7	80.0	0.9	54.3	348	10	
Lab #1668	11-21-01	9.9	46.1	7.7	36.3	80.2	0.9	52.4	336	9	
Stockpile #3											
Lab #1033	08-14-01	5.8	39.9	7.4	46.9	73.9	1.2	61.3	362	15	
Lab #1510	10-23-01	4.9	39.5	7.3	48.3	75.7	1.2	62.6	379	15	
Lab #1669	11-21-01	5.7	41.6	7.4	45.3	75.3	1.1	60.1	362	13	
Stockpile #4											
Lab #1034	08-14-01	0.9	33.6	9.2	56.3	70.8	1.6	70.2	398	22	
Lab #1511	10-23-01	1.9	41.9	10.4	45.8	78.9	1.3	62.5	395	16	
Lab #1670	11-21-01	4.1	39.6	9.9	46.4	78.7	1.3	62.2	392	16	

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		+8	-8+40	-40+60	-60				ENM	EMG
MARTIN MARIETTA MATERIALS-WATTERSON, MT AYR, IA										
MARTIN MARIETTA AGGREGATES-GOODEN, RAVENWOOD, MO										
	Stockpile #1									
Lab #0977	08-06-01	2.9	48.7	10.4	38.0	83.4	1.9	56.4	376	21
Lab #1148	09-05-01	3.7	48.0	8.2	40.1	82.2	2.0	57.0	375	23
Lab #1353	10-02-01	3.4	46.8	8.1	41.7	81.5	2.1	58.3	380	24
Lab #1703	11-29-01	4.7	46.3	8.6	40.4	80.3	1.9	57.1	367	22
MARTIN MARIETTA AGG - APPLETON, PERRYVILLE, MO										
	Stockpile #1									
Lab #1028	08-07-01	0.2	1.1	0.5	98.2	99.0	3.6	98.8	782	71
Lab #1316	09-24-01	0.2	53.8	13.9	32.1	98.6	2.6	53.9	425	28
Lab #1777	12-04-01	0.4	65.0	10.7	23.9	97.6	2.4	46.6	364	22
MARTIN MARIETTA AGGREGATES-BARNARD, BARNARD, MO										
	Stockpile #1									
Lab #0967	08-07-01	5.4	48.8	7.9	37.9	81.4	1.6	54.8	357	18
Lab #1215	09-12-01	5.8	50.3	7.2	36.7	82.3	1.7	53.6	353	18
Lab #1384	10-11-01	5.4	48.3	7.2	39.1	81.5	1.7	55.5	362	19
Lab #1589	11-08-01	6.5	49.1	7.2	37.2	79.8	1.7	53.8	343	18
MARTIN MARIETTA AGGREGATES-BETHANY, BETHANY, MO										
	Stockpile #3									
Lab #0871	08-01-01	7.1	49.9	8.8	34.2	79.1	1.4	52.0	329	15
Lab #1282	09-20-01	3.6	50.8	8.3	37.3	80.1	1.5	55.0	352	16
Lab #1710	11-29-01	8.0	49.5	8.5	34.0	71.6	1.5	51.5	295	15
Lab #1842	12-12-01	1.9	50.5	10.0	37.6	85.2	1.3	56.2	383	15
MARTIN MARIETTA AGGREGATES - BREIT, SAVANNAH, MO										
	Stockpile #2									
Lab #1008	08-09-01	2.1	45.4	11.1	41.4	83.5	1.4	59.4	397	17
Lab #1211	09-10-01	3.9	48.5	10.7	36.9	88.7	0.8	55.4	393	9
Lab #1387	10-12-01	5.9	44.3	9.8	40.0	84.6	1.3	57.0	385	15
Lab #1658	11-13-01	3.2	49.9	10.5	36.4	88.4	0.8	55.2	390	9
MARTIN MARIETTA AGGREGATES-GALLATIN, GALLATIN, MO										
	Stockpile #1									
Lab #1051	08-22-01	6.6	52.5	9.2	31.7	86.2	0.4	50.3	347	4
Lab #1403	09-27-01	8.0	53.4	8.7	29.9	85.2	0.5	48.5	330	5
Lab #1522	10-29-01	9.1	51.5	8.4	31.0	82.7	0.8	48.9	324	8
Lab #1715	11-27-01	8.8	48.7	8.3	34.2	70.4	1.4	51.4	289	14
MARTIN MARIETTA-GREENWOOD, GREENWOOD, MO										
MARTIN MARIETTA AGGREGATES-MAITLAND, SAVANNAH, MO										
	Stockpile #1									
Lab #0969	08-07-01	3.5	51.1	11.0	34.4	91.8	0.8	53.8	395	9
Lab #1217	09-12-01	4.2	52.1	9.7	34.0	90.3	1.1	52.8	382	12
Lab #1448	10-17-01	3.9	48.3	10.0	37.8	88.9	1.1	55.9	397	12
	Stockpile #2									
Lab #0970	08-07-01	5.0	48.0	9.0	38.0	88.7	1.4	55.4	393	16
Lab #1208	09-12-01	3.3	49.4	9.5	37.8	87.8	1.2	55.9	392	13
Lab #1449	10-17-01	3.7	48.8	9.6	37.9	87.3	1.0	55.9	390	11
	Stockpile #3									
Lab #1450	10-17-01	5.2	42.0	8.3	44.5	78.7	1.1	60.0	378	13
Lab #1663	11-15-01	5.3	40.4	8.1	46.2	77.6	1.2	61.2	380	15
Lab #1811	12-14-01	6.4	42.6	7.7	43.3	79.6	1.1	58.6	373	13
MARTIN MARIETTA, PATTONSBURG, MO										
	Stockpile #1									
Lab #0928	08-02-01	5.2	54.4	8.6	31.8	88.6	0.6	50.6	358	6
Lab #1151	09-06-01	7.9	47.1	7.6	37.4	88.3	0.7	53.7	380	8
Lab #1355	10-04-01	5.9	48.2	7.8	38.1	86.4	0.7	54.8	379	8
Lab #1685	11-28-01	7.7	53.7	7.9	30.7	89.1	0.6	48.9	348	6
	Stockpile #2									
Lab #0929	08-02-01	5.6	51.7	7.6	35.1	80.4	0.9	52.6	338	9
Lab #1152	09-06-01	5.4	50.5	9.2	34.9	81.5	0.8	53.0	346	8
Lab #1356	10-04-01	5.6	50.7	9.0	34.7	80.7	0.9	52.8	341	9
Lab #1686	11-28-01	5.2	51.9	9.4	33.5	81.0	0.8	52.1	338	8
MARTIN MARIETTA MATERIALS-PECULIAR, PECULIAR, MO										
	Stockpile #1									
Lab #0953	08-08-01	6.8	50.7	9.0	33.5	91.2	0.5	51.6	376	5
Lab #1133	09-05-01	10.5*	55.0	6.7	27.8	92.1	0.5	45.6	0	0

