

## Supplementary Information

# A diamino-functionalized silsesquioxane pillared graphene oxide for CO<sub>2</sub> capture

Eleni Thomou,<sup>ab</sup> Viktoria Sakavitsi,<sup>a</sup> Giasemi K. Angelis,<sup>c</sup> Konstantinos Spyrou,<sup>a</sup> Konstantinos G. Froudas,<sup>c</sup> Evmorfia K. Diamanti,<sup>a</sup> George E. Romanos,<sup>d</sup> Georgios N. Karanikolos,<sup>e,f</sup> Pantelis N. Trikalitis,<sup>c</sup> Dimitrios Gournis<sup>\*a</sup> and Petra Rudolf<sup>\*b</sup>

<sup>a</sup> Department of Materials Science and Engineering, University of Ioannina, Ioannina, Greece

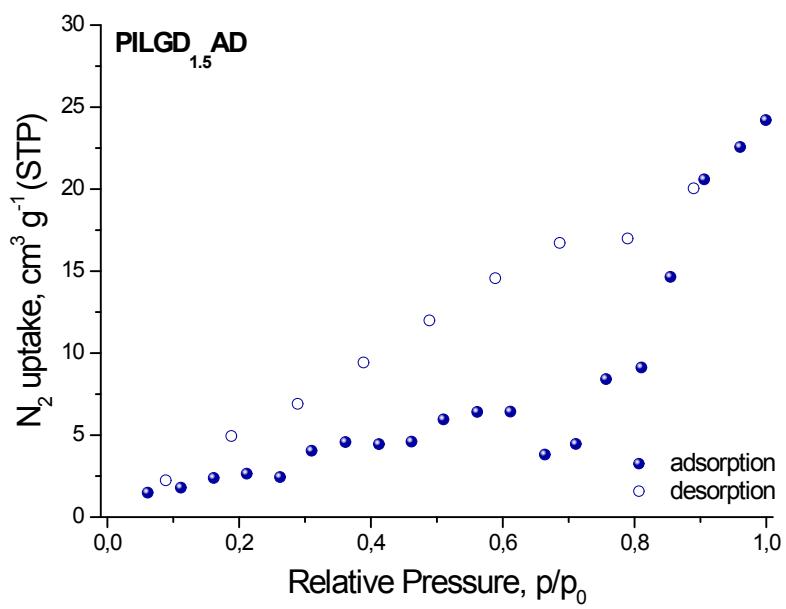
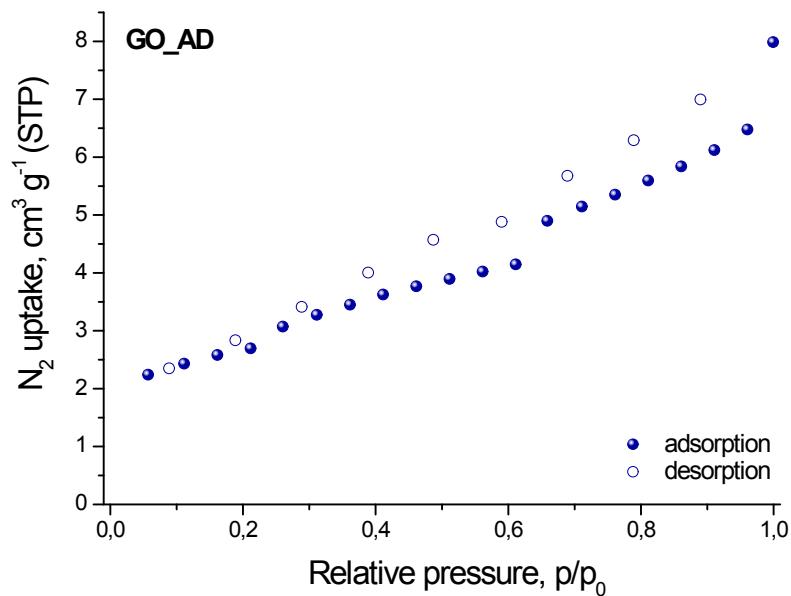
<sup>b</sup> Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

