

Note: This is a reference cited in AP 42, *Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

AP42 Section:	11.3
Background Chapter	4
Reference:	28
Title:	<i>General Shale Products Corporation, Tunnel Kiln 10-B, Located in Johnson City, Tennessee, Particulate Emissions Test Conducted on December 12, 1978, Guardian Systems, Inc., Birmingham, AL, December 12, 1978.</i>

AP-42 Section 11.3
Reference —
Report Sect. 4
Reference 20

70-0046-10

GENERAL SHALE PRODUCTS CORPORATION
TUNNEL KILN 10-B
LOCATED IN
JOHNSON CITY TENNESSEE
PARTICULATE EMISSION TESTS
CONDUCTED ON
DECEMBER 12, 1978

I. INTRODUCTION & PROCESS DESCRIPTION

On December 12, 1978, a series of three (3) particulate emission tests was conducted on the Tunnel Kiln 10-B discharge located in Johnson City, Tennessee. Individual bricks are formed and stacked onto kiln cars measuring approximately 9' x 9'. Cars are inserted on a regular bases into a long, continuous-fired tunnel kiln. As one car is discharged another is inserted. This provides a constant moving mass inside the kiln. Cars are pushed through the 500 foot long kiln at a slow, methodical pace requiring almost three days for the complete travel. By means of a coal firing process, heat is increased in each chamber until the total firing is complete. As the car continues through the kiln from the main firing zone the temperatures are reduced to provide necessary cooling.

Mr. Gary McGinnis represented General Shale Products. Mr. Fred O. Singleton of the Tennessee Air Pollution Control Division observed these tests. Mr. Tom Lotz and Mr. Ashley Riley of Guardian Systems, Inc. performed these tests.

17.63

III. SUMMARY OF TEST RESULTS

The following table is a summary of the Emissions during the tests. The process weights were provided by General Shale Products Corporation.

Test Number	1	2	3
Process Weight ton/hr	8.97	8.97	8.97
Particulate Emission Rate lbs/hr	12.84	13.29	11.54
Allowable Emission Rate lbs/hr	13.99*	13.99*	13.99*

* This value was calculated from the following equation found in Chapter 1200-3-7-.03 New Processes, Rules of Tennessee Department of Public Health, Bureau of Environmental Health Services, Division of Air Pollution Control.

$$E = 3.59 p^{0.62}$$

$$p \leq 30 \text{ ton/hr}$$

Where E= Emission in pounds per hour.

P= Process weight rate in tons per hour.

TABULAR TEST RESULTS

Test Number	1	2	3	Average
Date	12/12/78	12/12/78	12/12/78	
Time	1310-1436	1537-1648	1751-1914	
Moisture, %	8.35	8.77	8.64	8.59
Gas Temperature, °F	354	344	340	346
Stack Velocity, f/s	24.10	25.12	22.94	24.05
Volumetric Flow, ACFM	11,568	12,056	11,009	11,544
Volumetric Flow, DSCFM	6,903	7,250	6,663	6,939
Concentration, Grains/ACF	0.130	0.129	0.122	
Concentration, Graines/DSCF	0.217	0.214	0.202	
Particulate Mass Rate, lbs/hr	12.84	13.29	11.54	12.56
% Isokinetic	104.42	107.83	108.76	

IV. OPERATIONAL DATA

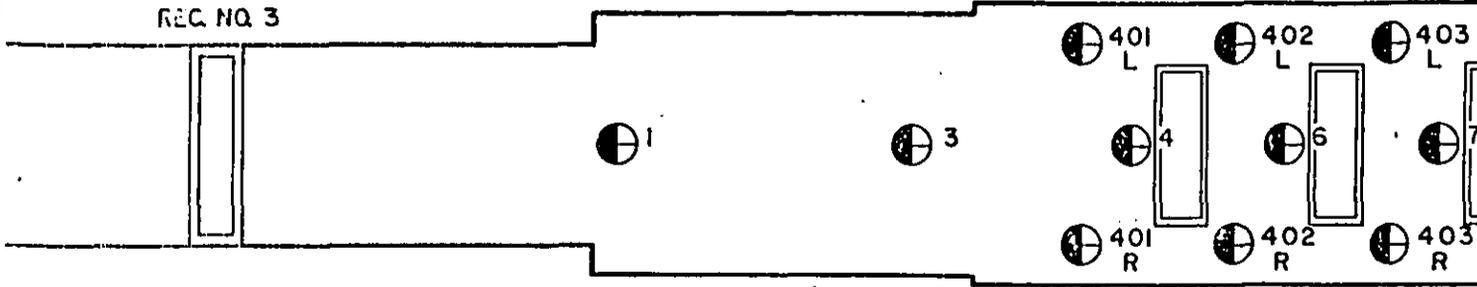
This information was supplied by General Shale Products personnel.

GENERAL SHALE PRODUCTS CORPORATION PLANT NO. - 10B

DRYER SUPPLY
⊕ 202

KILN EXHAUST
⊕ 201

REC. NO. 3



10	11	12	13	14	15	16	17	18	19	20	21
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EXHAUST

RECIRCULATING

550	550	700	700	800	800	1000	1000	1200	1200	1480	1480	660
1	3	401L	401R	402L	402R	403L	403R	404L	404R	405L	405R	4
510	505	690	690	790	805	975	955	1190	1215		1490	660
510	505	690	690	790	800	975	955	1195	1235		1455	655
570	500	690	690	795	805	965	950	1155	1190		1455	660
535	515	705	701	805	820	970	950	1146	1165		1435	675
515	495	685	685	800	805	955	945	1125	1150		1400	655
580	660	815	840	945	965	1120	1105	1280	1320		1550	815
530	520	695	695	795	810	985	965	1175	1200		1415	675
520	500	690	690	795	805	980	960	1185	1205		1405	665

535	530	705	700	810	825	985	970	1210	1235		1435	670
535	511	705	705	815	825	990	970	1200	1230		1440	675
530	520	710	700	805	820	980	960	1180	1195		1425	670
532	514	707	697	799	811	975	955	1163	1185		1415	672