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		+8	-8+40	-40+60	-60				ENM	EMg
MARTIN MARIETTA MATERIALS-PECULIAR, PECULIAR, MO										
Stockpile #1										
Lab #1596	11-06-01	5.6	53.6	8.2	32.6	93.0	0.5	50.9	379	5
MARTIN MARIETTA AGG-PERRYVILLE, PERRYVILLE, MO										
Stockpile #1										
Lab #0894	07-24-01	1.2	10.0	6.2	82.6	95.0	1.8	88.8	675	32
Lab #1114	08-30-01	1.0	10.3	6.4	82.3	95.5	1.9	88.7	678	34
Lab #1690	11-28-01	0.7	5.1	2.7	91.5	93.0	1.9	94.4	702	36
MARTIN MARIETTA AGGREGATE-PRINCETON, MERCER, MO										
MARTIN MARIETTA AGGREGATES- TRENTON, TRENTON, MO										
Stockpile #1										
Lab #1047	08-20-01	3.5	43.7	12.0	40.8	92.4	1.2	58.9	436	14
Lab #1295	09-24-01	3.7	44.2	10.2	41.9	92.2	1.1	59.1	436	13
Lab #1513	10-25-01	4.6	44.4	10.5	40.5	92.4	1.2	57.9	428	14
Lab #1711	11-26-01	4.6	44.5	10.2	40.7	89.9	1.1	57.9	417	13
Stockpile #3										
Lab #1048	08-20-01	1.4	49.4	9.9	39.3	77.8	1.4	57.6	358	16
Lab #1296	09-24-01	1.3	48.3	10.0	40.4	76.8	1.4	58.5	359	16
Lab #1514	10-25-01	1.1	47.2	10.4	41.3	77.6	1.3	59.3	368	15
Lab #1712	11-26-01	2.7	47.9	9.2	40.2	70.6	1.5	57.7	326	17
Stockpile #6										
Lab #1049	08-20-01	1.5	48.9	11.3	38.3	92.5	1.3	57.3	424	15
Lab #1297	09-24-01	2.3	50.1	10.8	36.8	92.7	1.1	55.8	414	12
Lab #1515	10-25-01	1.7	49.2	10.7	38.4	91.7	1.1	57.1	419	13
Lab #1713	11-26-01	2.2	50.3	10.0	37.5	87.5	1.2	56.1	393	13
MARTIN MARIETTA AGGREGATES INC, WEEPING WATER, NE										
Stockpile #1										
Lab #0975	08-08-01	4.4	48.2	9.0	38.4	87.5	0.6	55.9	391	7
Lab #1684	11-27-01	4.6	49.3	9.7	36.4	90.8	0.3	54.5	396	3
MERTENS CONST CO-AUXVASSE, KINGDOM CITY, MO										
Stockpile #1										
Lab #0877	08-01-01	11.3*	48.4	8.7	31.6	95.0	2.8	48.9	0	0
Lab #1273	09-14-01	7.9	48.8	9.3	34.0	96.3	2.6	51.8	399	27
Lab #1490	10-15-01	8.4	52.1	9.2	30.3	95.1	3.1	48.8	372	30
Lab #1648	11-19-01	12.1*	51.8	8.1	28.0	96.9	1.2	45.8	0	0
Stockpile #2										
Lab #0876	08-01-01	8.2	49.9	9.1	32.8	96.8	4.5	50.7	393	46
Lab #1274	09-14-01	6.9	50.7	9.4	33.0	95.2	2.4	51.3	391	25
Lab #1489	10-15-01	10.0	47.4	8.9	33.7	94.0	3.1	50.9	383	32
Lab #1647	11-19-01	13.7*	47.7	7.9	30.7	93.8	2.4	47.4	0	0
MERTENS CONST CO-Q-REFORM, KINGDOM CITY, MO										
Stockpile #1										
Lab #0857	07-06-01	8.1	52.2	9.2	30.5	91.2	2.1	49.1	358	21
Lab #0902	08-03-01	3.0	54.7	8.6	33.7	88.4	1.4	52.5	372	15
Lab #1171	09-04-01	5.1	52.8	9.6	32.5	91.1	1.7	51.5	375	17
Lab #1358	10-08-01	7.1	48.7	7.7	36.5	86.1	1.9	53.3	367	20
Lab #1583	11-08-01	6.2	56.6	8.8	28.4	91.3	2.0	47.8	349	19
Lab #1751	12-07-01	6.6	52.4	8.8	32.2	87.8	2.3	50.6	355	23
MFA INC, COLUMBIA, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Stockpile #1										
Lab #0865	07-17-01	4.0	49.8	12.5	33.7	92.9	0.1	53.7	399	1
Lab #1006	08-10-01	4.1	52.0	12.3	31.6	91.5	0.2	52.0	380	2
Lab #1238	09-14-01	3.5	48.9	13.2	34.4	91.3	0.2	54.5	398	2
Lab #1359	10-08-01	4.1	47.7	9.7	38.5	84.5	0.2	56.2	380	2
Lab #1584	11-09-01	4.8	49.1	12.9	33.2	90.2	0.2	53.2	384	2
MID-MISSOURI LIMESTONE, INC.-HOUSTO, KINGDOM CITY, MO										
Stockpile #1										
Lab #1102	08-27-01	7.6	46.5	10.6	35.3	91.4	0.2	53.3	390	2
Lab #0939	09-03-01	11.4*	48.6	9.3	30.7	93.1	0.3	48.4	0	0
Lab #1198	09-13-01	7.5	46.0	10.8	35.7	88.6	0.3	53.7	380	3
Lab #1269	09-19-01	8.9	45.3	10.6	35.2	89.5	0.2	52.9	379	2
Lab #1501	10-23-01	5.5	35.6	14.1	44.8	89.5	0.1	62.2	445	1
Lab #1611	11-14-01	6.5	39.0	11.4	43.1	88.8	0.2	59.7	424	2
Lab #1786	12-07-01	10.1*	46.6	10.4	32.9	89.6	0.3	50.8	0	0

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TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton		
		+8	-8+40	-40+60	-60				ENM	EMg	
MID-MISSOURI LIMESTONE-RIGGS, KINGDOM CITY, MO											
Stockpile #2											
Lab #0880	08-01-01	7.1	45.4	8.8	38.7	95.9	2.8	55.3	424	31	
Lab #1139	09-07-01	9.0	44.2	9.7	37.1	95.5	2.2	54.0	412	24	
Lab #1326	10-04-01	4.8	44.0	8.6	42.6	96.4	2.8	58.8	453	33	
Lab #1738	11-30-01	4.4	44.6	7.9	43.1	93.1	2.9	59.0	439	34	
MIDWEST MINERALS INC, JASPER, MO											
Stockpile #1											
Lab #1158	09-06-01	3.1	33.7	14.8	48.4	98.6	0.2	65.7	518	3	
Lab #1493	10-22-01	3.2	33.6	14.8	48.4	98.7	0.1	65.7	519	1	
Lab #1626	11-15-01	3.5	34.1	15.4	47.0	97.9	0.1	64.8	507	1	
MISSISSIPPI LIME COMPANY, STE GENEVIEVE, MO											
Stockpile #1											
Lab #0892	07-23-01	0.2	0.1	0.3	99.4	99.1	0.3	99.6	790	6	
Lab #1110	08-30-01	0.0	0.7	0.7	98.6	99.3	0.6	99.2	788	12	
Lab #1362	10-10-01	0.0	0.1	0.2	99.7	96.5	0.3	99.8	771	6	
Lab #1691	11-28-01	0.0	0.3	0.4	99.3	97.5	0.2	99.6	777	4	
Stockpile #3											
Lab #0893	07-23-01	0.0	46.1	27.4	26.5	99.3	0.2	54.5	433	2	
Lab #1111	08-30-01	0.0	43.3	30.0	26.7	99.4	0.3	55.5	442	3	
Lab #1363	10-10-01	0.0	47.6	25.5	26.9	98.2	0.2	54.1	425	2	
Lab #1692	11-28-01	0.0	46.9	25.4	27.7	97.9	0.2	54.7	428	2	
MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO											
MISSOURI VALLEY MATERIALS, WASHINGTON, MO											
Stockpile #1											
Lab #0863	07-11-01	4.8	40.2	13.2	41.8	62.9*	7.5	59.8	0	0	
Lab #1000	08-06-01	4.9	41.1	11.2	42.8	65.0	7.9	59.8	311	94	
Lab #1581	11-06-01	6.1	45.6	7.6	40.7	77.9	9.5	56.7	353	108	
Stockpile #2											
Lab #1165	09-04-01	4.0	38.6	12.0	45.4	62.2*	7.7	62.3	0	0	
MK MINERALS INC., MANHATTAN, KS											
Stockpile #1											
Lab #0976	08-09-01	0.0	0.1	1.0	98.9	87.6	0.7	99.5	697	14	
Lab #1212	09-10-01	0.1	0.2	1.6	98.1	79.9	1.4	99.1	634	28	
Lab #1451	10-16-01	0.0	0.2	1.0	98.8	84.3	1.1	99.5	671	22	
Lab #1679	11-21-01	0.0	0.1	1.4	98.5	85.3	0.9	99.4	678	18	
MORRIS ROCK, DEERFIELD, MO											
Stockpile #1											
Lab #0995	08-13-01	4.2	58.4	9.2	28.2	93.5	1.0	48.3	361	10	
Lab #1414	10-17-01	4.1	53.3	9.9	32.7	92.8	1.1	52.0	386	11	
Lab #1771	12-05-01	3.0	55.9	10.0	31.1	92.1	0.9	51.1	376	9	
MOUNTAIN GROVE QUARRY, MOUNTAIN GROVE, MO											
Stockpile #1											
Lab #0982	08-09-01	0.2	44.4	9.9	45.5	89.7	11.0	62.5	449	138	
Lab #1308	09-27-01	0.1	42.4	7.9	49.6	89.6	11.1	64.9	465	144	
Lab #1759	12-06-01	0.0	42.3	8.1	49.6	87.2	11.1	65.0	454	144	
MUEKNS BROS. QUARRY, LOOSE CREEK, MO											
Stockpile #1											
Lab #1240	09-19-01	8.6	46.7	6.8	37.9	87.6	11.2	53.7	376	120	
Lab #1445	10-16-01	8.8	38.1	7.9	45.2	88.2	10.8	59.5	420	128	
Lab #1556	10-26-01	8.0	45.6	7.3	39.1	88.1	10.7	54.9	387	117	
Lab #1789	12-03-01	11.3*	42.5	6.6	39.6	91.0	11.8	54.2	0	0	
NELSON BROS. QUARRIES, JASPER, MO											
Stockpile #1											
Lab #1494	10-22-01	2.2	43.4	15.0	39.4	97.0	0.2	59.3	460	2	
Lab #1627	11-15-01	4.3	45.9	13.3	36.5	97.0	0.3	56.0	434	3	
Lab #1701	11-29-01	5.4	46.5	12.8	35.3	95.9	0.3	54.6	419	3	
NEMO SAND & GRAVEL, QUARRY, HERMITAGE, MO											
Stockpile #1											
Lab #0909	08-02-01	1.5	36.6	9.1	52.8	77.9	9.8	67.4	420	132	
Lab #1186	09-10-01	2.6	45.6	6.2	45.6	76.7	9.5	60.7	373	115	
Lab #1377	10-09-01	2.8	45.9	7.4	43.9	76.9	9.6	59.8	368	115	
Lab #1770	12-04-01	2.2	51.7	7.6	38.5	82.7	10.5	56.0	370	118	