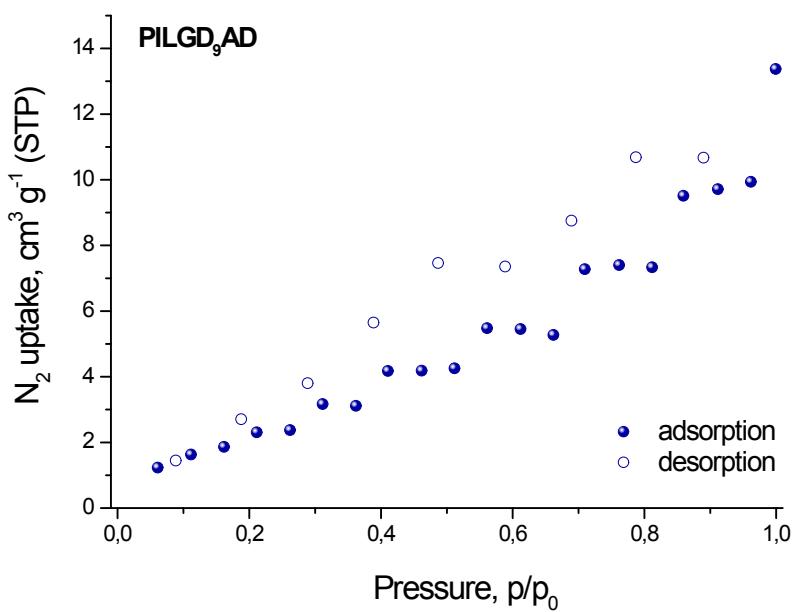
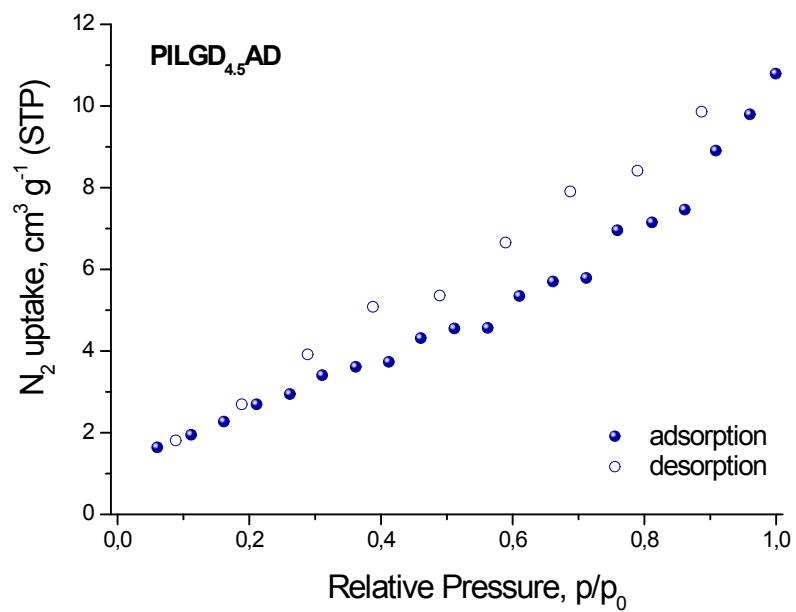
<sup>c</sup> Department of Chemistry, University of Crete, Heraklion, Greece

