**Table S1.** Trace elemental analysis of solid samples of the oxidize micro-graphite, oxidized graphene nanoplatelets, reduced graphene nanoplatelets and graphene nanoribbons. The standard deviation among the various batches was 10%.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Potassium (wt %)** | **Manganese (wt %)** | **Iron (wt %)** |
| Solid oxidized graphite | 0.52 | 3.84 | - |
| Solid oxidized graphene nanoplatelets | 0.45 | 4.54 | - |
| Solid reduced graphene nanoplatelets | 0.22 | 5.11 | - |
| Solid graphene nanoribbons | 0.29 | 0.93 | 0.005 |