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
NORRIS AGGREGATE PRODUCTS CO - EAST, MOBERLY, MO										
Stockpile #2										
Lab #1035	08-15-01	0.1	43.0	15.2	41.7	93.2	0.8	61.6	459	10
Lab #1054	08-23-01	2.9	46.9	12.5	37.7	86.0	0.8	56.9	392	9
Lab #1567	10-06-01	3.5	48.2	10.9	37.4	76.9	0.6	56.0	344	7
Lab #1838	12-11-01	0.1	29.9	19.2	50.8	96.2	1.5	69.8	537	21
Stockpile #3										
Lab #1037	08-15-01	0.1	39.4	16.5	44.0	94.5	1.4	63.8	482	18
Lab #1055	08-23-01	0.1	35.9	16.9	47.1	94.1	1.2	66.2	498	16
Lab #1568	11-06-01	0.3	38.0	18.0	43.7	96.5	1.5	64.0	494	19
Lab #1839	12-11-01	0.4	39.9	12.9	46.8	93.7	1.1	64.5	484	14
NORRIS AGGREGATE PRODUCTS CO - WEST, MOBERLY, MO										
Stockpile #1										
Lab #1036	08-15-01	4.0	47.2	12.7	36.1	85.2	0.2	55.5	378	2
Lab #1056	08-23-01	4.3	48.3	11.0	36.4	86.0	0.3	55.1	379	3
Lab #1569	11-06-01	4.1	47.8	11.4	36.7	84.9	0.2	55.5	377	2
LEO O'LAUGHLIN INC, SHELBY, MO										
Stockpile #1										
Lab #1088	08-20-01	7.8	44.9	9.2	38.1	86.7	1.7	54.8	380	19
Lab #1280	09-18-01	5.5	44.1	10.6	39.8	86.1	1.7	57.2	394	19
Lab #1470	10-18-01	6.3	45.0	9.9	38.8	83.2	1.3	56.0	373	15
Lab #1634	11-15-01	5.6	48.5	9.5	36.4	84.1	1.8	54.2	365	20
PACE CONSTRUCTION CO.-DANVILLE QUAR, MONTGOMERY CITY, MO										
PHENIX ROCK, ASH GROVE, MO										
Stockpile #1										
Lab #1127	08-30-01	6.6	46.3	11.1	36.0	92.6	0.1	54.2	402	1
Lab #1529	10-30-01	4.7	41.6	13.4	40.3	94.5	0.2	58.7	444	2
PRESTAGE QUARRIES INC, TIPTON, MO										
Stockpile #1										
Lab #0951	08-06-01	0.1	45.2	11.1	43.6	81.6	5.6	61.6	402	69
Lab #1125	08-22-01	0.0	43.9	9.6	46.5	78.9	6.1	63.2	399	77
Lab #1319	10-01-01	0.1	47.9	7.6	44.4	76.7	6.7	60.9	374	82
Lab #1516	10-25-01	0.1	44.1	9.2	46.6	76.1	6.8	63.1	384	86
Lab #1607	11-12-01	0.0	42.2	8.8	49.0	77.3	7.3	64.8	401	95
Lab #1734	11-28-01	0.1	43.7	11.5	44.7	78.0	5.9	62.5	390	74
R-B QUARRY #2 - FOLEY, ELSBERRY, MO										
ROCK QUARRIES, LLC, MOUNTAIN GROVE, MO										
Stockpile #2										
Lab #0983	08-09-01	14.7*	42.0	7.0	36.3	89.3	11.2	51.0	0	0
Lab #1309	09-27-01	8.4	46.3	7.8	37.5	88.9	11.1	53.8	382	119
Lab #1760	12-06-01	11.8*	41.8	6.3	40.1	84.9	10.9	54.3	0	0
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Stockpile #1										
Lab #0993	08-06-01	2.0	9.0	23.1	65.9	99.2	12.6	82.0	651	207
Lab #1091	08-29-01	5.8	15.0	20.8	58.4	102.3	13.0	74.6	611	194
Lab #1398	10-08-01	4.0	14.0	25.8	56.2	98.1	12.5	75.2	590	188
Lab #1573	11-05-01	3.5	9.2	24.4	62.9	101.9	12.3	79.8	651	196
S & A CONSTRUCTION LTD, ALLENDALE, MO										
Stockpile #1										
Lab #1145	09-04-01	0.6	42.5	9.0	47.9	65.2	1.4	63.9	333	18
Lab #1351	10-02-01	0.2	40.5	8.1	51.2	59.7*	1.4	66.2	0	0
Lab #1677	11-28-01	0.7	40.9	8.2	50.2	65.5	1.6	65.3	342	21
Stockpile #2										
Lab #0931	08-01-01	0.2	37.1	9.0	53.7	63.1*	1.2	68.4	0	0
Stockpile #3										
Lab #1146	09-04-01	2.4	52.2	10.2	35.2	80.7	1.2	54.4	351	13
Lab #1352	10-02-01	0.0	45.3	13.0	41.7	80.3	1.2	60.8	391	15
Lab #1678	11-28-01	0.4	45.2	10.0	44.4	73.4	1.5	61.7	362	19
SCHILDBERG CONST. CO.-BEDFORD Q., GREENFIELD, IA										
Stockpile #1										
Lab #0932	08-01-01	0.8	37.9	11.1	50.2	82.9	0.9	66.3	440	12
Lab #1149	09-05-01	0.9	37.6	10.2	51.3	84.0	0.9	66.8	449	12
Lab #1382	10-08-01	0.4	36.9	9.8	52.9	82.4	0.9	68.0	448	12
Lab #1664	11-16-01	0.6	39.4	10.0	50.0	82.8	0.9	65.9	436	12

