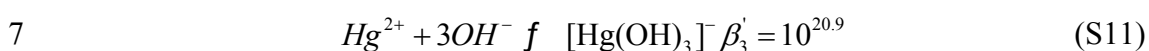


3 Meanwhile, the experimental system can undergo coordination equilibriums of
4 Hg(II) with OH⁻ in these ways (equations S9-S11):



8 where β stands for the stability constants of the complexes. Then, the equilibrium
9 equation was obtained from equation S12:

10
$$C_{\text{Hg(II)}} = [\text{Hg}^{2+}] \{1 + \beta_1[\text{Cl}^-] + \beta_2[\text{Cl}^-]^2 + \beta_3[\text{Cl}^-]^3 + \beta_4[\text{Cl}^-]^4 + \beta_1'[\text{OH}^-] + \beta_2'[\text{OH}^-]^2 + \beta_3'[\text{OH}^-]^3\} \quad (\text{S12})$$

11 The distribution fractions (ψ_x) of different species of Hg(II) can be calculated
12 from equation S13:

13
$$\psi_x = C_x / C_{\text{Hg(II)}} \quad (\text{S13})$$

14 where $x = \text{Hg}^{2+}, [\text{HgCl}]^+, \text{HgCl}_2, [\text{HgCl}_3]^-, [\text{HgCl}_4]^{2-}, [\text{HgOH}]^+, \text{Hg}(\text{OH})_2,$
15 $[\text{Hg}(\text{OH})_3]^-$, successively.

16 As the pH value of the buffer solution is 7.40, [OH⁻] in our experimental system
17 is 10^{-6.6} mol L⁻¹. [Cl⁻] is equal to 0.10 mol L⁻¹, which is mainly from the buffer
18 solution, and the contribution from dissolved HgCl₂ is negligible. The distribution
19 fractions of different species of Hg(II) were calculated using the equations above, and
20 the results are shown in Table S1.

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Table S1 The distribution fractions of different species of Hg(II)

Species	Hg ²⁺	[HgCl] ⁺	HgCl ₂	[HgCl ₃] ⁻
Fraction (%)	2.49×10 ⁻¹⁰	1.37×10 ⁻⁴	41.35	29.27

Species	[HgCl ₄] ²⁻	[HgOH] ⁺	Hg(OH) ₂	[Hg(OH) ₃] ⁻
Fraction (%)	29.27	2.49×10 ⁻⁶	0.0991	3.14×10 ⁻⁹

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