Supporting Information

Ionic Speciation of Ecotoxic Lead (2+), Cadmium (2+), and Naturally Occurring Ions with Dissolved Organic Matter in Seawater from the Bay of Bengal by Differential Pulse Anodic Stripping Voltammetry, Continuous Binding Model, and Computational Chemical Equilibria: Effect of Global Warming

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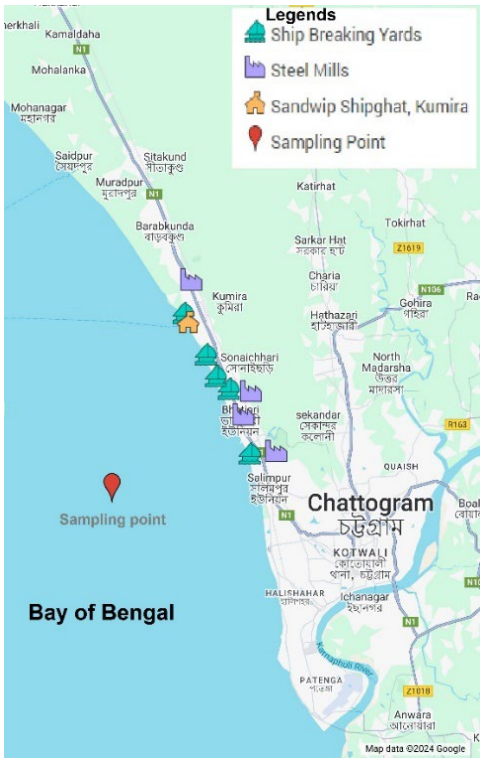


Figure S1. Sampling location in Bay of Bengal. Samples were collected around the sampling site coordinates: 22.4° N, 91.6 ° E located on the eastern Bay of Bengal near Chattogram in Bangladesh.

Table S1. Calibration of Pb^{2+} and Cd^{2+} with DPASV peak currents vs. concentrations (nM) in 0.7 M KNO_3: Background subtracted data.[a]

Pb^{2+}: i_p (µA) = (0.0081± 0.005) (µA/nM) [Pb^{2+}] nM – (0.098 ± 0.01) µA; r^2 = 0.982

Pb^{2+}: Signal detection limit (SDL) = 0.03 µA, Concentration DL = 3.7 nM = 0.8 µg/L

Cd^{2+}: i_p (µA) = (0.001± 0.00009) (µA/nM) [Cd^{2+}] nM – (0.072 ± 0.01) µA; r^2 = 0.992

Cd^{2+}: Signal detection limit (SDL) = 0.03 µA, Concentration DL = 30 nM = $3._4$ µg/L

[a] Standard deviation of the intercept is taken as the standard deviation of background and used for the calculation of detection limit (=3 standard deviation of the background).

Background Pb^{2+} (nM) = 0.098/0.0081 = 12.1 ± $7._6$ nM = 2.5 ± 1.6 µg/L

Table S2. Effect of equilibration time, Δt (s), on DPASV peak current, i_p (µA), for cadmium and lead in BoB seawater at pH =8.1

Cd^{2+}			Pb^{2+}	
Δt (s)	Current i_p (nA)		Δt (s)	Current i_p (µA)
120	804		165	490
270	852		240	776
270	863		240	839
270	833		240	827
270	854		240	799
270	863		700	776
270	852		240	765
270	868		240	759
270	868		240	756
270	871		240	713
Average	858			779
Stdev	21			98
%RSD	2			13

Note: Current values are differential peak current from DPASV experiments. Experiments were performed with 3 µg L^{-1} of Cd^{2+} and 10 µgL^{-1} of Pb^{2+}. As the equilibration time for Pb-organic complex formation was SLOW, after the addition of 10 µgL^{-1} of Pb^{2+}, the samples were left for overnight and hence 24 hours was taken as the Pb-DOM complexation equilibration time for all subsequent voltammetric analyses in seawater in the present work.

