Table S1. Cluster size, zeta-potential (ZP) and conductivity (C) of Mg containing systems

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Ratio | Size (nm) | ZP (mV) | St. Dev.(mV) | C (mS/cm) | St. Dev.(mS/cm) |
| MgPPi | - | 150 | -40 | 0.6 | 0.92 | 0.02 |
| Fe : Mg\* | 1:10 | \*\*4000 | -39 | 2.9 | 0.08 | 0.002 |
|  | 1:20 | 270 | -33 | 1.7 | 0.07 | 0.001 |
|  | 1:50 | 270 | -35 | 0.4 | 0.14 | 0.001 |
|  | 1:500 | 260 | -33 | 0.8 | 0.06 | 0.002 |

\*These particles have been washed extensively during preparation. They consequently have a much lower conductivity than other freshly prepared samples.

\*\*Indicative values, sample too aggregated for accurate analysis.

Table S2. Cluster size, zeta-potential (ZP) and conductivity (C) of aged and dialyzed FePPi

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Size (nm) | ZP (mV) | St. Dev.(mV) | C (mS/cm) | St. Dev.(mS/cm) |
| Freshly prepared | 270 | -38 | 1.7 | 2.2 | 0.19 |
| Freshly dialyzed | 295 | -40 | 0.3 | 0.03 | 0.001 |
| Aged one month | 580 | -36 | 2.4 | 2.3 | 0.17 |
| Dialyzed aged one month | 290 | -24 | 0.2 | 0.04 | 0.001 |