Electronic Supplementary Material (ESI) for Dalton Transactions.
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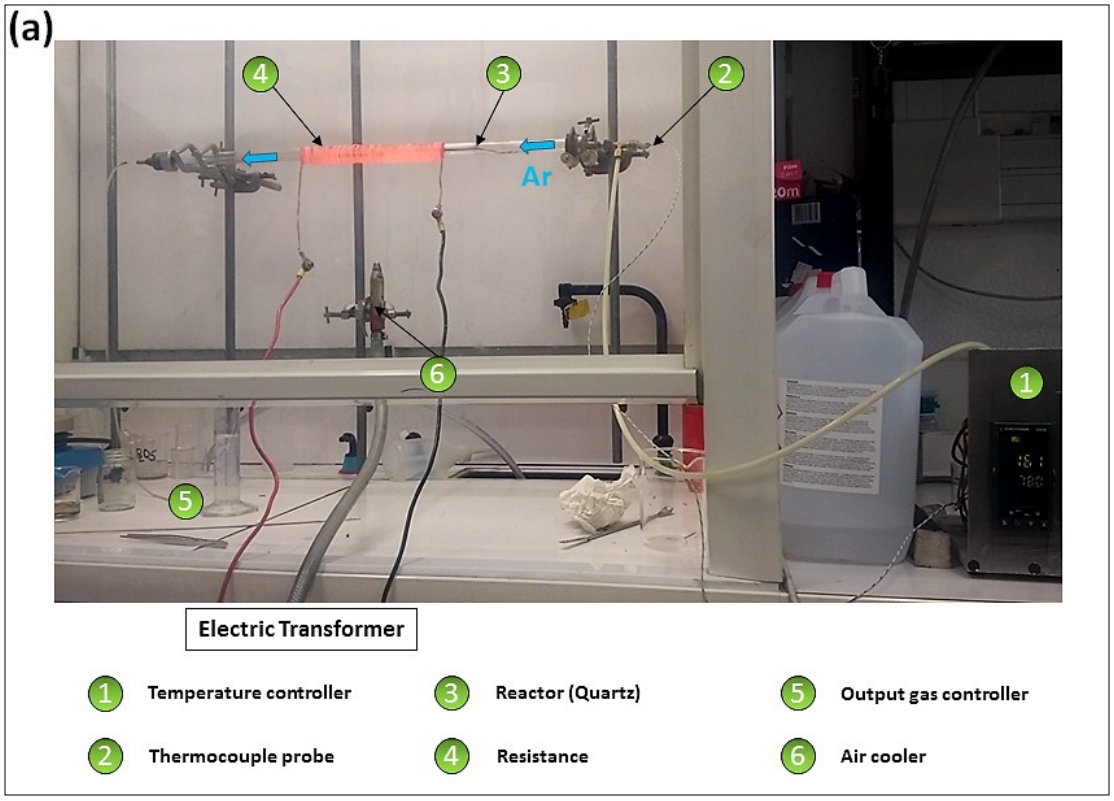
Supplementary information