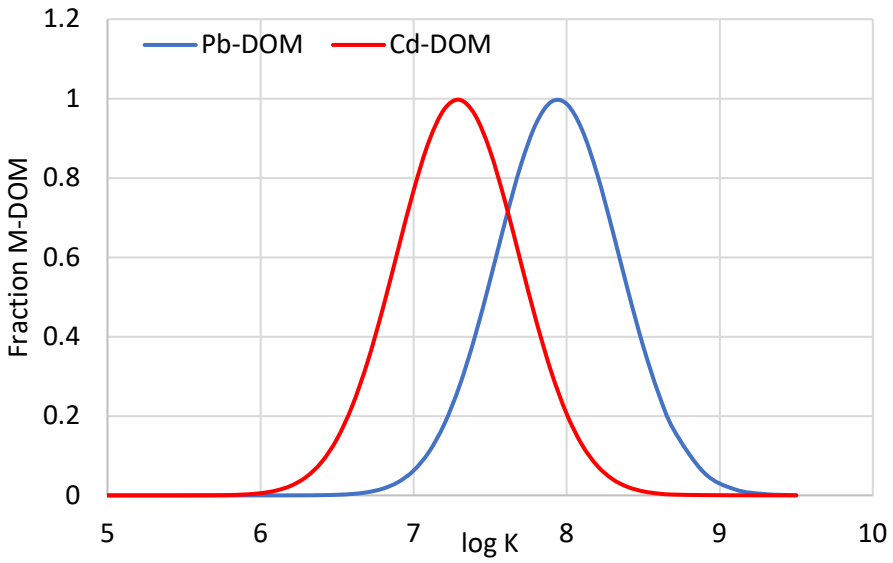


Figure S2. Affinity spectrum (site distribution) of M-DOM complex based on a Gaussian model. Details can be found in the original paper under Table 1 notes.

Figure S3. Comparison of speciation of Cd- species in presence of two different DOM options in MINTEQA. Figures show activity of Cd species and that of DOM and DOM-1000. pActivity = -log(activity)