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JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
SCHILDBERG CONST. CO.-GRAHAM MO Q, GREENFIELD, IA										
Stockpile #1										
Lab #0968	08-07-01	2.4	52.3	10.7	34.6	90.6	0.5	54.1	392	5
Lab #1216	09-12-01	1.2	49.7	11.7	37.4	90.1	0.6	56.8	410	7
Lab #1385	10-11-01	5.2	46.8	9.3	38.7	88.6	0.6	56.0	397	7
Lab #1590	11-08-01	1.4	48.8	10.8	39.0	89.3	0.6	57.7	412	7
SCHILDBERG CONST. CO.-SHAMBAUGH Q, GREENFIELD, IA										
Stockpile #1										
Lab #0966	08-06-01	3.3	48.2	11.3	37.2	85.3	1.0	56.0	382	11
Lab #1150	09-05-01	3.2	47.2	11.4	38.2	85.0	0.9	56.8	387	10
Lab #1383	10-08-01	3.4	47.2	10.5	38.9	83.7	0.8	57.0	382	9
Lab #1704	11-29-01	3.4	45.5	12.6	38.5	83.4	0.8	57.4	383	9
SOUTHWEST QUARRY & MATERIAL INC, ROLLA, MO										
Stockpile #1										
Lab #1166	09-05-01	0.4	23.9	11.8	63.9	80.3	10.0	77.0	494	154
Stockpile #2										
Lab #0858	07-09-01	18.2*	30.7	9.9	41.2	89.9	11.0	54.8	0	0
Lab #1002	08-07-01	7.2	38.3	10.2	44.3	89.6	11.2	60.0	430	134
Lab #1239	09-19-01	10.6*	35.1	8.8	45.5	79.6	10.2	59.6	0	0
Lab #1244	09-21-01	9.8	35.0	9.2	46.0	80.0	10.0	60.3	386	121
Lab #1474	10-18-01	11.2*	34.2	9.3	45.3	77.7	9.8	59.4	0	0
Lab #1475	10-19-01	11.7*	35.4	8.4	44.5	78.4	9.9	58.4	0	0
Stockpile #3										
Lab #1836	12-13-01	1.8	40.8	8.3	49.1	91.4	11.3	64.3	470	145
SOUTHDOWN, INC., COLUMBIA, MO										
Stockpile #1										
Lab #0883	08-01-01	11.7*	47.9	8.1	32.3	91.1	4.9	49.1	0	0
Lab #1141	09-07-01	5.7	48.4	10.0	35.9	92.8	3.8	54.0	401	41
Lab #1329	10-04-01	6.5	47.8	10.8	34.9	95.6	1.8	53.3	408	19
Lab #1539	11-06-01	5.1	46.9	10.7	37.3	94.8	2.4	55.4	420	27
SPRINGFIELD UNDERGROUND, INC., SPRINGFIELD, MO										
Stockpile #1										
Lab #1077	08-20-01	0.0	10.2	14.1	75.7	96.4	0.3	86.7	669	5
Lab #1500	10-25-01	0.0	9.9	15.0	75.1	98.0	0.2	86.6	679	3
Lab #1757	12-04-01	0.0	9.8	14.2	76.0	94.9	0.2	87.0	660	3
S-S-S INC, LOUISIANA, MO										
Stockpile #1										
Lab #1045	08-15-01	10.7*	46.0	6.3	37.0	92.8	0.3	52.3	0	0
Lab #1219	09-13-01	4.0	47.3	10.0	38.7	95.9	0.6	56.5	434	7
Lab #1325	10-03-01	4.8	46.8	10.9	37.5	96.5	0.4	55.7	430	4
Lab #1593	11-08-01	5.4	48.4	11.3	34.9	97.6	0.2	53.8	420	2
STANPHILL STONE, PIERCE CITY, MO										
T & M STONE LLC, FAIR PLAY, MO										
Stockpile #1										
Lab #0949	08-07-01	0.2	43.2	18.0	38.6	99.1	0.1	60.2	477	1
Lab #1290	09-12-01	0.0	45.6	14.8	39.6	98.1	0.1	59.9	470	1
Lab #1372	10-08-01	0.1	46.0	16.7	37.2	96.9	0.1	58.7	455	1
Lab #1827	12-12-01	0.0	46.1	15.9	38.0	96.3	0.1	59.1	455	1
TABLE ROCK ASPHALT CONST CO INC, BRANSON, MO										
Stockpile #1										
Lab #1765	12-03-01	4.9	47.0	7.5	40.6	84.4	10.7	56.9	384	122
TAYLOR QUARRIES, LOCKWOOD, MO										
Stockpile #1										
Lab #1206	09-13-01	7.1	46.5	12.0	34.4	95.4	1.1	53.2	406	12
Lab #1562	11-06-01	11.6*	46.7	11.7	30.0	90.9	1.1	48.7	0	0
TOWER ROCK STONE CO, SCOTT CITY, MO										
Stockpile #2										
Lab #0917	08-01-01	7.1	43.9	12.7	36.3	96.9	1.7	54.9	426	19
Lab #1576	11-07-01	2.9	40.7	13.6	42.8	97.4	1.1	61.1	476	13
Lab #1776	12-03-01	7.1	43.2	11.3	38.4	95.8	1.5	56.0	429	17
TOWER ROCK STONE CO, STE GENEVIEVE, MO										
Stockpile #1										
Lab #0890	07-23-01	13.8*	36.6	18.6	31.0	99.0	0.3	51.3	0	0
Lab #1112	08-30-01	3.4	42.1	14.1	40.4	97.7	1.1	59.4	464	13
Lab #1360	10-10-01	1.1	47.1	11.3	40.5	95.8	1.6	59.1	453	19

