# Supporting information: Experimental conditions for potentiometry and microcalorimetry

Table S1. Potentiometric titrations of Fe(III)/ligand A

| No. | Cup Solution | | | | | Titrant |
|---|---|---|---|---|---|---|
| | t, °C | $V^0$, ml | $C_A$, mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_{Fe}$, mmol•dm$^{-3}$ | $C_{NaOH}$, mol•dm$^{-3}$ |
| 1 | 25 | 20.0 | 2.00 | 4.80 | 1.00 | 0.1013 |
| 2 | 25 | 20.0 | 9.50 | 23.6 | 4.05 | 0.1013 |
| 3 | 25 | 20.0 | 7.10 | 17.7 | 3.10 | 0.1013 |

Table S2. Potentiometric titrations of Cu(II)/ligand A

| No. | Cup Solution | | | | | Titrant |
|---|---|---|---|---|---|---|
| | t, °C | $V^0$, ml | $C_A$, mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_{Cu}$, mmol•dm$^{-3}$ | $C_{NaOH}$, mol•dm$^{-3}$ |
| 1 | 25 | 20.0 | 3.00 | 20.0 | 1.50 | 0.1066 |
| 2 | 25 | 20.0 | 2.25 | 17.5 | 1.50 | 0.1066 |
| 3 | 25 | 20.0 | 1.50 | 17.5 | 1.50 | 0.1066 |

Table S3. Potentiometric titrations of Pb(II)/ligand A

| No. | Cup Solution | | | | | Titrant |
|---|---|---|---|---|---|---|
| | t, °C | $V^0$, ml | $C_A$, mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_{Pb}$, mmol•dm$^{-3}$ | $C_{NaOH}$, mol•dm$^{-3}$ |
| 1 | 25 | 20.0 | 3.00 | 16.0 | 1.00 | 0.1066 |
| 2 | 25 | 20.0 | 2.00 | 13.0 | 1.00 | 0.1066 |
| 3 | 25 | 20.0 | 2.00 | 10.0 | 1.00 | 0.1066 |

Table S4. Potentiometric titrations of Ni(II)/ligand A

| No. | Cup Solution | | | | | Titrant |
|---|---|---|---|---|---|---|
| | t, °C | $V^0$, ml | $C_A$,mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_{Ni}$, mmol•dm$^{-3}$ | $C_{NaOH}$, mol•dm$^{-3}$ |
| 1 | 25 | 20.0 | 3.00 | 18.0 | 1.50 | 0.1066 |
| 2 | 25 | 20.0 | 4.00 | 22.5 | 2.00 | 0.1066 |
| 3 | 25 | 20.0 | 4.00 | 20.0 | 2.00 | 0.1066 |

Table S5. Calorimetric titrations of Fe(III)/ligand A

| No. | Cup Solution | | | | | | Titrant | |
|---|---|---|---|---|---|---|---|---|
| | t, °C | $V^0$, µl | $C_A$, mmol•dm$^{-3}$ | $C_{Fe}$, mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_{NaOH}$, mmol•dm$^{-3}$ | $C_H$, mmol•dm$^{-3}$ | $C_A$, mmol•dm$^{-3}$ |
| 1 | 25 | 900 | 1.889 | 0.911 | 4.079 | 21.32 | | |
| 2 | 25 | 900 | 1.422 | 0.637 | 2.844 | 21.32 | | |
| 3 | 25 | 900 | 1.422 | 0.711 | 1.777 | 10.66 | | |
| 4 | 25 | 900 | 1.889 | 0.911 | -1.132 | | 20.0 | |
| 5 | 25 | 900 | | 1.00 | 10.0 | | 15.0 | 7.50 |
| 6 | 25 | 900 | | 1.00 | 10.0 | | 20.0 | 10.0 |