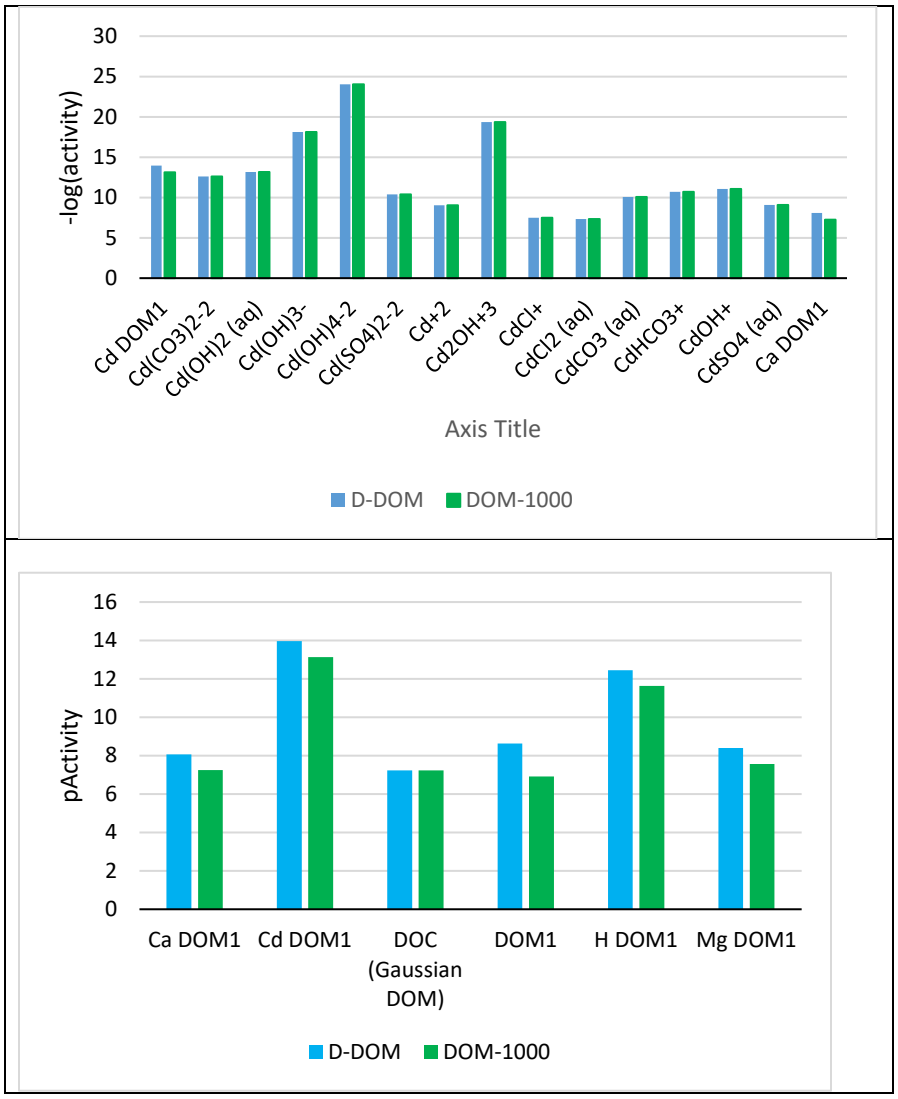


Table S3. MINTEQA notation, the corresponding chemical formula, and names of water soluble species present in the seawater of Bay of Bengal.

MINTEQA Notation	Chemical formula	Name and description
Br-1	Br^-	Bromide anion
Ca DOM	Ca(DOM)	Calcium complexed with DOM
Ca+2	Ca^{2+}	Calcium cation
CaCl+	$CaCl^+$	Calcium monocholoride
CaCO3 (aq)	$Ca(CO)_3$(aq)	Calcium carbonate (soluble part in water- aqua complex)
CaH2BO3+	$[Ca(H_2BO_3)]^+$	Calcium dihydrogen borate cation
CaHCO3+	$[Ca(HCO_3)]^+$	Calcium bicarbonate cation
CaOH+	$CaOH^-$	Calcium monohydroxide anion
CaSO4 (aq)	$CaSO_4$(aq)	Calcium sulfate aqua complex
Cd DOM	Cd(DOM)	Cadmium complexed with DOM
Cd(CO3)2-2	$[Cd(CO_3)_2]^{2-}$	Cadmium carbonate anion
Cd(H2BO3)2 (aq)	$Cd(H_2BO_3)_2$ (aq)	Cadmium dihydrogen borate aqua complex
Cd(OH)2 (aq)	$Cd(OH)_2$ (aq)	Cadmium dihydroxide aqua complex
Cd(OH)3-	$[Cd(OH)_3]^-$	Cadmium trihydroxide anion
Cd(OH)4-2	$[Cd(OH)_4]^{2-}$	Cadmium tetrahydroxide anion
Cd(SO4)2-2	$[Cd(SO_4)_2]^{2-}$	Cadmium sulfate anion
Cd+2	Cd^{2+}	Cadmium cation (free cation)
Cd2OH+3	$[Cd_2OH]^{3+}$	Dicadmium hydroxide (tri cationic species)
CdBr+	$CdBr^+$	Cadmium monobromide anion
CdBr2 (aq)	$CdBr_2$(aq)	Cadmium dibromide aqua complex
CdBr3-	$[CdBr_3]^-$	Cadmium tribromide anion
CdBr4-2	$[CdBr_4]^{2-}$	Cadmium tetrabromide anion
CdCl+	$[CdCl]^+$	Cadmium monochloride cation
CdCl2 (aq)	$CdCl_2$ (aq)	Cadmium chloride aqua complex
CdCO3 (aq)	$CdCO_3$ (aq)	Cadmium carbonate aqua complex
CdH2BO3+	$Cd(H_2BO_3)^+$ (aq)	Cadmium dihydrogen borate cation aqua complex
CdHCO3+	$[Cd(HCO_3)]^+$	Cadmium bicarbonate cation
CdOH+	$[CdOH]^+$	Cadmium hydroxo cation
CdSO4 (aq)	$CdSO_4$ (aq)	Cadmium sulfate aqua complex
Cl-1	Cl^-	Chloride anion
CO3-2	$(CO_3)^{2-}$	Carbonate anion
H10(BO3)4-2	$[H_{10}\ (BO_3)_4]^{2-}$	Protonated (deca) complex of borate anion
H2BO3-	$[H_2BO_3]^-$	Dihydrogen borate anion
H2CO3 (aq)	H_2CO_3 (aq)	Carbonic acid aqua species
H3BO3	H_3BO_3	Boric acid
H5(BO3)2-	$[H_5(BO_3)]^{2-}$	Protonated (penta) complex of borate anion
H8(BO3)3-	$[H_8(BO_3)]^{3-}$	Protonated (octa) complex of borate anion
HCO3-	$[HCO_3]^-$	Bicarbonate anion

