

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/](http://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.

<b>AP42 Section:</b>	<b>9.7</b>
<b>Background Chapter</b>	<b>4</b>
<b>Reference:</b>	<b>11</b>
<b>Title:</b>	<b>Cotton Gin Emission Tests, Marana Gin, Producers Cotton Oil Company, Marana, Arizona, EPA-330/2-78-008, National Enforcement Investigations Center, Denver, CO, and EPA Region IX, San Francisco, CA, May 1978.</b>

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
1	Stack temperature	Deg F	95	95	96	
LINT CAGE	Pressure	in. HG	29.92	29.92	29.92	
	Moisture	%	1	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	13000	13000	13000	
	Isokinetic variation	%				
Circle: Production or feed rate Capacity:		bales/hr	6.85	6.85	6.85	
Pollutant concentrations:						
Total PM		G/dscf	0.0360	0.0460	0.0340	
Pollutant mass flux rates:						
Total PM		lb/hr	3.99	5.14	3.84	4.32
Emission factors (ENGLISH UNITS):						AVERAGE
Total PM		lb/bale	0.58	0.75	0.56	0.63
Emission factors (METRIC UNITS):						AVERAGE
Total PM		kg/bale	0.264	0.340	0.254	0.286

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
2	Stack temperature	Deg F	75	82	89	
BATTERY	Pressure	in. HG	29.92	29.92	29.92	
CONDENS	Moisture	%	1	1	1	
W/SCREEN	Oxygen	%	20.9	20.9	20.9	
CAGE	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	10300	10300	10300	
	Isokinetic variation	%				
Circle: Production or feed rate		bales/hr	8.6	8.6	8.6	
Capacity:						
	Pollutant concentrations:					
	Total PM	G/dscf	0.0060	0.0091	0.0150	
	Pollutant mass flux rates:					
	Total PM	lb/hr	0.530	0.803	1.32	0.886
	Emission factors (ENGLISH UNITS):					
	Total PM	lb/bale	0.062	0.093	0.15	0.103
	Emission factors (METRIC UNITS):					
	Total PM	kg/bale	0.028	0.042	0.070	0.047



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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
4	Stack temperature	Deg F	158	159	153	
NO. 1 INCLINED CLEANER AND DRYER	Pressure	in. HG	28.12	28.1	28.12	
	Moisture	%	0.4	0.7	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	11405	11523	11510	
	Volumetric flow, standard*	dscfm	9121	9166	9224	
	Isokinetic variation	%	94.3	94.4	98.1	
Circle: Production or feed rate Capacity:		bales/hr	8.63	8.63	8.95	
	Pollutant concentrations:					
	Total PM	G/dscf	0.0480	0.0330	0.0500	
	Pollutant mass flux rates:					
	Total PM	lb/hr	3.81	2.62	3.92	3.45
	Emission factors (ENGLISH UNITS):					AVERAGE
	Total PM	lb/bale	0.441	0.304	0.438	0.394
	Emission factors (METRIC UNITS):					AVERAGE
	Total PM	kg/bale	0.200	0.138	0.199	0.179

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
5	Stack temperature	Deg F	109	111	95	
SECOND STAGE SEED COTTON CLEANING	Pressure	in. HG	28.12	28.12	28.15	
	Moisture	%	1.1	0.7	0.7	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	4447	4970	5049	
	Volumetric flow, standard*	dscfm	3836	4289	4487	
	Isokinetic variation	%	106.3	105.1	105	
Circle: Production or feed rate Capacity:		bales/hr	9.36	9.36	8.63	
Pollutant concentrations:						
	Total PM	G/dscf	0.0130	0.0120	0.0086	
Pollutant mass flux rates:						
	Total PM	lb/hr	0.44	0.42	0.33	0.40
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.0470	0.0449	0.0383	0.0434
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.0213	0.0204	0.0174	0.0197

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 2	Run 3	Run 4	Run 4
6	Stack temperature	Deg F	112	104	115	
NO. 2 DRYER AND CLEANER	Pressure	in. HG	28.13	28.17	28.18	
	Moisture	%	0.4	0.9	0.8	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	8541	8110	8410	
	Volumetric flow, standard*	dscfm	7383	7084	7216	
	Isokinetic variation	%	99.6	102.3	98.6	
Circle: Production or feed rate Capacity:		bales/hr	9.05	9.36	9.36	
Pollutant concentrations:						
	Total PM	G/dscf	0.0230	0.0260	0.0200	
Pollutant mass flux rates:						
	Total PM	lb/hr	1.43	1.56	1.21	1.40
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.158	0.167	0.129	0.151
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.0717	0.0756	0.0586	0.0686