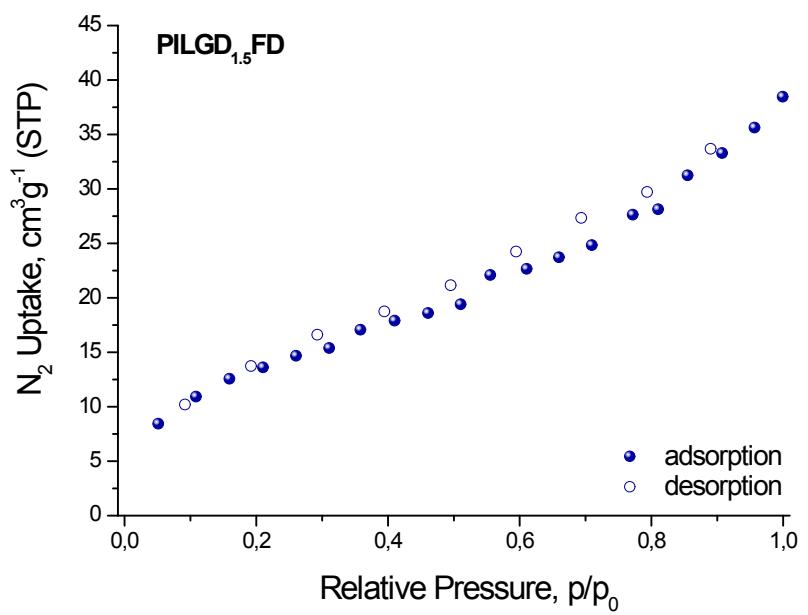
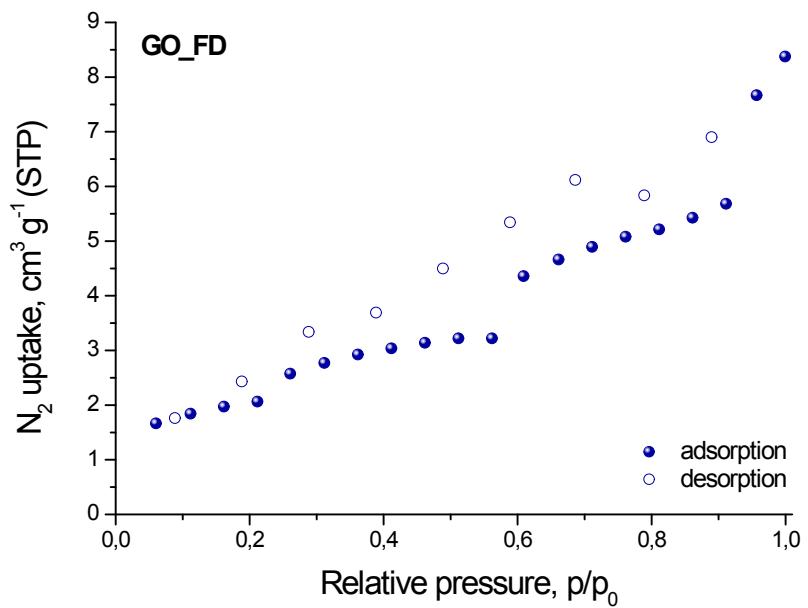
<sup>d</sup> Institute of Physical Chemistry, N.C.S.R. Demokritos, Ag. Paraskevi Attikis, Greece

<sup>e</sup> Department of Chemical Engineering, Khalifa University, P.O. Box 127788, Abu Dhabi, United Arab Emirates

<sup>f</sup> Research and Innovation Center on CO<sub>2</sub> and H<sub>2</sub> (RICH), Khalifa University, P.O. Box 127788, Abu Dhabi, United Arab Emirates