HSO4-	$(HSO_4)^-$	Bisulfate anion
K+1	K^+	Potassium cation
KSO4-	$(KSO_4)^-$	Potassium bisulfate anion
Mg+2	Mg^{2+}	Magnesium cation
Mg2CO3+2	$[Mg_2CO_3]^{2+}$	Dimagnesium carbonate cation
MgCl+	$(MgCl)^+$	Magnesium chloride anion
MgCO3 (aq)	$MgCO_3$ (aq)	Magnesium carbonate aqua complex
MgH2BO3+	$Mg(H_2BO_3)_2$ (aq)	Magnesium borate aqua complex
MgHCO3+	$[Mg(HCO_3)]^+$	Magnesium bicarbonate cation
MgOH+	$[MgOH]^+$	Magnesium monohydroxide cation
Na+1	Na^+	Sodium cation
NaCO3-	$[Na(CO_3)]^-$	Monosodium carbonate anion
NaH2BO3 (aq)	$Na(H_2BO_3)$ (aq)	Sodium dihydrogen borate aqua complex
NaHCO3 (aq)	$NaHCO_3$ (aq)	Sodium bicarbonate
NaSO4-	$[NaSO_4]^-$	Monosodium sulfate anion
SO4-2	$[SO_4]^{2-}$	Sulfate anion
Sr+2	Sr^{2+}	Strontium cation
SrCl+	$[SrCl]^+$	Strontium monochloride cation
SrCO3 (aq)	$SrCO_3$ (aq)	Strontium carbonate aqua complex
SrH2BO3+	$[Sr(H_2BO_3)]^+$(aq)	Strontium dihydrogen borate cation aqua complex
SrHCO3+	$[Sr(HCO_3)]^+$	Strontium bicarbonate cation
SrOH+	$[SrOH]^+$	Strontium monohydroxide cation
SrSO4 (aq)	$SrSO_4$ (aq)	Strontium sulfate aqua complex
Pb+2	Pb^{2+}	Lead cation
PbOH+	$[PbOH]^+$	Lead monohydroxide cation
Pb(OH)2 (aq)	$Pb(OH)_2$ (aq)	Lead hydroxide aqua complex
PbCl+	$[PbCl]^+$	Lead monochloride cation
PbCl2 (aq)	$PbCl_2$ (aq)	Lead chloride aqua complex
PbCl3-	$[PbCl_3]^-$	Lead trichloride anion
PbCl4-2	$[PbCl_4]^{2-}$	Lead tetrachloride anion
PbSO4 (aq)	$PbSO_4$ (aq)	Lead sulfate aqua complex
Pb(SO4)2-2	$[Pb(SO_4)_2]^{2-}$	Lead disulfate anion
Pb(CO3)2-2	$[Pb(CO_3)_2]^{2-}$	Lead decarbonate anion
PbCO3 (aq)	$PbCO_3$(aq)	Lead carbonate aqua complex
PbHCO3+	$[Pb(HCO_3)]^+$	Lead bicarbonate cation

Table S4. Cd-species distribution calculated by MINTEQA using input parameters described in the text. Cd and DOC-species are highlighted.