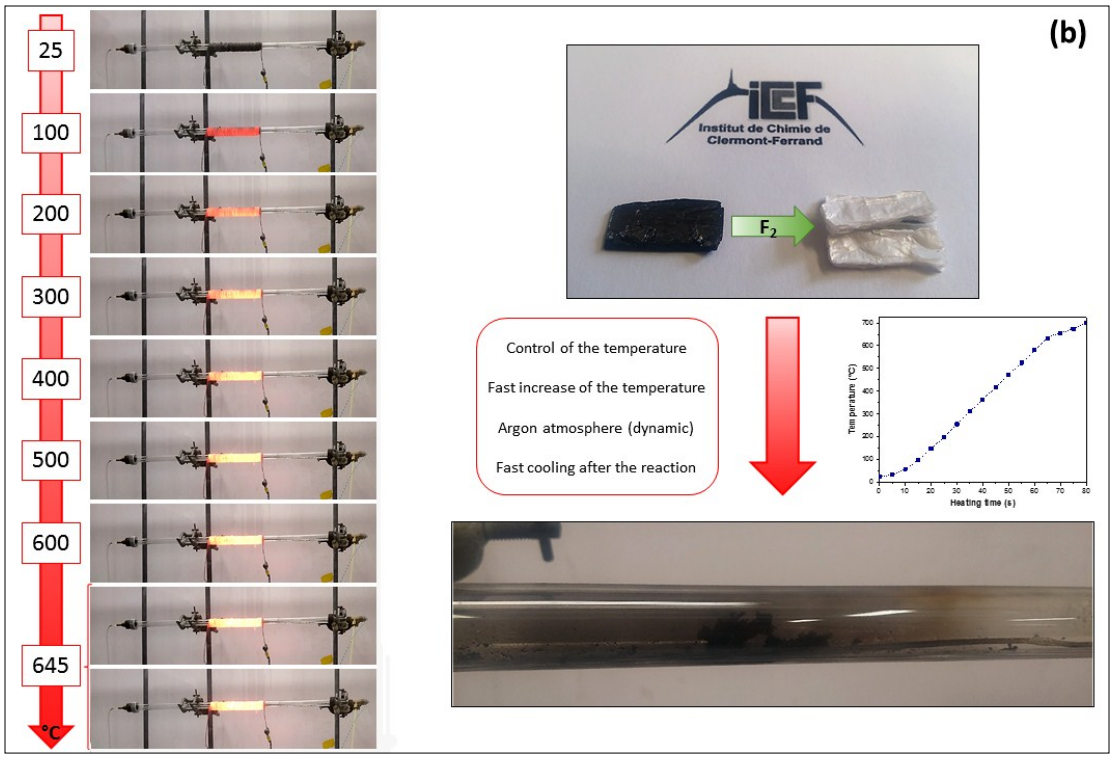


Figure SI 1 – (a) Picture of the experimental setup used for the fast thermal exfoliation of fluorinated graphite, with the different components, and (b) graphical abstract of the synthesis, with the evolution on temperature of the resistance (about 10 °C s-1) and the flame generated during the exfoliation (left), pictures of the morphology of the FG before (white and thin) and after the exfoliation (black and exfoliated)

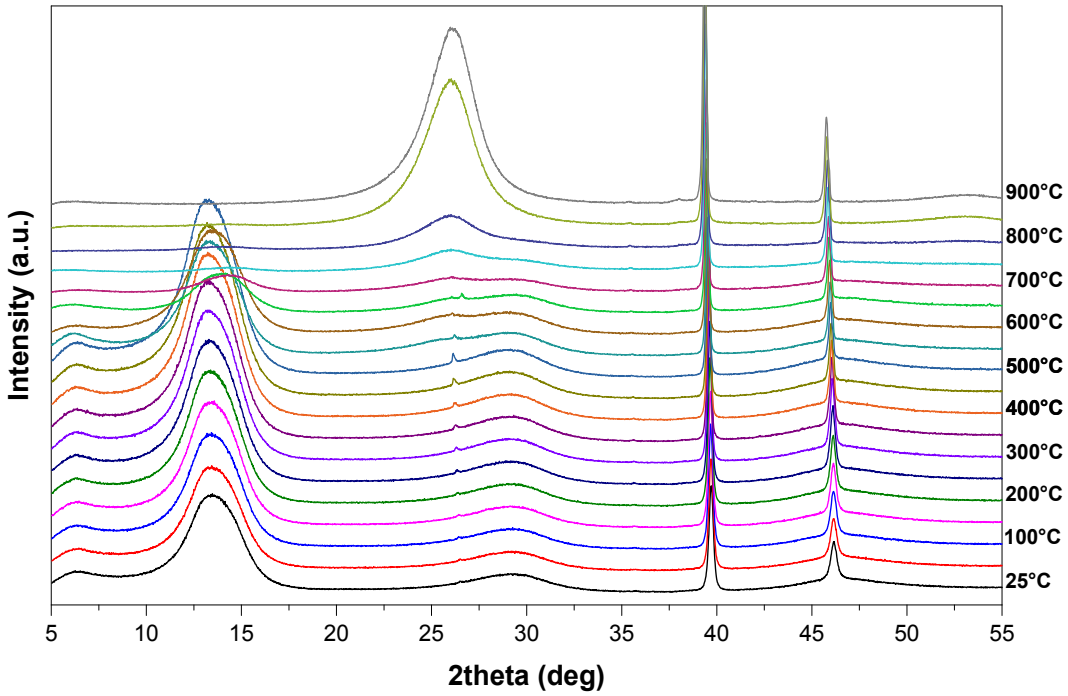


Figure SI 2 - High Temperature X-ray diffraction (HTK-XRD) patterns of the sample FG measured under argon atmosphere, between 5° and 55° in 2θ, and 25 °C and 900 °C. Each pattern was recorded after 30 minutes of stabilization, and with an temperature increase of 10 °C min^{-1}