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		+8	-8+40	-40+60	-60				ENM	EMg
TOWER ROCK STONE CO, STE GENEVIEVE, MO										
Stockpile #1										
Lab #1364	10-11-01	2.6	45.6	12.4	39.4	96.1	1.7	58.2	448	20
Lab #1693	11-28-01	8.6	44.6	10.7	36.1	94.8	1.7	53.7	407	18
Stockpile #2										
Lab #0891	07-23-01	0.7	43.9	10.3	45.1	98.7	10.0	62.3	492	125
Lab #1113	08-30-01	0.9	52.1	8.5	38.5	100.0	9.9	56.6	453	112
Lab #1361	10-10-01	0.9	52.1	8.3	38.7	98.1	9.7	56.7	445	110
Lab #1694	11-28-01	1.0	47.9	8.8	42.3	97.3	8.9	59.6	464	106
TRAGER LIMESTONE, CHILLICOTHE, MO										
Stockpile #1										
Lab #1053	08-22-01	0.1	48.3	10.2	41.4	72.9	1.4	59.6	348	17
Lab #1405	09-27-01	0.1	51.0	9.3	39.6	74.1	1.4	57.9	343	16
Lab #1524	10-29-01	0.0	53.3	9.6	37.1	74.2	1.2	56.2	334	13
Lab #1706	11-27-01	0.1	49.4	8.9	41.6	68.1	1.2	59.3	323	14
TWIN LAKES QUARRIES INC, MOUNTAIN HOME, AR										
UEHLIN QUARRY, AMAZONIA, MO										
UNITED SUPPLIERS, ELDORA, IA VULCAN MATERIALS, JONESBORO, IL										
Stockpile #1										
Lab #1024	08-13-01	3.5	33.1	11.3	52.1	99.2	0.7	67.2	533	9
Lab #1779	12-05-01	7.4	46.2	11.5	34.9	96.6	0.3	53.4	412	3
WADE AG PRODUCTS-MAIN OFC, LACYGNE, KS										
Stockpile #1										
Lab #0906	08-01-01	8.7	45.6	8.6	37.1	87.0	1.1	53.7	373	12
Lab #1190	09-11-01	8.0	45.9	8.9	37.2	89.3	1.2	54.0	386	13
Lab #1412	10-16-01	4.3	45.4	8.3	42.0	85.0	1.0	58.3	397	12
Lab #1721	11-28-01	5.0	46.0	8.7	40.3	81.8	1.2	57.0	373	14
Stockpile #2										
Lab #0907	08-01-01	2.3	44.8	9.9	43.0	79.5	1.3	60.1	382	16
Lab #1191	09-11-01	8.4	42.8	7.9	40.9	82.8	1.2	56.3	373	14
Lab #1413	10-16-01	3.3	46.0	8.1	42.6	80.7	1.4	59.0	381	17
Lab #1722	11-28-01	8.1	45.9	8.6	37.4	77.8	1.2	54.0	336	13
WADE AG PRODUCTS Q BUTLER MO, LACYGNE, KS										
Stockpile #1										
Lab #1724	11-28-01	5.2	53.6	9.5	31.7	82.5	0.4	50.8	335	4
Lab #1820	12-11-01	3.1	51.2	10.1	35.6	83.1	0.3	54.5	362	3
WADE AG PRODUCTS Q DREXEL, LACYGNE, KS										
Stockpile #1										
Lab #1066	08-20-01	1.6	47.2	9.0	42.2	71.1	1.5	59.4	338	18
Lab #1189	09-11-01	0.8	40.3	10.0	48.9	74.4	1.1	65.0	387	14
Lab #1507	10-24-01	1.9	41.7	9.7	46.7	79.0	1.0	62.9	398	13
Lab #1720	11-28-01	2.7	48.7	9.1	39.5	71.5	1.3	57.1	327	15
WADE AG PRODUCTS Q PLEASANTON, LACYGNE, KS										
Stockpile #1										
Lab #1766	12-03-01	5.3	46.5	9.2	39.0	79.2	0.8	56.1	356	9
FRED WEBER INC.-AUBURN QUARRY, ELSBERRY, MO										
FRED WEBER, INC - FOLEY QUARRY, FOLEY, MO										
Stockpile #2										
Lab #0886	08-02-01	7.2	53.9	8.0	30.9	92.8	2.8	49.2	365	28
Lab #1227	09-12-01	7.9	53.9	7.5	30.7	92.8	3.0	48.7	361	29
Lab #1466	10-16-01	8.2	53.2	7.4	31.2	92.9	2.8	48.9	364	27
Lab #1640	11-16-01	6.6	53.2	7.8	32.4	90.4	2.8	50.4	364	28
FRED WEBER INC-NORTH QUARRY, MARYLAND HEIGHTS, MO										
Stockpile #1										
Lab #0866	07-19-01	0.2	0.8	1.7	97.3	91.3	3.0	98.5	720	59
Lab #1065	08-13-01	0.3	0.8	2.1	96.8	91.0	1.8	98.3	715	35
Lab #1235	09-11-01	8.6	10.5	3.4	77.5	90.9	1.5	82.2	598	25
Lab #1549	10-22-01	0.4	1.4	1.7	96.5	92.1	0.8	97.9	721	16
Lab #1619	11-13-01	0.7	1.1	1.7	96.5	93.8	3.2	97.8	734	63
Lab #1833	12-10-01	0.0	0.7	1.5	97.8	85.7	0.4	98.9	678	8
FRED WEBER, INC. - TROY QUARRY, TROY, MO										
WEST LIMESTONE QUARRY, ARCADIA, MO										
Stockpile #2										
Lab #1109	08-29-01	5.7	57.4	8.2	28.7	98.2	12.2	48.0	377	117

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TABLE 1

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton		
		+8	-8+40	-40+60	-60				ENM	EMg	
WIELAND HAULING Q, PRINCETON, MO											
Stockpile #1											
Lab #0872	08-02-01	6.7	51.7	7.5	34.1	83.4	1.2	51.5	344	12	
Lab #1285	09-21-01	5.6	47.0	8.6	38.8	84.0	1.1	55.7	374	12	
Lab #1671	11-21-01	8.3	45.7	7.7	38.3	82.7	1.1	54.3	360	12	
WILKERSON BROS QUARRY, PARIS, MO											
Stockpile #1											
Lab #0875	08-03-01	9.9	42.3	11.1	36.7	88.8	0.5	53.9	383	5	
Lab #1251	09-14-01	9.6	44.4	10.0	36.0	87.5	1.5	53.1	372	16	
Lab #1464	10-15-01	10.9*	42.6	10.0	36.5	92.3	2.2	53.2	0	0	
Lab #1646	11-19-01	7.1	46.6	9.4	36.9	89.1	1.5	54.2	386	16	
Lab #1745	12-07-01	4.0	46.9	11.5	37.6	93.9	2.4	56.2	422	27	
Stockpile #2											
Lab #1633	11-14-01	11.8*	45.3	10.4	32.5	87.3	1.3	50.1	0	0	
Lab #1645	11-19-01	9.8	44.9	10.9	34.4	90.3	1.8	52.2	377	19	
Lab #1737	11-30-01	5.4	47.4	11.5	35.7	89.2	1.7	54.5	389	19	
Lab #1744	12-07-01	7.4	44.9	11.1	36.6	89.2	3.1	54.5	389	34	
WILLIAMSVILLE STONE CO, POPLAR BLUFF, MO											
Stockpile #1											
Lab #1262	09-20-01	2.0	37.3	14.3	46.4	97.0	12.1	64.3	499	156	
Lab #1399	10-08-01	10.9*	39.5	9.2	40.4	96.2	12.0	55.8	0	0	
Lab #1572	11-05-01	8.9	34.3	9.9	46.9	98.6	11.9	61.4	484	146	

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TABLE 2

AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JULY 1 THROUGH DECEMBER 31, 2001

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
AG DISTRIBUTORS, CATRON, MO										
VULCAN MATERIALS, JONESBORO, IL										
Lab #0922	08-03-01	1.5	29.5	12.5	56.5	99.4	0.7	71.4	568	10
AGRI SERVICES OF LEBANON, LEBANON, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #1018	08-15-01	0.1	9.3	14.8	75.8	97.9	0.3	87.0	681	5
BACKES & TOLKE, NEW HAVEN, MO										
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO										
Lab #1580	11-06-01	0.3	39.8	13.0	46.9	95.7	2.8	64.7	495	36
BARTLETT & CO, HIGGINSVILLE, MO										
FISCHER QUARRIES LLC, HUGHESVILLE, MO										
Lab #1183	09-06-01	4.4	51.2	8.6	35.8	97.7	1.6	53.8	420	17
BEAUFORT FEED STORE, BEAUFORT, MO										
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO										
Lab #0898	08-01-01	0.1	39.4	12.9	47.6	97.2	2.8	65.2	507	37
BLAIR FEED & GRAIN INC, NEW MELLE, MO										
FRED WEBER, INC. - TROY QUARRY, TROY, MO										
Lab #1622	11-15-01	3.6	50.4	8.1	37.9	85.2	3.2	55.4	377	35
BOLIVAR FARMERS EXCHANGE, BOLIVAR, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #0947	08-07-01	0.2	10.2	14.5	75.1	98.3	0.2	86.4	679	3
BOOTHEEL LIMESTONE, KENNETT, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0918	08-02-01	4.1	16.0	23.8	56.1	101.3	12.8	74.4	603	190
BOOTHEEL LIMESTONE - SENATH, KENNETT, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0919	08-02-01	4.7	19.4	23.0	52.9	100.8	12.6	71.6	577	180
CARL BUCK, CONWAY, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #1016	08-16-01	0.1	9.4	14.5	76.0	98.2	0.2	87.1	684	3
CONSUMERS OIL COMPANY, INC, MARYVILLE, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1482	10-24-01	0.0	0.2	1.3	98.5	84.4	1.2	99.3	671	24
DELTA GROWERS ASSN-EAST PRAIRIE, CHARLESTON, MO										
VULCAN MATERIALS, JONESBORO, IL										
Lab #1175	09-05-01	3.0	33.7	12.0	51.3	97.0	0.7	66.9	519	9
TERRY DILLION, ST JAMES, MO										
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Lab #0860	07-10-01	0.1	7.8	12.5	79.6	90.1	10.7	89.1	642	191
EAKIN LIME SERVICE, BELL CITY, MO										
VULCAN MATERIALS, JONESBORO, IL										
Lab #1093	08-28-01	3.2	35.6	12.1	49.1	99.2	0.5	65.3	518	7
FARMERS COOPERATIVE ASSN #301, SULLIVAN, MO										
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO										
Lab #1060	08-15-01	0.1	37.8	13.3	48.8	97.0	2.6	66.2	514	34
FARMERS TRANSPORT, SIKESTON, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0985	08-07-01	3.5	7.2	21.8	67.5	98.9	12.3	82.4	652	203
FOWLER ELEVATOR INC, NEWTOWN, MO										
KELLY LIME & ROCK, LA PLATA, MO										
Lab #1508	10-22-01	2.4	19.4	3.9	74.3	89.8	0.7	81.5	585	11
FOWLER ELEVATOR, UNIONVILLE, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1707	11-28-01	4.0	15.5	4.0	76.5	87.9	1.2	82.8	582	20
GAGE'S FERTILIZER & GRAIN INC, BETHANY, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1709	11-29-01	0.2	0.1	0.9	98.8	80.8	1.1	99.4	642	22
GIBSON LIME CO-DEXTER, DEXTER, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0990	08-09-01	2.9	15.9	21.9	59.3	101.3	12.9	76.4	619	197
GRAY'S FARM SERVICE, NAYLOR, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #1317	09-26-01	1.3	6.8	23.2	68.7	101.8	12.8	84.3	687	216