BoB - Species Distribution with Cd^{2+} and DOM			
	Concentration Molal	Activity	Log activity
Br-1	8.30E-04	6.12E-04	-3.214
Ca DOM	1.47E-06	4.96E-07	-6.304
Ca+2	6.58E-03	1.94E-03	-2.712
CaCl+	2.33E-03	1.72E-03	-2.765
CaCO3 (aq)	1.08E-05	1.23E-05	-4.91
CaH2BO3+	4.63E-06	3.41E-06	-5.468
CaHCO3+	2.27E-05	1.68E-05	-4.776
CaOH+	6.24E-08	4.59E-08	-7.338
CaSO4 (aq)	1.45E-03	1.65E-03	-2.782
Cd DOM	**1.33E-08**	**4.48E-09**	**-8.349**
Cd(CO3)2-2	6.00E-13	1.77E-13	-12.752
Cd(H2BO3)2 (aq)	1.72E-15	1.96E-15	-14.707
Cd(OH)2 (aq)	4.43E-14	5.04E-14	-13.298
Cd(OH)3-	7.95E-19	5.86E-19	-18.232
Cd(OH)4-2	2.41E-24	7.10E-25	-24.148
Cd(SO4)2-2	1.06E-10	3.12E-11	-10.506
Cd+2	2.42E-09	7.13E-10	-9.147
Cd2OH+3	3.76E-19	2.40E-20	-19.619
CdBr+	8.36E-11	6.16E-11	-10.21
CdBr2 (aq)	2.34E-13	2.67E-13	-12.574
CdBr3-	2.21E-16	1.63E-16	-15.787
CdBr4-2	2.69E-19	7.92E-20	-19.101
CdCl+	3.26E-08	2.40E-08	-7.62
CdCl2 (aq)	3.10E-08	3.53E-08	-7.453
CdCO3 (aq)	5.61E-11	6.39E-11	-10.194
CdH2BO3+	2.46E-12	1.81E-12	-11.742
CdHCO3+	2.08E-11	1.53E-11	-10.814
CdOH+	9.13E-12	6.73E-12	-11.172
CdSO4 (aq)	5.46E-10	6.22E-10	-9.206
Cl-1	4.78E-01	3.52E-01	-0.453
CO3-2	1.30E-05	3.82E-06	-5.418
DOC (Gaussian DOM)	3.75E-05	4.27E-05	-4.37
DOM	1.06E-06	1.06E-06	-5.975
H DOM	2.52E-11	1.99E-11	-10.702
H+1	1.13E-08	8.32E-09	-8.08
H10(BO3)4-2	1.73E-12	5.10E-13	-12.293
H2BO3-	4.18E-05	3.08E-05	-4.511

H2CO3* (aq)	1.11E-05	1.27E-05	-4.897
H3BO3	3.88E-04	4.41E-04	-3.355
H5(BO3)2-	1.57E-08	1.16E-08	-7.936
H8(BO3)3-	6.94E-10	5.11E-10	-9.291
HCO3-	9.20E-04	6.78E-04	-3.169
HSO4-	4.10E-09	3.02E-09	-8.52
K+1	8.74E-03	6.44E-03	-2.191
KCl (aq)	9.99E-04	1.14E-03	-2.944
KOH (aq)	1.17E-08	1.33E-08	-7.876
KSO4-	2.30E-04	1.70E-04	-3.771
Mg DOM	6.84E-07	2.31E-07	-6.637
Mg+2	3.06E-02	9.02E-03	-2.045
Mg2CO3+2	4.11E-06	1.21E-06	-5.917
MgCl+	1.72E-02	1.27E-02	-1.897
MgCO3 (aq)	2.52E-05	2.87E-05	-4.542
MgH2BO3+	1.30E-05	9.56E-06	-5.02
MgHCO3+	8.52E-05	6.28E-05	-4.202
MgOH+	5.53E-06	4.07E-06	-5.39
MgSO4 (aq)	5.36E-03	6.11E-03	-2.214
Na+1	4.12E-01	3.04E-01	-0.517
NaCl (aq)	4.71E-02	5.37E-02	-1.27
NaCO3-	2.94E-05	2.16E-05	-4.665
NaH2BO3 (aq)	1.29E-05	1.47E-05	-4.833
NaHCO3 (aq)	9.07E-05	1.03E-04	-3.986
NaOH (aq)	3.99E-07	4.54E-07	-6.343
NaSO4-	8.43E-03	6.21E-03	-2.207
OH-	1.61E-06	1.19E-06	-5.925
SO4-2	1.26E-02	3.72E-03	-2.43
Sr+2	6.43E-05	1.89E-05	-4.723
SrCl+	1.40E-05	1.03E-05	-4.985
SrCO3 (aq)	4.11E-08	4.68E-08	-7.33
SrH2BO3+	2.79E-08	2.05E-08	-7.688
SrHCO3+	2.83E-07	2.08E-07	-6.681
SrOH+	2.02E-10	1.49E-10	-9.828
SrSO4 (aq)	1.23E-05	1.41E-05	-4.852
SrOH+	2.02E-10	1.49E-10	-9.828
SrSO4 (aq)	1.23E-05	1.41E-05	-4.852

Table S5. Saturation index of mineral species in BoB water and those with Cd^{2+}. Red marked minerals show saturation index less than unity, meaning possible precipitation as solid. Chemical formulas for MINTEQA notations for minerals are shown.