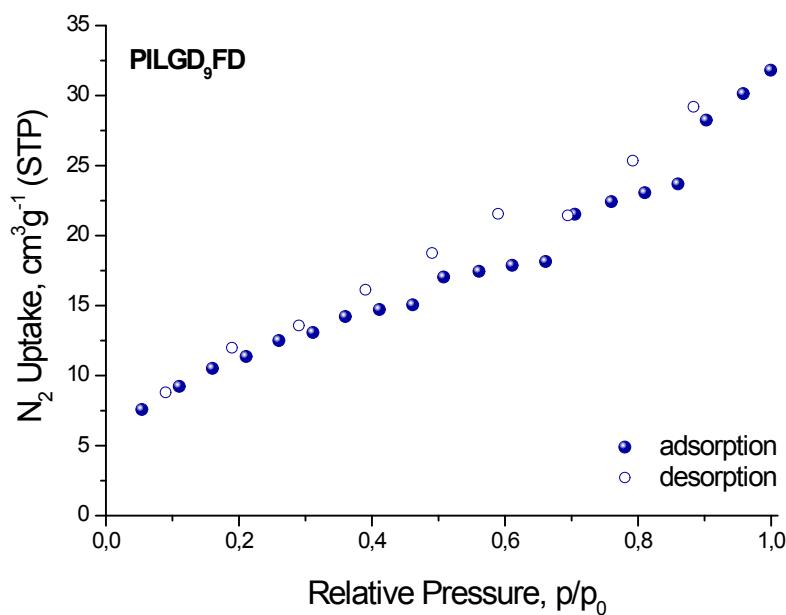
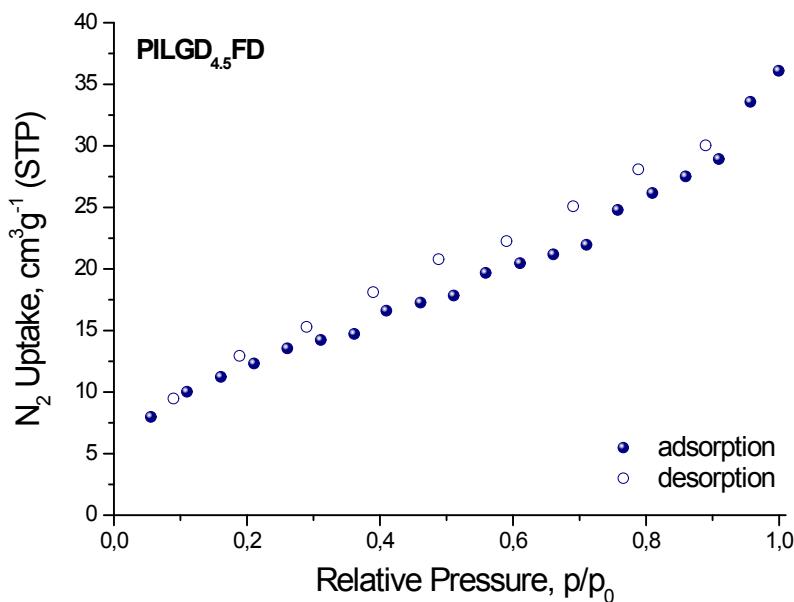
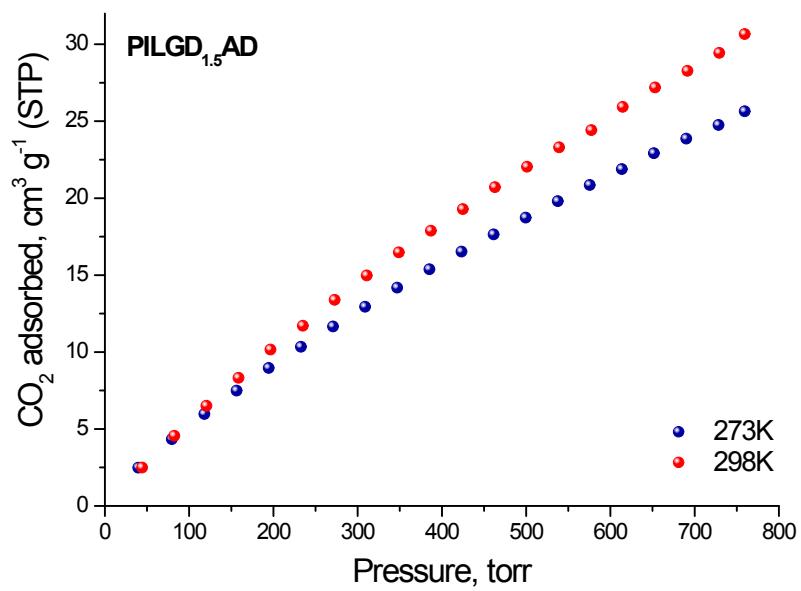
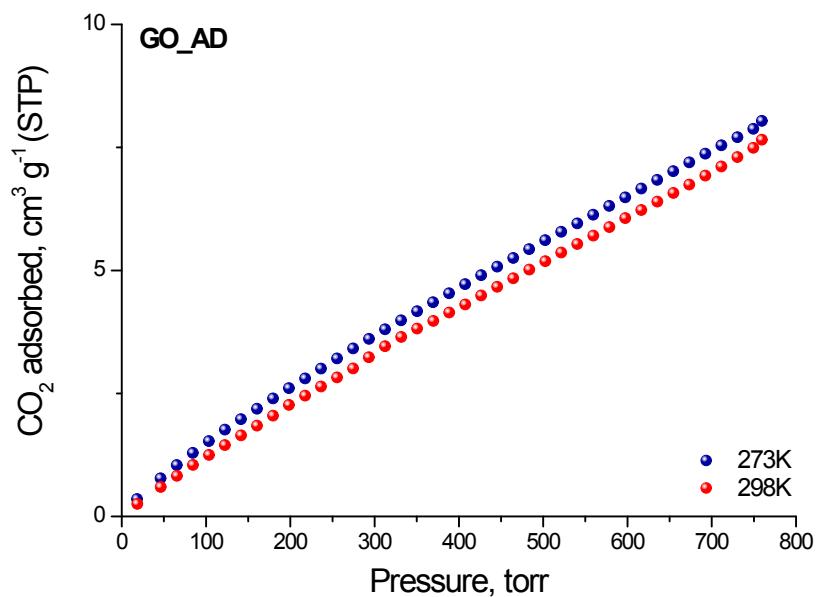
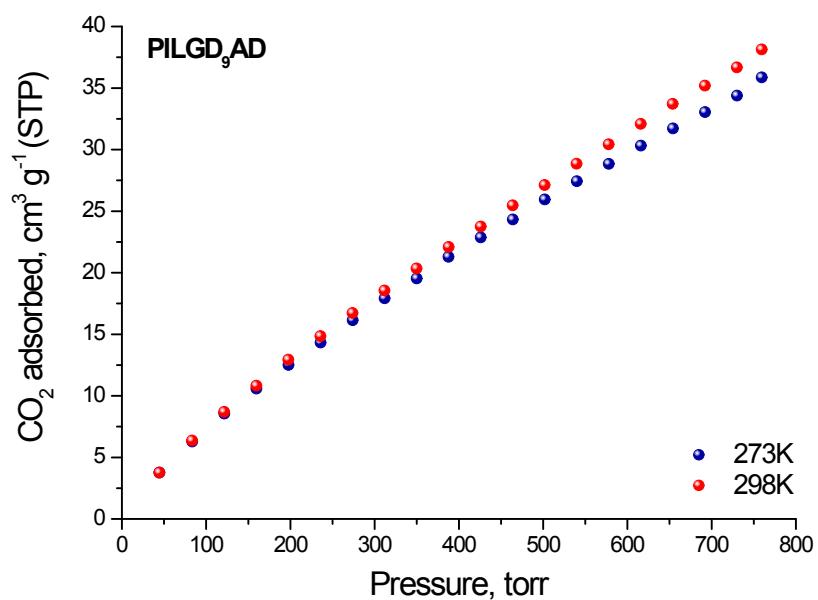
