

US EPA ARCHIVE DOCUMENT

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Total Mercury CEMS Demonstration

Summary Table: Holnam, Inc., Cement Kiln, Holly Hill, SC

**U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response (5305)
401 M Street, SW
Washington, DC 20460**

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Summary of Hg CEMS Demonstration Tests

CEMS Model	Test Date	Performance Achieved							Observed Interference Levels (§4.7)									
		RA			Species	CE	CD	ZD	Data Avail.	CO	CO ₂	O ₂	SO ₂	NO ₂	H ₂ O	HCl	Cl ₂	TOTAL
Proposed Perf. Level (Less than stated value)		RF	±20% of mean	±10% of std		±15% of Ref Conc. at 3 levels	± 10% of std	± 5% of std	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	± 10% of std.
Verewa HM-1400	8/96	1	n/a	n/a	Hg	n/a	n/a	n/a	n/a	-3.3	-7.1	-4.7	-5.4	-3.3	NP	17.2	-2.6	-9.3
		.733	n/a	n/a	HgCl ₂	n/a	n/a	n/a		1.6	0.2	9.1	-4.9	NP	NP	8.1	-10.1	4.1
	12/96	1	-36.4 B	11.3 B	Hg	P	NP	TBD	86.2	NP								
		.733			HgCl ₂	P	n/a	n/a										
	01/97	1	370.1	44.2	Hg	P	NP	TBD	67.6									
		.733	47.6	29.6	HgCl ₂	P	n/a	n/a										
	02/97	1	P	P	Hg	22.7 -46.0 -60.1	NP	n/a	90.1									
		.733			HgCl ₂	7.6 -89.7	n/a	n/a										
	03/97	1	Off		Hg	Off	Off	Off	11.4									
		.733			HgCl ₂	Off	n/a	n/a										
	03/97	1	38.8	22.4	Hg	----	----	----	0									
		.733	37.3	21.5	HgCl ₂	----	----	----										
	04/97	1	Off		Hg	Off	Off	Off	0									
		.733			HgCl ₂	Off	n/a	n/a										
05/97	1	Off		Hg	Off	Off	Off	0										
	.733			HgCl ₂	Off	n/a	n/a											
ALL	1	204.5	39.0	Hg	22.7 -46.0 -60.1	NP		40.0	-3.3	-7.1	-4.7	-5.4	-3.3	NP	17.2	-2.6	-9.3	
	.733	42.5	25.6	HgCl ₂	7.6 -89.7	n/a	n/a		1.6	0.2	9.1	-4.9	NP	NP	8.1	-10.1	4.1	

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Proposed Perf. Level (Less than stated value)		RF	±20% of mean	±10% of std		±15% of Ref Conc. at 3 levels	± 10% of std	± 5% of std	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	± 10% of std.									
Perkin Elmer MERCEM	8/96	1	n/a	n/a	Hg	n/a	n/a	n/a	n/a	3.9	0.1	*31.8	-2.8	0.6	NP	0.7	-0.8	32.3									
		2.712	n/a	n/a	HgCl ₂	n/a	n/a	n/a		0.8	-11.5	-9.3	-3.7	NP	NP	-2.0	-1.2	-27.0									
	12/96	1	63.1 B	19.6 B	Hg	NP	TBD	TBD	94.4	NP																	
		2.712			HgCl ₂	NP	n/a	n/a																			
	01/97	1	71.4	8.7	Hg	P	TBD	TBD	89.9																		
		2.712	300.0	36.4	HgCl ₂	P	n/a	n/a																			
	02/97	1	P	P	Hg-zero	37.8	n/a	n/a	96.8																		
		2.712			Hg-mid	13.2													Hg high	-19.9							
	03/97	1	50.0	15.5	Hg-zero	12.7	n/a	n/a	83.7																		
		2.712	87.1	27.0	Hg-mid	-23.7													Hg high	49.2 nrf							
	03/97	1	44.1	25.5	Hg	----	----	----																			
		2.712	97.7	56.4	HgCl ₂	----	----	----																			
	04/97	1	13.8 186.4	5.9 79.3	Hg-zero	11.3	n/a	n/a	81.2																		
		2.712			Hg-mid	-70.7													Hg high	<rdl nrf							
	05/97	1	73.3 58.4	27.0 21.6	Hg-zero	6.3	n/a	n/a	98.9																		
		2.712			Hg-mid	-64.7													Hg high	-16.5 nrf							
	ALL	1	50.5	16.5	Hg				89.9										3.9	0.1	31.8	-2.8	0.6	NP	0.7	-0.8	32.3
		2.712	128.2	44.1	HgCl ₂		n/a	n/a	0.8										-11.5	-9.3	-3.7	NP	NP	-2	-1.2	-27	

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Proposed Perf. Level (Less than stated value)		RF	±20% of mean	±10% of std		±15% of Ref Conc. at 3 levels	± 10% of std	± 5% of std	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	± 10% of std.
See. Hg-MAT2	8/96	1	n/a	n/a	Hg	n/a	n/a	n/a	n/a	0.2	1.8	1.8	58.3	-92.6	NP	-50.4	3.0	-78.0
		.805	n/a	n/a	HgCl ₂	n/a	n/a	n/a		-3.3	-4.9	4.0	0.7	NP	NP	5.2	3.3	3.7
	12/96	1	-24.2 B	-7.5 B	Hg	NP	TBD	TBD	95.7	NP								
		.805			HgCl ₂	NP	n/a	n/a										
	01/97	1	912.8	110.9	Hg	P	TBD	TBD	87.6									
		.805	716.4	87.0	HgCl ₂	P	n/a	n/a										
	02/97	1	P	P	Hg	-1.5 -61.3 -68.8	n/a	n/a	96.0									
		.805			HgCl ₂	0.6 -84.3	n/a	n/a										
	03/97	1	214.1	65.8	Hg	2.2 9.5 113.7	n/a	n/a	88.0									
		.805	152.8	47.0	HgCl ₂	<rdl	n/a	n/a										
	03/97	1	68.9	39.8	Hg	----	---	----	87.0									
		.805	39.8	23.0	HgCl ₂	----	----	----										
	04/97	1	206.9	88.0	Hg-zero	4.5	n/a	n/a	65.6									
		.805	147.5	62.7	Hg-mid	-18.3	n/a	n/a										
	05/97	1	138.6	51.2	Hg-zero	-3.6	n/a	n/a	85.6									
		.805	22.5	17.2	Hg-mid	-42.2	n/a	n/a										
ALL	1	308.1	71.1	Hg				87.0										
	.805	215.6	47.3	HgCl ₂		n/a	n/a											

TABLE LEGEND

NP: Sequence not performed.

*: Data questionable, CEM malfunction

DNA: Data not yet available from analytical lab

Off: CEM Offline

B: Baseline performance: % Accuracy without response factor applied

nrf: no response factor applied

P:Test postponed

<rdl: Analytical data < reporting detection limit

TBD: To be determined

n/a: Not Applicable to project