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JULY 1 THROUGH DECEMBER 31, 2001

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
HAWK FERTILIZER, BOLIVAR, MO CONCO QUARRIES INC Q US 160, WILLARD, MO	Lab #0948 08-07-01	0.0	9.8	14.5	75.7	98.4	0.2	86.9	684	3
HEIMSOOTH AG SERVICE, CORDER, MO HEIMSOOTH AG SERVICE, CORDER, MO	Lab #1272 09-21-01	6.4	49.8	9.0	34.8	94.3	1.8	52.7	397	19
LOUIS HERZTING JR, FREEBURG, MO LEAD BELT MATERIALS CO INC, FLAT RIVER, MO	Lab #0897 07-31-01	1.1	10.3	13.8	74.8	92.7	11.0	85.7	635	188
JAMES AGRI-CENTER INC, NEELYVILLE, MO RUBLE ROCK & LIME INC, PIEDMONT, MO	Lab #1078 08-22-01	5.3	7.4	19.5	67.8	101.5	12.7	81.4	661	207
KABLE (CLIFFORD), THOMPSON, MO AUXVASSE STONE & GRAVEL CO, AUXVASSE, MO	Lab #0878 08-01-01	1.3	41.6	10.2	46.9	96.8	4.8	63.4	491	61
KEENEY FERTILIZER, OWENSVILLE, MO MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO	Lab #0862 07-10-01	0.4	40.5	12.9	46.2	91.4	3.6	64.1	468	46
KELLY LIME & ROCK, LA PLATA, MO KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO	Lab #1031 08-13-01	6.7	41.4	6.6	45.3	92.2	2.4	59.6	440	29
KEN MO AG CENTER, KENNETT, MO RUBLE ROCK & LIME INC, PIEDMONT, MO	Lab #0920 08-02-01	4.6	14.9	24.2	56.3	101.6	12.7	74.5	606	189
KINDER PLANT FOOD, LICKING, MO LEAD BELT MATERIALS CO INC, FLAT RIVER, MO	Lab #1304 09-26-01	0.3	11.6	15.5	72.6	94.1	11.2	84.8	638	190
JERRY LINHART, FAYETTE, MO SOUTHDOWN, INC., COLUMBIA, MO	Lab #1268 09-17-01	3.8	44.8	12.0	39.4	89.2	1.7	57.8	412	20
LINNEMAN LIME & FERT, SALISBURY, MO NORRIS AGGREGATE PRODUCTS CO - WEST, MOBERLY, MO	Lab #1022 08-16-01	0.3	41.0	15.3	43.4	91.6	1.0	62.8	460	13
MAITLAND GRAIN & FEED, MAITLAND, MO MK MINERALS INC., MANHATTAN, KS	Lab #1388 10-11-01	0.0	0.2	2.0	97.8	83.6	0.9	99.1	662	18
METZ GRAIN, METZ, MO CARTHAGE CRUSHED LIMESTONE, CARTHAGE, MO	Lab #1331 10-02-01	9.2	43.8	9.4	37.6	92.1	0.2	54.2	399	2
MFA AGRI SERVICE, KIRKSVILLE, MO KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO	Lab #1099 08-27-01	4.3	17.4	3.9	74.4	90.5	0.9	81.1	587	15
MFA EXCHANGE, CHAMOIS, MO MFA EXCHANGE, CHAMOIS, MO	Lab #1553 10-24-01	4.0	45.6	11.5	38.9	86.4	0.5	57.2	395	6
MFA EXCHANGE, META, MO AMPEL, INC.-HARVEY IOWA PLANT, DES MOINES, IA	Lab #1063 08-23-01	0.4	34.5	10.7	54.4	97.0	7.6	69.4	539	106
MFA AGRI SERVICES, ADVANCE, MO RUBLE ROCK & LIME INC, PIEDMONT, MO	Lab #0992 08-09-01	5.5	11.3	20.6	62.6	100.8	12.7	77.8	627	198
MFA AGRI SERVICE, ALBANY, MO MK MINERALS INC., MANHATTAN, KS	Lab #1081 08-21-01	0.0	0.0	1.2	98.8	87.8	0.7	99.5	699	14
MFA AGRI SERVICE, BROOKFIELD, MO KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO	Lab #1039 08-16-01	3.3	15.4	3.3	78.0	90.4	1.4	83.8	606	23
MFA AGRI SERVICE, BROWNING, MO KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO	Lab #1367 10-08-01	3.7	14.7	3.5	78.1	87.8	1.1	83.9	589	18
MFA AGRI SERVICE-WEST, HALE, MO KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO	Lab #1534 11-02-01	2.5	20.6	3.5	73.4	90.6	0.9	80.7	585	15

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JULY 1 THROUGH DECEMBER 31, 2001

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
MFA AGRI SERVICE, HIGGINSVILLE, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #1270	09-20-01	3.5	5.2	6.5	84.8	86.6	1.9	90.0	624	34
MFA AGRI SERVICE, LANCASTER, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1368	10-09-01	2.4	18.4	3.0	76.2	89.4	1.0	82.6	591	17
MFA AGRI SERVICE, MACON, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1408	10-01-01	1.8	32.6	10.9	54.7	85.5	0.5	69.4	475	7
MFA AGRI SERVICE, MILAN, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1673	11-09-01	3.4	14.2	3.6	78.8	88.1	1.3	84.5	596	22
MFA AGRI SERVICE, NEW CAMBRIA, MO										
MISSISSIPPI LIME MANAGEMENT COMPANY, ALTON, IL										
Lab #1407	10-01-01	2.9	13.4	3.6	80.1	89.0	1.3	85.6	610	22
MFA AGRI SERVICE, OWENSVILLE, MO										
MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO										
Lab #1247	09-17-01	0.1	32.1	15.4	52.4	96.5	1.3	69.7	538	18
MFA AGRI SERVICE, ST CLAIR, MO										
MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO										
Lab #0868	07-20-01	0.1	29.1	10.9	59.9	97.5	3.6	73.7	575	53
MFA EXCHANGE, SALEM, MO										
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Lab #0859	07-09-01	2.7	21.6	18.7	57.0	89.2	10.8	73.6	525	159
MFA AGRI SERVICE, SALISBURY, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1586	11-06-01	3.9	11.4	2.4	82.3	90.0	1.1	86.6	623	19
MFA AGRI SERVICES, SHERIDAN, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1082	08-22-01	0.0	0.1	1.0	98.9	87.8	0.6	99.5	699	12
MFA AGRI SERVICE, TRENTON, MO										
MFA INC, COLUMBIA, MO										
Lab #1294	09-24-01	0.0	0.0	0.9	99.1	81.4	1.2	99.6	649	24
MFA AGRI SERVICE, UNIONVILLE, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1708	11-28-01	5.0	15.7	3.6	75.7	87.4	0.8	81.8	572	13
MFA AGRI SERVICE, VERSAILLES, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1130	09-04-01	0.1	6.4	8.2	85.3	91.6	2.5	91.8	673	46
MID MISSOURI CO-OP, CONCORDIA, MO										
APAC-MISSOURI, INC. - MARSHALL, MARSHALL, MO										
Lab #1743	12-04-01	6.4	50.8	8.7	34.1	85.5	3.1	52.0	356	32
MRM AG SERVICE INC, EAST PRAIRIE, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0989	08-08-01	4.6	16.9	19.7	58.8	99.8	12.6	74.8	598	189
MYRTLE FERTILIZER INC., MYRTLE, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #1173	09-04-01	0.2	6.1	6.9	86.8	89.6	1.7	92.5	663	31
NODAWAY HOLT FERTILIZER, SKIDMORE, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1354	10-02-01	0.0	0.1	1.5	98.4	81.4	0.8	99.3	647	16
NORTHWEST FERTILIZER INC, MOUND CITY, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1747	12-05-01	0.0	0.1	1.4	98.5	82.8	0.8	99.4	658	16
LEO O'LAUGHLIN, MACON, MO										
CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO										
Lab #1163	08-31-01	0.5	24.8	14.5	60.2	94.6	1.7	75.1	568	26
LEO O'LAUGHLIN INC, MARCELINE, MO										
CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO										
Lab #1040	08-16-01	0.2	26.0	13.6	60.2	91.3	0.6	74.9	547	9
OLD MILL GRAIN & SEED, HARRISONVILLE, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1131	09-05-01	0.0	0.1	1.3	98.6	89.2	0.5	99.4	709	10

