Fly Ash and Mercury Sorbent Properties Affect Mercury Release from Curing Concrete

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Table S1. Percent Alumina, Calcium Oxide, Ferric Oxide, Silica, and Sulfur Trioxide in Fly Ashes.

Oxide	CCS1	MER032	MER0357	NRT1019
Al_2O_3	13.9	16.5	18.0	19.3
CaO†	14-16	23-26	23-26	26.9
Fe_2O_3	6.2	8.6	8.4	4.8
SiO_2	40.8	32.0	31.5	31.3
SO_3	0.9	1.3	1.3	1.9
Σ Al_2O_3,Fe_2O_3,SiO_2	60.9	57.1	57.9	55.4

† CaO data were provided by the power plants that supplied each fly ash.

Concentrations of other components were determined by inductively coupled plasma – atomic emission spectrometry in the Environmental Engineering Laboratory of The Ohio State University, Columbus, OH.

Table S2. Concrete Formulations (all in kg) for Individual 20-kg Batches

Concrete	Fly Ash	Coarse Aggregate	Sand	Cement	Water	AEA
OPC	0	10.0750	6.0670	2.6450	1.2130	0.0026
CCS1	1.4550	10.0750	6.0670	1.1900	1.2130	0.0085
NRT1019	1.4550	10.0750	6.0670	1.1900	1.2130	0.0543
MER032	1.4550	10.0750	6.0670	1.1900	1.2130	0.0201
MER0357	1.4550	10.0750	6.0670	1.1900	1.2130	0.0376

Table S3. Estimated Mercury in 20-kg Batches of Concrete

Concrete	Fly Ash	Coarse Aggregate	Cement	Sand	AEA	Water	Total Mercury in Concrete	Mercury Concentration in Concrete
	μg/batch							μg/kg
OPC	–	*74.8*	*21.2*	*8.3*	*<0.01*	*0.0006*	*104*	*5.2*
CCS1	*18.6*	*74.8*	*9.5*	*8.3*	*0.01*	*0.0006*	*111*	*5.6*
NRT1019	*1693.6*	*74.8*	*9.5*	*8.3*	*0.08*	*0.0006*	*1786*	*89.3*
MER032	*515.1*	*74.8*	*9.5*	*8.3*	*0.03*	*0.0006*	*608*	*30.4*
MER0357	*1996.3*	*74.8*	*9.5*	*8.3*	*0.06*	*0.0006*	*2089*	*104.4*