

Supplementary Information

Enhancing the gas adsorption capacities of UiO-66 by nanographite addition

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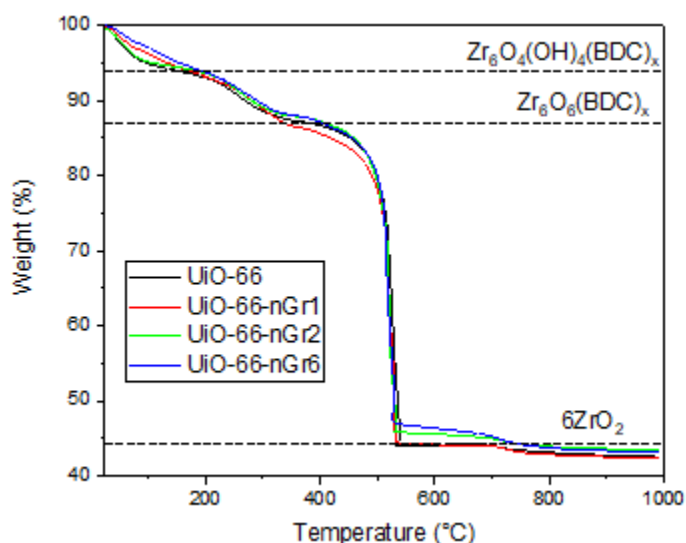


Figure 1S. TG in air for the UiO-66 and UiO-66-nGr samples.

The number of ligands is estimated by thermal analysis. TGA reveal that the weight loss occur in three steps as indicated in Figure S3. Up to 200 °C, solvent in pores is evaporated. Then up to 365 °C the dehydration of the material can be observed, and finally, the decomposition of the linkers occurs up to 600 °C. Since 6 ZrO_2 is produced during this last step for each $Zr_6O_6(BDC)_x$ unit decomposing, the number of ligand x can be calculated from the weight loss W between 600 and 365 °C, using the following equation:

$$x = \frac{643.2 W + 96}{164.1 \times (1 - W)}$$

The results are shown in Table S1. The pure UiO-66 prepared contained an average of 4 linkers per formula unit and the incorporation of nGr slightly decreases it. It has to be noted that nGr

also decomposes around the same temperature as the linkers and this was not taken into account in our calculation, leading to a small overestimation of the number of ligands in the composite.

Table S1. Average numbers of ligands per formula unit

	UiO-66	UiO-66-nGr1	UiO-66-nGr2	UiO-66-nGr6
Number of ligands	4.0	3.9	3.9	3.8

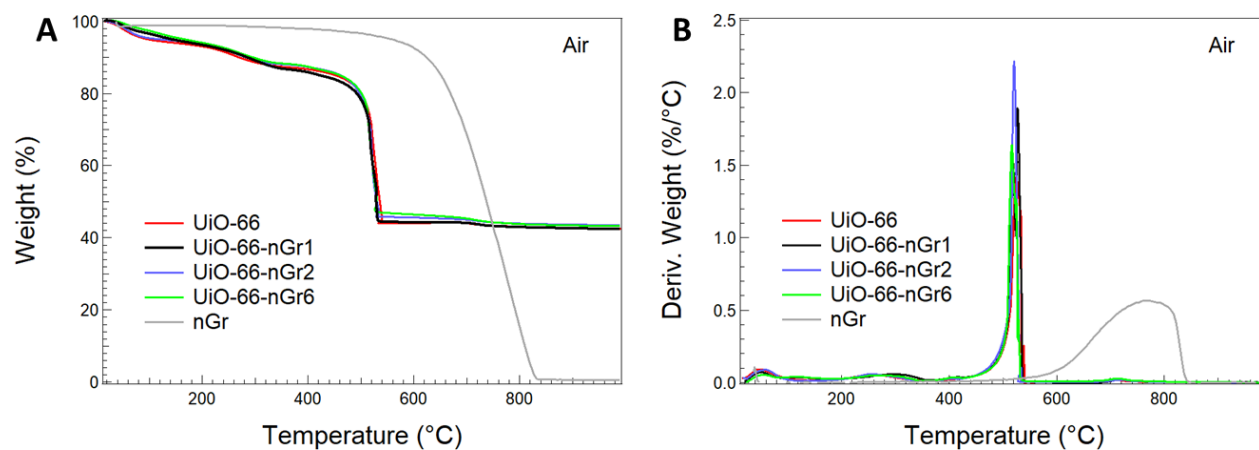


Figure 2S. TG (A) and DTG (B) curves under air flow for pure UiO-66, nGr and UiO-66-nGr composite samples.

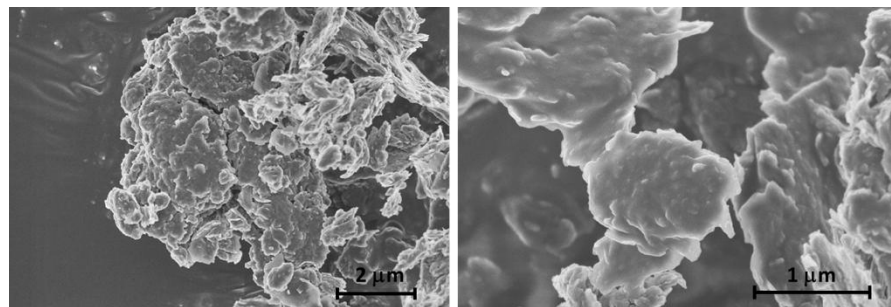


Figure 3S. SEM images of the nGr sample.