Saturation index of mineral species in BoB water and those with Cd^{2+}										
Mineral	**log IAP**	**Saturation index**	**Stoichiometry (number followed by species)**							
Anhydrite $CaSO_4$	-5.142	-0.782	1	Ca+2	1	SO4-2				
Aragonite $CaCO_3$	-8.13	0.206	1	Ca+2	1	CO3-2				
Artinite $Mg(H_2CO_3)$, $5H_2O$	6.611	-2.989	-2	H+1	2	Mg+2	1	CO3-2	5	H2O
Brucite MgO	14.099	-3.001	1	Mg+2	2	H2O	-2	H+1		
CaCO3,H2O(s) $CaCO_3$, H_2O	-8.138	-0.994	1	Ca+2	1	CO3-2	1	H2O		
Calcite $CaCO_3$	-8.13	0.35	1	Ca+2	1	CO3-2				
Cd(BO2)2(s) $Cd(BO_2)_2(s)$	0.398	-9.442	-2	H2O	-2	H+1	1	Cd+2	2	H3BO3
Cd(OH)2(s) $Cd(OH)_2$ (s)	7.075	-6.569	1	Cd+2	2	H2O	-2	H+1		
Cd3(OH)4SO4(s) $Cd_3(OH)_4SO_4$ (s)	2.653	-19.907	-4	H+1	3	Cd+2	4	H2O	1	SO4-2
Cd3OH2(SO4)2(s) $Cd_3(OH)_2$ SO_4 (s)	-15.92	-22.63	-2	H+1	3	Cd+2	2	H2O	2	SO4-2
Cd4(OH)6SO4(s) $Cd_4(OH)_6SO_4$ (s)	9.728	-18.672	-6	H+1	4	Cd+2	6	H2O	1	SO4-2
CdBr2:4H2O(s) $CdBr_2$,4 H_2O (s)	15.529	-13.104	1	Cd+2	2	Br-1	4	H2O		
CdCl2(s) $CdCl_2$(s)	-9.974	-9.315	1	Cd+2	2	Cl-1				
CdCl2:1H2O(s) $CdCl_2$(s), H_2O(s)	-9.982	-8.289	1	Cd+2	2	Cl-1	1	H2O		
CdCl2:2.5H2O(s) $CdCl_2$(s), $5H_2O$(s)	-9.995	-8.082	1	Cd+2	2	Cl-1	2.5	H2O		
Cd(OH)Cl(s)	-1.449	-4.987	-1	H+1	1	Cd+2	1	H2O	1	Cl-1
CdSO4(s) $CdSO_4$(s)	-11.498	-11.325	1	Cd+2	1	SO4-2				
CdSO4:1H2O(s) $CdSO_4$:$1H_2O$(s)	-11.506	-9.78	1	Cd+2	1	SO4-2	1	H2O		
CdSO4:2.67H2O(s) $CdSO_4$:$2.67H_2O$(s)	-11.52	-9.647	1	Cd+2	1	SO4-2	2.67	H2O		
Celestite $SrSO_4$	-7.152	-0.532	1	Sr+2	1	SO4-2				
Dolomite (disordered) CaMg $(CO_3)_2$	-15.592	0.948	1	Ca+2	1	Mg+2	2	CO3-2		
Dolomite (ordered) CaMg $(CO_3)_2$	-15.592	1.498	1	Ca+2	1	Mg+2	2	CO3-2		