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JULY 1 THROUGH DECEMBER 31, 2001

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
OLEAN SEED COMPANY, OLEAN, MO										
APAC MO INC CENTRAL COMPANIES DYL, OSAGE BEACH, MO										
Lab #0855	07-05-01	2.1	48.8	13.3	35.8	92.7	11.4	56.0	415	128
RAY CARROLL CO-CARROLLTON, RICHMOND, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1557	11-05-01	0.0	0.3	0.9	98.8	83.4	1.1	99.4	663	22
REIDLINGER LIME & GRAVEL, CONCEPTION JUNCTION, MO										
MARTIN MARIETTA AGGREGATES-MAITLAND, SAVANNAH, MO										
Lab #1746	12-03-01	7.1	47.8	8.1	37.0	85.5	0.6	53.8	368	6
REIDLINGER LIME & GRAVEL, CONCEPTION JUNCTION, MO										
MARTIN MARIETTA AGGREGATES-MAITLAND, SAVANNAH, MO										
Lab #1587	11-06-01	3.4	48.9	9.7	38.0	85.8	1.0	56.0	385	11
RICHLAND PLANT FOODS, RICHLAND, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #1234	09-10-01	0.0	13.6	15.3	71.1	97.2	0.2	83.7	651	3
SCHAEPERKOETTER STORE, MT STERLING, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Lab #0854	07-02-01	5.4	47.5	11.6	35.5	98.1	1.6	54.3	426	17
S & S BEGGS LIME SERVICE-JACKSON, JACKSON, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0994	08-07-01	2.3	8.5	24.2	65.0	100.1	12.5	81.6	654	204
SEHLKE TRUCK SERVICE, KEYTESVILLE, MO										
NORRIS AGGREGATE PRODUCTS CO - EAST, MOBERLY, MO										
Lab #1585	11-06-01	3.6	52.0	10.6	33.8	70.4	0.1	53.2	299	1
SOUTHEAST COOPERATIVE SERVICE CO, MOREHOUSE, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #1090	08-28-01	5.2	13.4	21.8	59.6	100.9	12.7	76.0	614	193
SOUTHEAST COOP SERVICE, PUXICO, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #1026	08-14-01	0.7	10.2	29.9	59.2	102.2	13.0	79.7	652	207
JOE SPALDING, BENTON, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0915	08-01-01	0.3	34.5	5.7	59.5	101.3	12.9	71.5	580	185
STOVER MILLING, STOVER, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #1129	09-04-01	0.1	11.3	8.4	80.2	90.2	1.7	88.1	635	30
UNITED COOP, SAVANNAH, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1588	11-07-01	0.0	0.1	0.8	99.1	86.4	0.8	99.6	688	16
WEST CENTRAL AGRISERVICE, LLC, HARRISONVILLE, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #1526	10-30-01	0.0	0.2	0.9	98.9	89.1	0.5	99.5	709	10
WEST LIME & FERTILIZER, STEELVILLE, MO										
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Lab #1004	08-08-01	0.8	11.5	14.7	73.0	92.7	11.0	84.7	628	186
WETHINGTON LIME SERVICE, BLOOMFIELD, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0991	08-09-01	5.2	10.6	23.4	60.8	99.3	12.5	77.5	616	194
WHIPPLE, H.L. LIME HAULING, LEBANON, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #1017	08-15-01	0.0	10.3	15.1	74.6	98.0	0.2	86.2	676	3
WOODY BOGLER LIME-ROSEBUD, ROSEBUD, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Lab #0899	08-01-01	7.1	48.3	11.6	33.0	95.2	0.5	52.0	396	5
WORTHINGTON AG SERVICE, WORTHINGTON, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #1571	11-08-01	3.8	12.1	3.5	80.6	90.1	1.1	85.7	618	19
ZWEERINK-AGRI SERVICES, CROCKER, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #1001	08-07-01	0.1	9.8	14.0	76.1	98.3	0.3	87.0	684	5
Lab #1233	09-10-01	0.2	10.3	14.4	75.1	98.5	0.2	86.3	680	3
Lab #1476	10-19-01	0.1	10.1	13.9	75.9	97.3	0.3	86.8	675	5

* Does not meet minimum specification for Agricultural Liming Material.

**Combined Fertilizer/Ag Lime Budget
FY01 Income & Disbursements**

	Ag Lime Fees	Fertilizer Fees	Combined
REVENUE:			
Tonnage Fees	112,979	956,605	1,069,584
Audits	1,840	23,266	25,106
Permit Fees	21,400	106,000	127,400
Deficiency Payments		4,050	4,050
Late Payment Fees	1,247	6,553	7,801
Total Funds Available	137,467	1,096,475	1,233,942
 DISBURSEMENTS:			
Inspection Services			491,249
Analytical Services			352,629
Experiment Station Chem Lab Support ¹			42,935
Special Equipment Reserve ²			35,000
Annual Research Report			2,300
Contingency			50,000
Fertilizer/Lime Funded Research S&W:			85,143
Total Expenditures			1,059,256
 COMMITMENT:			
Fert/Lime Research Projects			174,686
Total Expenditures/Commitments			1,233,942

Footnotes:

¹ S&W Support to Experiment Station Chem Lab administrative personnel

² Per June 30, 1998 Fertilizer and Ag Lime Committee Meeting minutes, a \$50,000 (later changed to \$35,000) equip reserve has been made available to T. Mawhinney for equipment upgrades in Analytical Services.

How to Diagnose Soil Acidity and Alkalinity Problems in Crops: A Comparison of Soil pH Test Kits

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Farmers often bring sick crop plants into county extension offices requesting that agronomy agents provide a quick diagnosis of the problem. Sometimes, agents are able to determine from leaf symptoms whether the crop is suffering from a specific pest or fertility problem. In other cases, agents have difficulty determining the cause of poor plant health. Extension agents usually consider soil acidity or alkalinity first because it is a common fertility problem and is easy to measure in the field with a pH test kit. Soil acidity (low pH) is common in the eastern United States. Soil alkalinity (high pH) is more common in low rainfall areas of the West. Low soil pH causes aluminum and manganese toxicity in plants and reduces the availability of soil phosphorus. High soil pH also reduces soil phosphorus availability and reduces micronutrients such as zinc and boron to plants.

Soil acidity is a major limiting factor to crop production in Southeast Missouri. Approximately 35% of the soil samples submitted to the Delta Regional Soils Testing Lab from cotton producers have a soil water pH values less than 5.5. The soil test recommendation for these soils is to apply agricultural lime to prevent yield reductions.

Cotton plant symptoms from low soil pH include crinkled leaves, stunted plants, and low boll counts. Sometimes these same symptoms can be caused by insects or diseases. To help extension agronomists diagnose pH problems in the field, all agents in Southeast Missouri were supplied with hand held pH meters in 1995. A study was recently conducted to answer questions concerning the accuracy of these meters compared to other soil pH test kits.