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
7	Stack temperature	Deg F	92	90	80	
GIN STAND FEEDER TRASH	Pressure	in. HG	28.12	28.11	28.15	
	Moisture	%	0.5	0.7	0.6	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	4748	4526	4683	
	Volumetric flow, standard*	dscfm	4247	4053	4282	
	Isokinetic variation	%	99.4	99.9	100.2	
Circle: Production or feed rate Capacity:		bales/hr	9.63	9.63	9.05	
	Pollutant concentrations:					
	Total PM	G/dscf	0.0150	0.0140	0.0160	
	Pollutant mass flux rates:					
	Total PM	lb/hr	0.550	0.440	0.57	0.520
	Emission factors (ENGLISH UNITS):					AVERAGE
	Total PM	lb/bale	0.0571	0.0457	0.0630	0.0553
	Emission factors (METRIC UNITS):					AVERAGE
	Total PM	kg/bale	0.026	0.021	0.029	0.025

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 1	Run 2	Run 3	Run 4
8	Stack temperature	Deg F	83	87	85	
UNLOADING FAN	Pressure	in. HG	27.87	27.84	27.84	
	Moisture	%	0.6	0.4	0.9	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	5964	5912	5912	
	Volumetric flow, standard*	dscfm	5370	5289	5282	
	Isokinetic variation	%	107.3	101.7	104.9	
Circle: Production or feed rate		bales/hr	8.82	8.82	8.82	
Capacity:						
	Pollutant concentrations:					
	Total PM	G/dscf	0.0350	0.0640	0.0450	
	Pollutant mass flux rates:					
	Total PM	lb/hr	1.61	2.90	2.04	2.18
	Emission factors (ENGLISH UNITS):					
	Total PM	lb/bale	0.183	0.329	0.231	AVERAGE 0.248
	Emission factors (METRIC UNITS):					
	Total PM	kg/bale	0.083	0.149	0.105	AVERAGE 0.112

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 2	Run 3	Run 4	Run 4
9	Stack temperature	Deg F	96	101	99	
MASTER TRASH FAN	Pressure	in. HG	27.99	27.99	27.89	
	Moisture	%	0.9	0.6	0.8	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	5794	6043	6043	
	Volumetric flow, standard*	dscfm	5101	5289	5278	
	Isokinetic variation	%	108.4	108	106	
Circle: Production or feed rate Capacity:		bales/hr	6.85	6.85	6.85	
Pollutant concentrations:						
Total PM		G/dscf	0.14	0.21	0.22	
Pollutant mass flux rates:						
Total PM		lb/hr	6.12	9.52	9.95	8.53
Emission factors (ENGLISH UNITS):						AVERAGE
Total PM		lb/bale	0.894	1.39	1.45	1.25
Emission factors (METRIC UNITS):						AVERAGE
Total PM		kg/bale	0.405	0.630	0.659	0.565

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
10	Stack temperature	Deg F	61	90	90	
LINT CAGE (LONG STAPLE)	Pressure	in. HG				
	Moisture	%	1	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	4000	4000	4000	
	Isokinetic variation	%				
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
	Pollutant concentrations:					
	Total PM	G/dscf	0.0330	0.0310	0.0360	
	Pollutant mass flux rates:					
	Total PM	lb/hr	1.14	1.05	1.25	1.15
	Emission factors (ENGLISH UNITS):					
	Total PM	lb/bale	0.34	0.31	0.37	AVERAGE 0.34
	Emission factors (METRIC UNITS):					
	Total PM	kg/bale	0.152	0.140	0.167	AVERAGE 0.153

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
11	Stack temperature	Deg F	68	77	93	
LINT CAGE (LONG STAPLE)	Pressure	in. HG				
	Moisture	%	1	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	4150	4150	4150	
	Isokinetic variation	%				
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
	Total PM	G/dscf	0.0107	0.0150	0.0210	
Pollutant mass flux rates:						
	Total PM	lb/hr	0.37	0.52	0.76	0.55
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.11	0.15	0.22	0.16
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.049	0.069	0.101	0.073

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
12	Stack temperature	Deg F	93	90	67	
LINT CAGE (LONG STAPLE)	Pressure	in. HG				
	Moisture	%	1	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	2540	2540	2540	
	Isokinetic variation	%				
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
	Total PM	G/dscf	0.0130	0.0270	0.0072	
Pollutant mass flux rates:						
	Total PM	lb/hr	0.27	0.59	0.16	0.34
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.079	0.17	0.047	0.100
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.036	0.079	0.021	0.045

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
13	Stack temperature	Deg F	73	86	90	
LINT CAGE (LONG STAPLE)	Pressure	in. HG				
	Moisture	%	1	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm				
	Volumetric flow, standard*	dscfm	2880	2880	2880	
	Isokinetic variation	%				
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
	Total PM	G/dscf	0.0054	0.0170	0.0580	
Pollutant mass flux rates:						
	Total PM	lb/hr	0.13	0.42	1.44	0.66
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.038	0.12	0.42	0.20
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.017	0.056	0.192	0.088