Epsomite $MgSO_4$	-4.533	-2.407	1	Mg+2	1	SO4-2	7	H2O		
Gypsum $CaSO_4$, $2H_2O$	-5.159	-0.549	1	Ca+2	1	SO4-2	2	H2O		
Halite NaCl	-0.97	-2.52	1	Na+1	1	Cl-1				
Huntite $Mg_3\ Ca(CO_3)_4$	-30.517	-0.549	3	Mg+2	1	Ca+2	4	CO3-2		
Hydromagnesite $Mg_5(CO_3)_4(OH)_2$, $4H_2O$	-15.784	-7.018	5	Mg+2	4	CO3-2	-2	H+1	6	H2O
KCl(s)	-2.644	-3.544	1	K+1	1	Cl-1				
Lime $Ca(OH)_2$	13.439	-19.26	-2	H+1	1	Ca+2	1	H2O		
Magnesite $MgCO_3$	-7.462	-0.002	1	Mg+2	1	CO3-2				
Mg(OH)2 (active) $Mg(OH)_2$ (active)	14.099	-4.695	1	Mg+2	2	H2O	-2	H+1		
Mg2(OH)3Cl:4H2O(s) $Mg_2(OH)_3Cl$, $4H_2O$(s)	19.639	-6.361	2	Mg+2	1	Cl-1	-3	H+1	7	H2O
MgCO3:5H2O(s) $MgCO_3$:$5H_2O$(s)	-7.504	-2.964	1	Mg+2	1	CO3-2	5	H2O		
Mirabilite Na_2SO_4, $10H_2O$	-3.549	-2.435	2	Na+1	1	SO4-2	10	H2O		
Natron Na_2CO_3, $10H_2O$	-6.537	-5.226	2	Na+1	1	CO3-2	10	H2O		
Nesquehonite $MgCO_3$, $3H_2O$	-7.487	-2.817	1	Mg+2	1	CO3-2	3	H2O		
Otavite $CdCO_3$	-14.486	-2.476	1	Cd+2	1	CO3-2				
Periclase MgH_2,H_2O or MgO	14.107	-7.477	-2	H+1	1	Mg+2	1	H2O		
Portlandite CaH_2,H_2O or CaO	13.431	-9.273	1	Ca+2	2	H2O	-2	H+1		
Strontianite $SrCO_3$	-10.14	-0.87	1	Sr+2	1	CO3-2				
Thenardite Na_2SO_4	-3.464	-3.786	2	Na+1	1	SO4-2				
Thermonatrite Na_2CO_3, H_2O	-6.461	-7.098	2	Na+1	1	CO3-2	1	H2O		
Vaterite $CaCO_3$	-8.13	-0.216	1	Ca+2	1	CO3-2				
43 mineral species										

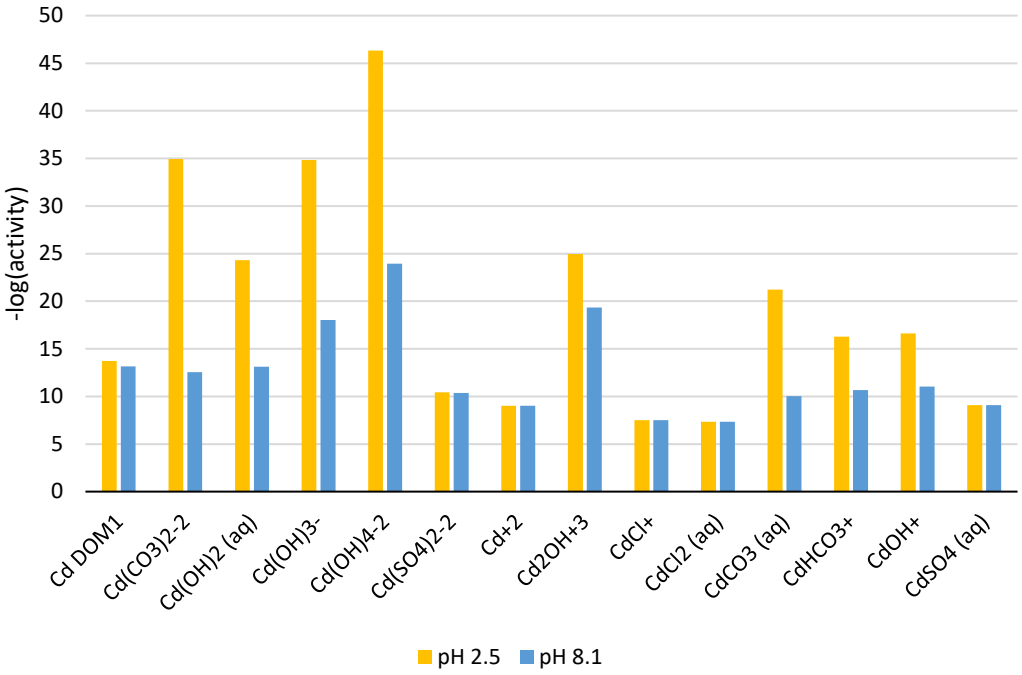


Figure S4: Effect of two extreme pH values on the speciation of Cd^{2+}.

Table S6: Components and species distribution for Pb^{2+} in presence of DOM.

