**SUPPORTING INFORMATION**

Table S1. Features of phosphonium based ionic liquid, Cyphos IL 102

|  |  |
| --- | --- |
| **Cyphos IL 102** | **Properties** |
| Trihexyl(tetradecyl)phosphonium bromide | Molecular formula | C32H68PBr |
| Molecular weight | 563.77 |
| %Assay | 97.00 |
| Physical State (room temp.) | liquid |
| Density (gcm-3) | 0.955 |
| Viscosity (cp) | 2094 |

**Figure S 2**



Figure S 2. Recycling capacity of Cyphos IL 102 for Mo(VI)

 Conditions: [Metal ion]=100 ppm, [Cyphos IL 102]= 5.0×10-3 mol/L,[HCl]=1.0×10-2

 mol/L, Shaking time=10 min, A:O=1:1.

 **Figure S 3**



Figure S 3. XRD pattern of MoO3 particles

**Figure S 4**

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 Figure S 4. FE-SEM image of synthesized MoO3

**Figure S 5**

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 Figure S 5. EDX spectrum of synthesized MoO3

 **Table S 6.** Elemental analysis of MoO3

|  |  |  |  |
| --- | --- | --- | --- |
| Element | Weight% | Atomic% |  |
| O K | 32.25 | 74.05 |  |
| Mo L | 67.75 | 25.95 |  |
|  |  |  |  |
| Totals | 100.00 |  |  |