Electronic supplementary information

The chemical functionalization of graphene nanoplatelets through solvent-free reaction

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Table S1: XPS atomic concentration and atomic ratio of the chemical elements on the pristine and functionalized HC11 at different temperature reactions

|           | At (%) | ratio |         | [N]:[O] | [N]:[C] | [O]:[C] |
|-----------|--------|-------|---------|---------|---------|---------|
| HC11      | 98.35  | -     | 1.65    | -       | -       | 0.017   |
| f-HC11 180| 87.32  | 5.00  | 7.68    | 0.65    | 0.057   | 0.088   |
| f-HC11 200| 84.47  | 6.24  | 9.29    | 0.67    | 0.074   | 0.109   |
| f-HC11 220| 84.75  | 6.77  | 8.48    | 0.80    | 0.079   | 0.100   |
| f-HC11 250| 86.02  | 6.77  | 7.21    | 0.94    | 0.078   | 0.084   |

Figure S1: Water suspensions of the pristine and functionalized HC11
Figure S2: AFM images of the pristine HC11 and f-HC11 200 and the corresponding height profiles of the selected sections 1, 2 and 3.

Table S2: XPS atomic concentration and atomic ratio of the chemical elements on the pristine and functionalized HC11 at different GNP:IDA ratios.

|       | At (%) | ratio       |       |       |       |
|-------|--------|-------------|-------|-------|-------|
|       | C      | N           | O     | [N]:[O]| [N]:[C]| [O]:[C]|
| HC11  | 98.35  | -           | 1.65  | -     | -     | 0.017   |
| f-HC11 200-1.0 | 84.47  | 6.24        | 9.29  | 0.67  | 0.074 | 0.109   |
| f-HC11 200-1.5 | 81.24  | 8.05        | 10.71 | 0.75  | 0.099 | 0.132   |
| f-HC11 200-2.0 | 79.89  | 8.71        | 11.40 | 0.76  | 0.109 | 0.143   |