Weaknesses in pH Test Methods

Inherent weaknesses in test methods are a possible source of error with in-field pH tests. To evaluate test methods, soil pH was measured in limed and no lime cotton plots at the University of Missouri-Delta Center at Portageville, Missouri (Figure 1). In limed plots, agricultural lime was incorporated before planting in 2000. Cotton yields in limed plots averaged 155 kg lint ha⁻¹ more than in plots without lime.



Figure 1. Three methods of measuring soil pH in the field.

Table 1. Manufacturers of in-field soil pH test kits.

(a) pH Pro hand held meter	Shindengen Electric Manufacturing Company, Limited, Shin-ohtemachi-Building, Ohtemachi, Chiyoda-ku, Tokyo, Japan
(b) Soil color test kit Model EL	LoMotte Company, Chestertown, Maryland, 21620
(c) Mini pH Rapidtest probe	Luster Leaf Products, Incorporated, 2220 Techcourt, Woodstock, IL 60098

Four pH meters, kits, and probes were purchased and used in the field on each cotton plot in 2001 (Table 1). Instructions supplied with the units were followed. For comparing in-field and laboratory results, soil samples were collected from plots and tested at the Delta Center Soil Laboratory. Samples were tested in the lab for water pH using an Accumet Bench top pH meter.

Table 2. Soil pH measurement in cotton field plots.

pH measurement	No Lime Soil	Limed Soil
Soil Lab bench pH meter	5.6	6.8
Handheld pH meter	5.5	6.5
Color kit	5.8	7.0
Mini pH probe	6.0	6.0

In-field measurements with hand held pH meters and color kits showed that lime increased pH (Table 2). Despite careful attention to moistening the soil and shining the tip of pH test probes, all four probes read 6 in limed and non-limed soils. More graduations on the color chart are needed. Color chips are only in whole pH units (4.0, 5.0, 6.0, and 8.0). Interpolations were made to the nearest 0.5 pH unit but this increases the potential for human error.

Soil samples provided by the North American Proficiency Testing (NAPT) Program were also used to evaluate the test methods. Eighty-two labs had previously participated in testing of the soil samples.

Table 3. Soil pH measurements on North American Proficiency Test soils.

pH measurement	Soil 00-103	Soil 00-107	Soil 00-113
82 other soil labs	7.9	6.3	5.6
Bench pH meter	7.8	6.5	6.0
Handheld pH meter	7.7	6.3	5.5
Color kit	8.0	6.5	5.5
pH probe	6.0	6.0	6.0

All in-field pH test methods, except the test probe, produced satisfactory measurements of soil pH as compared to results from 82 laboratories testing the same soils (Table 3). Results from the Accumet bench top pH meter and a single hand held pH meter were similar. Both were found to be accurate to within 2.5 X Median Absolute Deviation (MAD) for 89% of the analysis performed. Median readings from both types of meters compared favorably with the median from 82 soil labs participating in the NAPT program. When four different hand held pH meters were used, the hand held meter had a higher MAD than the 82 NAPT labs for 8 of the 9 analysis performed. The MAD value for the labs was 0.08 while the value for the four hand held meters was 0.11.

Human Error in Using Hand held Meter

Extension agents should learn how to calibrate and test soil samples with hand held pH meters before going to the field. To determine how large of an error inexperience can cause, one hand held meter and one NAPT soil were selected. Seventeen untrained personnel were given an instruction sheet, a soil sample, standard pH solutions, and distilled water. Each person measured the pH of the soil without supervision. Results were compared to results from 82 NAPT labs (Figure 2). Some persons followed the instructions and calibrated the meter with pH 4.0 and 7.0 standards. Others did not. The median pH from the group was 6.3 and the MAD value was 0.15. This is very close to the median from 82 soils labs which was 6.34. However, the MAD value from the inexperience group was more than twice as great as the soil labs.

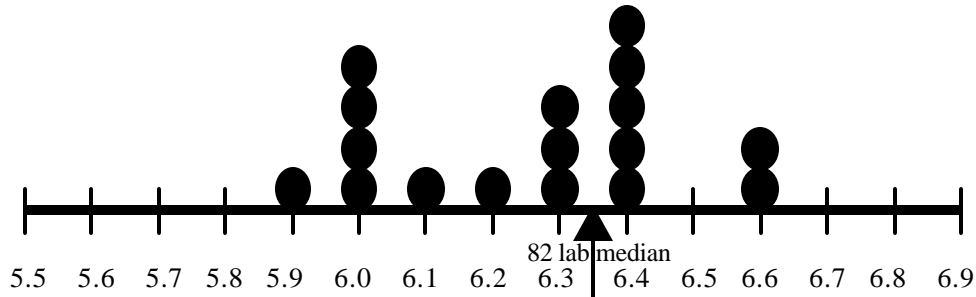


Figure 2. Distribution of soil pH results from 17 people testing the same soil (00-107) with the same handheld meter.

Conclusion

Soil test pH kits can be used by extension agents to quickly determine whether soil acidity or alkalinity is a probable cause of poor crop health. Hand held pH meters and pH color indicator kits were found to provide reliable in-field soil pH measurements. Personnel using a pH color kit were able to distinguished between soils with and without lime. However, interpolating between whole pH values with the color kit was difficult. A soil probe that was inserted into moist soil in plots provided poor response to soil pH and is not suitable for diagnosis of soil pH problems. Extension agents should use soil pH test kits primarily as fast response diagnostic tools. If a problem is found, a soil sample should be sent to a qualified soil test laboratory for recommendations on rates of material to adjust soil pH to optimum levels for the specific crop.

Abstract

Extension agronomists are often asked by farmers to determine why crop plants are stunted or have abnormally colored leaves. Soil acidity and alkalinity are common fertility problems that can cause these symptoms. In a study to measure the accuracy of in-field pH test kits, hand held pH meters and pH color indicator kits provided fast and reliable results. Soil pH probes gave poor measurements of soil acidity and should not be used by extension agents. Results by untrained personnel with hand held pH meters varied by individual. Agents using pH test kits should read instructions carefully before using these instruments.

EXAMPLES OF FINENESS FACTOR CALCULATION, ENM, AND EMgDERIVATION OF FINENESS FACTOREXAMPLE

<u>US Standard Sieve Fractions</u>	<u>Efficiency Index</u>		<u>% Found in sample</u>	<u>Fineness Components</u>
Retained on 8	0	x	<u>4.0</u>	= <u>0</u>
Pass. 8-Ret. on 40	.25	x	<u>34.0</u>	= <u>8.5</u>
Pass. 40-Ret. on 60	.60	x	<u>10.0</u>	= <u>6.0</u>
Passing 60	1.00	x	<u>52.0</u>	= <u>52.0</u>

Sum of fineness components = FINENESS FACTOR = 66.5

EFFECTIVE NEUTRALIZING MATERIALS (pounds per ton)

$$\text{Formula: ENM} = \frac{\% \text{ CCE}}{100} \times \frac{\text{FINENESS FACTOR}}{100} \times 800$$

DRY AG LIME

	<u>FINENESS FACTOR</u>						
<u>% CCE</u>	<u>100</u>	<u>90</u>	<u>80</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>
100	800	720	640	560	480	400	320
90	720	648	576	504	432	360	288
80	640	576	512	448	384	320	256
70	560	504	448	392	336	280	224
65*	520	468	416	364	312	260	208

* 65% is minimum % CCE allowed for dry lime

FLUID AG LIME

60	480	432	384
50	400	360	320
40	320	288	256
30	240	216	192
20	160	144	128
10	80	72	64

EFFECTIVE MAGNESIUM (pounds per ton)

$$\text{Formula: EMg} = \frac{\% \text{ Mg}}{100} \times \frac{\text{FINENESS FACTOR}}{100} \times 2000$$

	<u>FINENESS FACTOR</u>						
<u>% Mg</u>	<u>100</u>	<u>90</u>	<u>80</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>
13	260	234	208	182	156	130	104
11	220	198	176	154	132	110	88
9	180	162	144	126	108	90	72
7	140	126	112	98	84	70	56
5	100	90	80	80	70	60	40
3	60	54	48	42	36	30	24
1	20	18	16	14	12	10	8

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This report also available on the web at:

[HTTP://aes.missouri.edu/pfcs](http://aes.missouri.edu/pfcs)

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