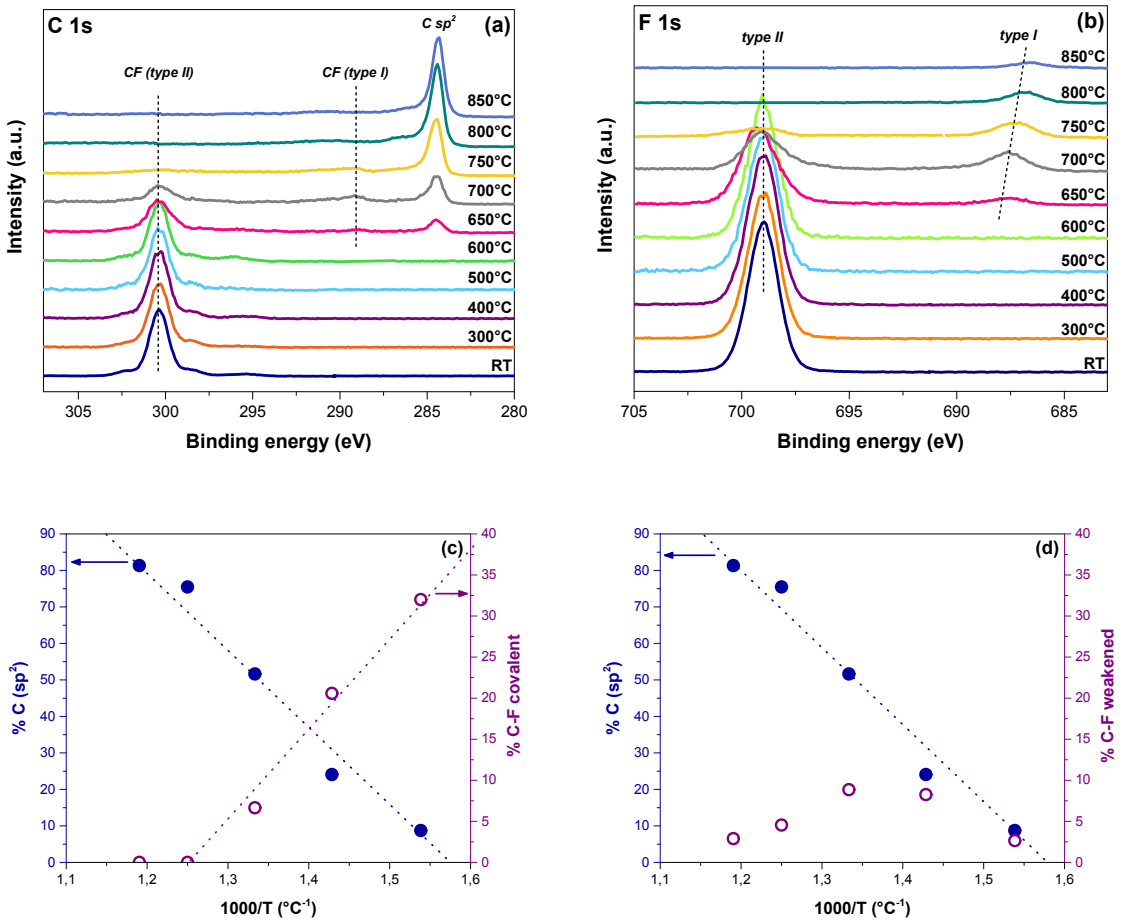


Figure SI 3 - Evolution of (a) C1s and (b) F1s core-level XPS spectra, obtained without the use of flood gun, and the thermal evolution of the two types of C-F bonds, (c) covalent (type II) and (d) weakened C-F (type I) in comparison with the sp^2 hybridized carbon atoms, with the inverse of the temperature

