AMTEST
AIR QUALITY, INC.

SUMMARY OF RESULTS - METHODS 1, 2, 3A, 4, 5, AND HCl
AM TEST - AIR QUALITY, INC.

FILE NAME: 170\ASHSUMCL
CLIENT: ASH GROVE CEMENT CO.
LOCATION: SEATTLE, WASHINGTON

	KILN BAGHOUSE MAIN STACK OUTLET	
	RUN #1	RUN #2
LAB #:	16351	16352
DATE:	07/24/92	07/24/92
START TIME:	13:35	16:25
STOP TIME:	14:35	17:25
SAMPLE LENGTH (minutes):	60.0	60.0
CONDITION:	Loesche Mill Down	Loesche Mill Up
VOLUME SAMPLED (cubic feet):	43.643	40.727
VOLUME SAMPLED (dry std. cubic feet):	41.670	38.683
VOLUME SAMPLED (dry std. cubic meters):	1.180	1.096
STACK GAS MOISTURE (percent):	10.73	20.46
BAROMETRIC PRESSURE (inches of Hg):	29.95	29.90
STATIC PRESSURE (inches of H2O):	-0.68	-0.68
STACK PRESSURE (inches of Hg):	29.90	29.85
STACK TEMPERATURE (degrees F.):	393.2	263.1
STACK TEMPERATURE (degrees R.):	853.2	723.1
CARBON DIOXIDE (percent):	20.8	26.3
OXYGEN (percent):	8.7	6.0
CARBON MONOXIDE (ppm):	NA	NA
MOLECULAR WEIGHT (dry, lb/lb-mole):	31.68	32.45
MOLECULAR WEIGHT (wet, lb/lb-mole):	30.21	29.49
AVERAGE VELOCITY HEAD (inches of H2O):	0.128	0.102
PITOT TUBE Cp:	0.84	0.84
STACK GAS VELOCITY (feet per second):	25.0	20.8
STACK DIAMETER (inches):	160.0	160.0
STACK AREA (square feet):	139.63	139.63
STACK GAS AIRFLOW (dry std. cubic feet per min.):	115588.5	101129.6
STACK GAS AIRFLOW (actual cubic feet per min.):	209357.2	174521.0
NOZZLE DIAMETER (inches):	0.386	0.386
ISOKINETICS (percent):	103	110
FRONT-HALF PARTICULATE EMISSION CONC. (gr/dscf):	0.020	0.005
BACK-HALF PARTICULATE EMISSION CONC. (gr/dscf):	0.126	0.023
TOTAL PARTICULATE EMISSION CONC. (gr/dscf):	0.146	0.029
TOTAL PARTICULATE EMISSION CONC. (mg/dscm):	333.5	65.5
PARTICULATE MATTER EMISSION RATE (lb/hr):	144.4	24.8
CHLORIDE CONCENTRATION IN AIR (mg/dscm):	13.3	1.33
CHLORIDE EMISSION CONCENTRATION (ppm):	8.80	0.880
CHLORIDE EMISSION RATE (lb/hr):	5.77	0.505
	26 tpy	2 tpy

Avg = 10.6 #/hr

× 101129 × 60/7000 = 4.33

24.8 × .9 + 144. × .1 = 36.8

627393

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AMTEST
AIR QUALITY, INC.

SUMMARY OF RESULTS - METHODS 1, 2, 3A, 4 AND 8
AM TEST-AIR QUALITY, INC.