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
14	Stack temperature	Deg F	90	68	78	
BATTERY	Pressure	in. HG				
CONDENSER	Moisture	%	1	1	1	
W/SCREEN	Oxygen	%	20.9	20.9	20.9	
CAGE	Volumetric flow, actual	acfm				
(LONG	Volumetric flow, standard*	dscfm	5060	5060	5060	
STAPLE)	Isokinetic variation	%				
Circle: Production or feed rate		bales/hr	3.4	3.4	3.4	
Capacity:						
	Pollutant concentrations:					
	Total PM	G/dscf	0.0190	0.0075	0.0240	
	Pollutant mass flux rates:					
	Total PM	lb/hr	0.83	0.33	1.05	0.74
	Emission factors (ENGLISH UNITS):					
	Total PM	lb/bale	0.24	0.10	0.31	0.22
	Emission factors (METRIC UNITS):					
	Total PM	kg/bale	0.111	0.044	0.140	0.098

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
15	Stack temperature	Deg F	87	98	105	
MOTE SYSTEM	Pressure	in. HG	28.05	28.05	28.02	
	Moisture	%	0.5	0.5	0.5	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	8280	8672	8659	
	Volumetric flow, standard*	dscfm	7455	7654	7540	
	Isokinetic variation	%	96.8	97.2	98.1	
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
Total PM		G/dscf	0.0078	0.0110	0.0061	
Pollutant mass flux rates:						
Total PM		lb/hr	0.48	0.70	0.40	0.53
Emission factors (ENGLISH UNITS):						AVERAGE
Total PM		lb/bale	0.14	0.21	0.12	0.15
Emission factors (METRIC UNITS):						AVERAGE
Total PM		kg/bale	0.064	0.093	0.053	0.070

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
16	Stack temperature	Deg F	121	142	148	
NO. 2 DRYER AND CLEANER	Pressure	in. HG	28.05	28.05	28.04	
	Moisture	%	0.6	1	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	6370	6488	6684	
	Volumetric flow, standard*	dscfm	5395	5281	5385	
	Isokinetic variation	%	102.6	98.9	97	
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
	Total PM	G/dscf	0.0072	0.0110	0.0099	
Pollutant mass flux rates:						
	Total PM	lb/hr	0.33	0.48	0.44	0.42
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.10	0.14	0.13	0.12
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.044	0.064	0.059	0.056

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
17	Stack temperature	Deg F	98	96	84	
UNLOADING	Pressure	in. HG	27.9	27.88	27.85	
	Moisture	%	0.7	0.7	1	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	2302	2577	2472	
	Volumetric flow, standard*	dscfm	2017	2264	2211	
	Isokinetic variation	%	89.3	90.9	90.6	
Circle: Production or feed rate		bales/hr	3.4	3.4	3.4	
Capacity:						
	Pollutant concentrations:		RUN 1 VOID			
	Total PM	G/dscf		0.0890	0.0380	
	Pollutant mass flux rates:					
	Total PM	lb/hr		1.76	0.70	1.23
	Emission factors (ENGLISH UNITS):					AVERAGE
	Total PM	lb/bale		0.52	0.21	0.36
	Emission factors (METRIC UNITS):					AVERAGE
	Total PM	kg/bale		0.23	0.093	0.16

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 2	Run 3	Run 4	
18	Stack temperature	Deg F	180	187	187	
NO. 1 DRYER AND CLEANER	Pressure	in. HG	27.99	27.94	27.93	
	Moisture	%	1.5	1.4	1.4	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	4186	4369	4447	
	Volumetric flow, standard*	dscfm	3182	3283	3340	
	Isokinetic variation	%	109	105.2	102	
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
	Total PM	G/dscf	0.0560	0.0390	0.0340	
Pollutant mass flux rates:						
	Total PM	lb/hr	1.54	1.10	0.97	1.20
Emission factors (ENGLISH UNITS):						AVERAGE
	Total PM	lb/bale	0.45	0.32	0.29	0.35
Emission factors (METRIC UNITS):						AVERAGE
	Total PM	kg/bale	0.21	0.15	0.13	0.16

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT

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MARANA GIN, MARANA, ARIZONA

D. Emission Data/Mass Flux Rates/Emission Factors

Test ID	Parameter	Units	Values reported			
			Run 3	Run 4	Run 5	Run 4
19	Stack temperature	Deg F	190	189	186	
MASTER TRASH FAN	Pressure	in. HG	27.94	27.9	27.88	
	Moisture	%	1.4	1.4	1.5	
	Oxygen	%	20.9	20.9	20.9	
	Volumetric flow, actual	acfm	7953	8201	7390	
	Volumetric flow, standard*	dscfm	5948	6135	5544	
	Isokinetic variation	%	102	96.4	107.2	
Circle: Production or feed rate Capacity:		bales/hr	3.4	3.4	3.4	
Pollutant concentrations:						
Total PM		G/dscf	0.0150	0.0170	0.0190	
Pollutant mass flux rates:						
Total PM		lb/hr	0.750	0.880	0.920	0.850
Emission factors (ENGLISH UNITS):						AVERAGE
Total PM		lb/bale	0.22	0.26	0.27	0.25
Emission factors (METRIC UNITS):						AVERAGE
Total PM		kg/bale	0.100	0.117	0.123	0.113

\*DSCFM BASED ON A STANDARD TEMPERATURE OF 68 DEGREES FAHRENHEIT