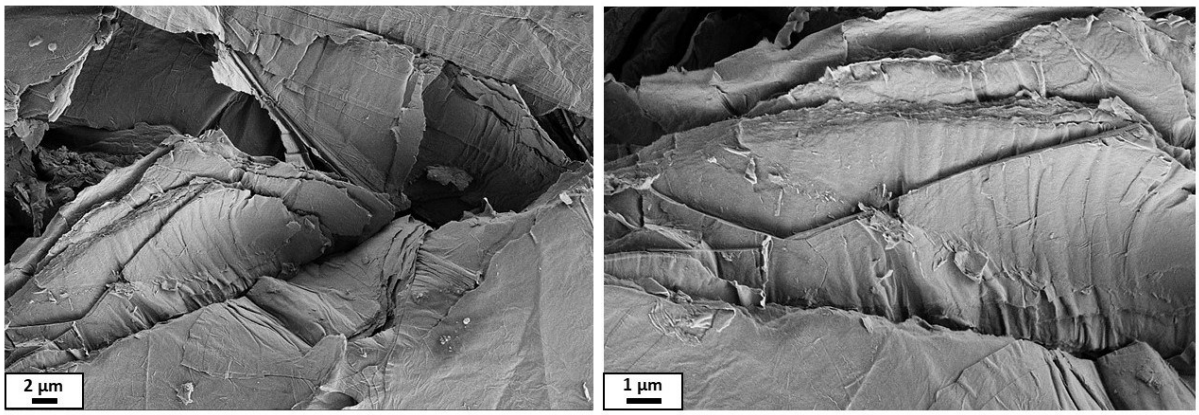


Figure SI 4 - SEM pictures of the starting FG sample

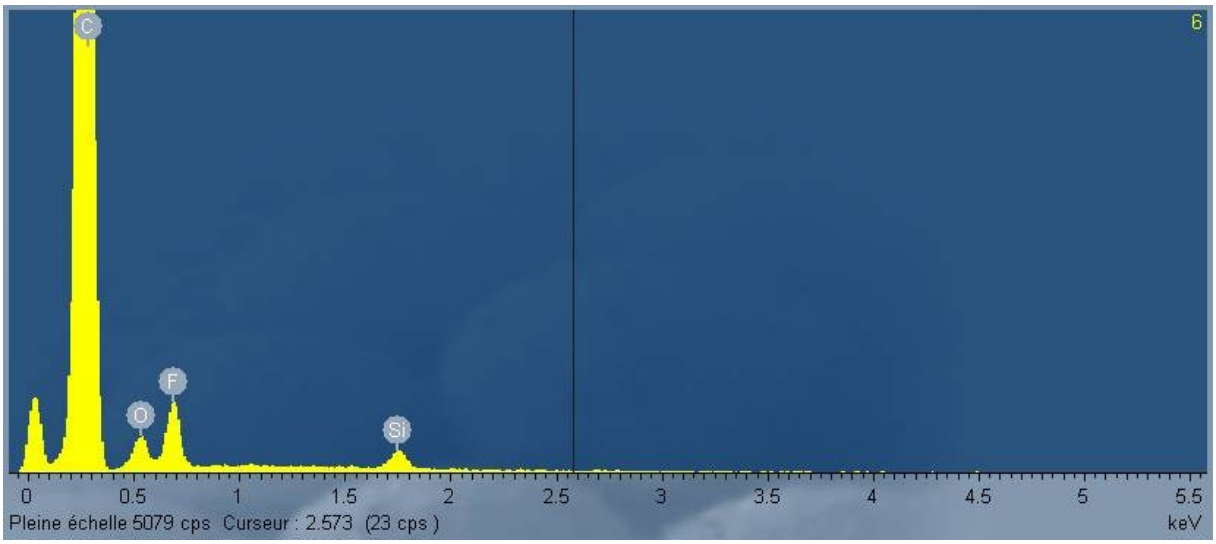


Figure SI 5 - EDS measurements for FG-650 sample, with the four elements detected by XPS analysis

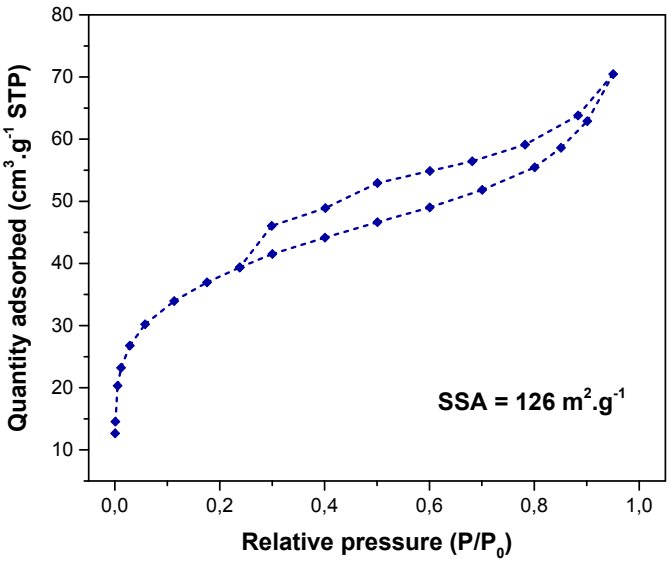


Figure SI 6 - N_2 adsorption at 77K of the FG-650 sample