FILE NAME: 170\ASHM8SUM
CLIENT: ASH GROVE CEMENT CO.
LOCATION: SEATTLE, WASHINGTON

	KILN BAGHOUSE MAIN STACK OUTLET	
	RUN #1	RUN #2
LAB #:	3009	3010
DATE:	07/24/92	07/24/92
START TIME:	13:35	16:25
STOP TIME:	14:35	17:25
SAMPLE LENGTH (minutes):	60.0	60.0
CONDITION:	Loesche Mill Down	Loesche Mill Up
VOLUME SAMPLED (cubic feet):	47.905	44.310
VOLUME SAMPLED (dry std. cubic feet):	46.059	42.438
VOLUME SAMPLED (dry std. cubic meters):	1.304	1.202
STACK GAS MOISTURE (percent):	10.77	20.47
BAROMETRIC PRESSURE (inches of Hg):	29.95	29.90
STATIC PRESSURE (inches of H2O):	-0.68	-0.68
STACK PRESSURE (inches of Hg):	29.90	29.85
STACK TEMPERATURE (degrees F.):	394.8	263.1
STACK TEMPERATURE (degrees R.):	854.8	723.1
CARBON DIOXIDE (percent):	20.8	26.3
OXYGEN (percent):	8.7	6.0
CARBON MONOXIDE (ppm):	NA	NA
MOLECULAR WEIGHT (dry, g/g-mole):	31.68	32.45
MOLECULAR WEIGHT (wet, g/g-mole):	30.20	29.49
AVERAGE VELOCITY HEAD (inches of H2O):	0.156	0.123
PITOT TUBE Cp:	0.84	0.84
STACK GAS VELOCITY (feet/second):	27.6	22.9
STACK DIAMETER (inches):	160.0	160.0
STACK AREA (square feet):	139.63	139.63
STACK GAS AIRFLOW (dry std. cubic feet per min.):	127234.0	110918.5
STACK GAS AIRFLOW (actual cubic feet per min.):	231008.6	191451.5
NOZZLE DIAMETER (inches):	0.382	0.382
ISOKINETICS (percent):	106	112
EMISSION CONC. OF SULFURIC ACID MIST (mg/dscm):	56.0	28.9
EMISSION CONCENTRATION OF SULFURIC ACID MIST (ppm):	13.7	7.08
EMISSION CONC. OF SULFURIC ACID MIST (ppm @ 10% O2):	12.3	5.18
EMISSION RATE OF SULFURIC ACID MIST (lb/hr):	26.7	12.0
EMISSION RATE OF SULFURIC ACID MIST (tons/yr):	116.9	52.5
EMISSION CONCENTRATION OF SULFUR DIOXIDE (mg/dscm):	573.2	164.4
EMISSION CONCENTRATION OF SULFUR DIOXIDE (ppm):	215.2	61.7
EMISSION CONC. OF SULFUR DIOXIDE (ppm @ 10% O2)):	192.3	45.2
EMISSION RATE OF SULFUR DIOXIDE (lb/hr):	273.2	68.3
EMISSION RATE OF SULFUR DIOXIDE (tons/yr):	1196.6	299.1

04/06/93	Kiln feed	KGas	CGas	KCoal	CCoal
04:00	161	1258	147	0.0	0.0
05:00	162	1257	147	0.0	0.0
06:00	155	1257	147	0.0	0.0
07:00	158	1258	147	0.0	0.0
08:00	150	1291	147	0.0	0.0
09:00	151	1264	147	0.0	0.0
10:00	157	1264	147	0.0	0.0
11:00	157	1249	147	0.0	0.0
12:00	150	1248	147	0.0	0.0
13:00	160	1238	147	0.0	0.0
14:00	152	1273	147	0.0	0.0
15:00	159	1273	147	0.0	0.0
16:00	147	1228	147	0.0	0.0
17:00	156	1228	147	0.0	0.0
18:00	158	1279	147	0.0	0.0
19:00	159	1248	147	0.0	0.0
20:00	160	1249	147	0.0	0.0
21:00	161	1247	147	0.0	0.0
22:00	161	1249	148	0.0	0.0
23:00	161	1248	148	0.0	0.0
00:00	161	1249	148	0.0	0.0
01:00	162	1249	148	0.0	0.0
02:00	162	1250	148	0.0	0.0
03:00	163	1250	148	0.0	0.0
04:00	162	1251	148	0.0	0.0

avg = 158

03/21/93	Kiln feed	KGas	CGas	KCoal	CCoal
04:00	160	1288	0	0.0	0.0
05:00	160	1271	0	0.0	0.0
06:00	160	1271	0	0.0	0.0
07:00	165	1285	0	0.0	0.0
08:00	165	1285	0	0.0	0.0
09:00	165	1288	0	0.0	0.0
10:00	165	1245	0	0.0	0.0
11:00	163	1287	0	0.0	0.0
12:00	165	1292	0	0.0	0.0
13:00	165	1301	0	0.0	0.0
14:00	165	1284	0	0.0	0.0
15:00	165	1284	0	0.0	0.0
16:00	165	1284	0	0.0	0.0
17:00	165	1291	0	0.0	0.0
18:00	165	1291	0	0.0	0.0
19:00	164	1292	0	0.0	0.0
20:00	164	1295	0	0.0	0.0
21:00	164	1291	0	0.0	0.0
22:00	164	1300	0	0.0	0.0
23:00	165	1290	0	0.0	0.0
00:00	165	1292	0	0.0	0.0
01:00	165	1290	0	0.0	0.0
02:00	165	1290	0	0.0	0.0
03:00	165	1300	0	0.0	0.0