Component	Species name	% of total of M	Component	Species name	% of total of M
Pb+2	Pb+2	0.669	Ca+2	Ca+2	63.264
	Pb DOM	89.571		Ca DOM	0.014
	PbOH+	0.798		CaCl+	22.405
	Pb(OH)2 (aq)	0.019		CaSO4 (aq)	13.95
	PbCl+	3.423		CaHCO3+	0.219
	PbCl2 (aq)	1.708		CaCO3 (aq)	0.104
	PbCl3-	0.739		CaH2BO3+	0.044
	PbCl4-2	0.248	K+1	K+1	87.672
	PbSO4 (aq)	0.315		KCl (aq)	10.02
	Pb(SO4)2-2	0.027		KSO4-	2.308
	Pb(CO3)2-2	0.085	Br-1	Br-1	100
	PbCO3 (aq)	2.242	H3BO3	H3BO3	84.262
	PbHCO3+	0.144		NaH2BO3 (aq)	2.807
DOM	DOM	32.164		H2BO3-	9.093
	Ca DOM	44.239		MgH2BO3+	2.819
	Mg DOM	20.585		CaH2BO3+	1.005
	Pb DOM	3.01	Sr+2	Sr+2	70.627
Cl-1	Cl-1	87.61		SrH2BO3+	0.031
	CaCl+	0.427		SrCl+	15.423
	MgCl+	3.147		SrSO4 (aq)	13.564
	KCl (aq)	0.183		SrCO3 (aq)	0.045
	NaCl (aq)	8.631		SrHCO3+	0.311
Na+1	Na+1	88.102			
	NaCl (aq)	10.069	CO3-2	CO3-2	1.069
	NaSO4-	1.801		HCO3-	75.886
	NaHCO3 (aq)	0.019		H2CO3* (aq)	0.918
SO4-2	SO4-2	44.903		MgCO3 (aq)	2.077
	MgSO4 (aq)	19.083		MgHCO3+	7.023
	CaSO4 (aq)	5.163		CaHCO3+	1.874
	SrSO4 (aq)	0.044		CaCO3 (aq)	0.891
	NaSO4-	29.988		SrHCO3+	0.023
	KSO4-	0.819		NaCO3-	2.42
Mg+2	Mg+2	57.44		NaHCO3 (aq)	7.476
	MgOH+	0.01		Mg2CO3+2	0.339
	MgCl+	32.24			
	MgSO4 (aq)	10.061			
	MgCO3 (aq)	0.047			
	MgHCO3+	0.16			
	Mg2CO3+2	0.015			
	MgH2BO3+	0.024			

Table S7: MINTEQA distribution of soluble Pb- species as a function of total Pb^{2+} added during DPASV titrations. The last two columns show experimental values of bound and free Pb^{2+}.

										Bound Pb-L	
Pb+2, total	PbCl+	PbSO4 (aq)	Pb DOM1	PbCO3 (aq)	PbCl2 (aq)	PbHCO3+	DOM1	H DOM1	Pb+2	All- free	Expt
nM	nM	nM	nM	nM	nM	nM	nM	nM	nM	nm	[PbL],nM
305.01	11.04	1.02	271.36	7.23	5.51	0.47	992.76	0.0215	2.16	294.47	260
253.85	9.06	0.83	226.26	5.93	4.52	0.38	1004.80	0.0221	1.77	245.21	220
209.94	7.40	0.68	187.41	4.84	3.69	0.31	1015.20	0.0227	1.44	202.89	194
154.92	5.37	0.49	138.55	3.52	2.68	0.23	1028.30	0.0234	1.05	149.79	146.5
150.09	5.20	0.48	134.26	3.40	2.59	0.22	1029.40	0.0234	1.02	145.14	144
144.79	5.01	0.46	129.53	3.28	2.50	0.21	1030.60	0.0235	0.98	140.01	136
139.96	4.83	0.45	125.23	3.17	2.41	0.20	1031.80	0.0236	0.94	135.35	133
129.83	4.47	0.41	116.20	2.93	2.23	0.19	1034.20	0.0237	0.87	125.56	121
127.89	4.40	0.41	114.48	2.88	2.20	0.19	1034.50	0.0237	0.86	123.69	121
124.99	4.30	0.40	111.90	2.81	2.14	0.18	1035.20	0.0238	0.84	120.90	120
114.86	3.94	0.36	102.86	2.58	1.96	0.17	1037.60	0.0239	0.77	111.10	111
110.03	3.77	0.35	98.55	2.47	1.88	0.16	1038.80	0.0240	0.74	106.44	107
108.59	3.72	0.34	97.26	2.43	1.85	0.16	1039.20	0.0240	0.73	105.04	