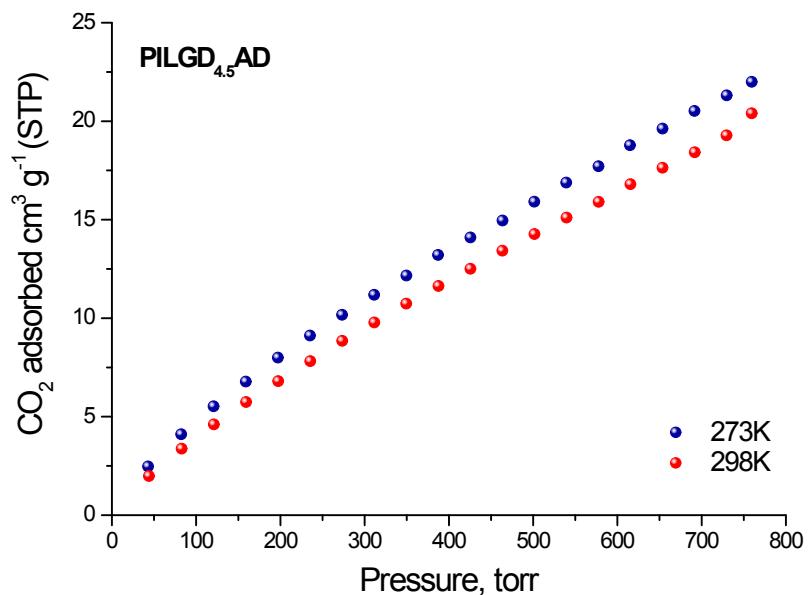
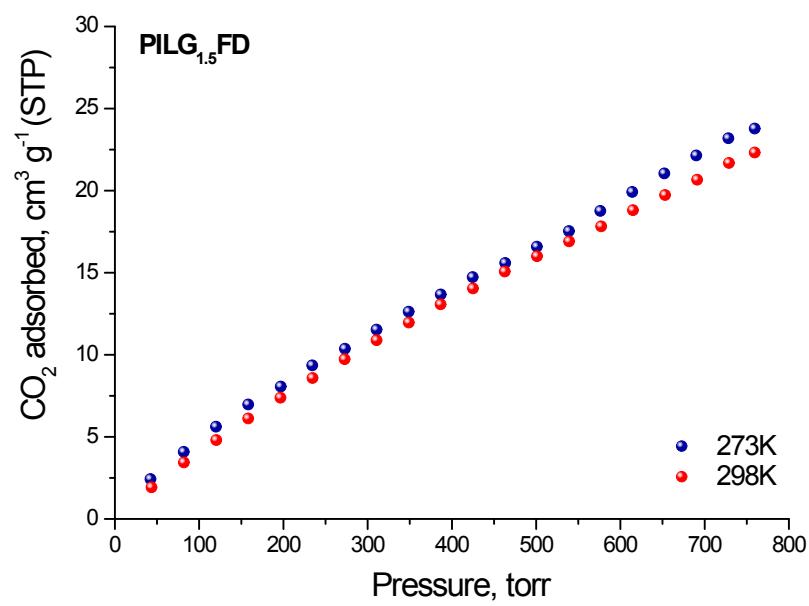
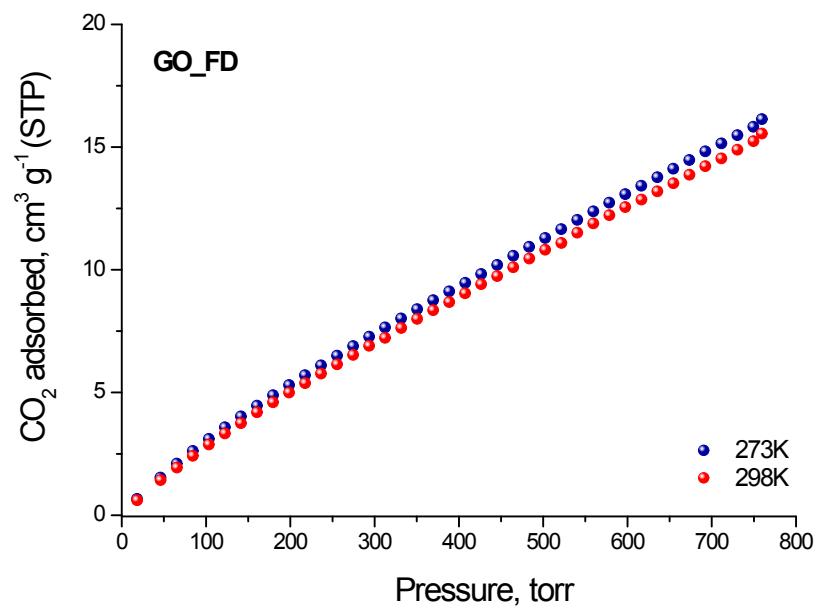


Figure S1. N<sub>2</sub> adsorption (full symbols)-desorption (empty symbols) isotherms at 77 K for graphene oxide (air dried and freeze-dried) and for all silsesquioxane-pillared GO structures prepared with different loadings and both ways of drying.







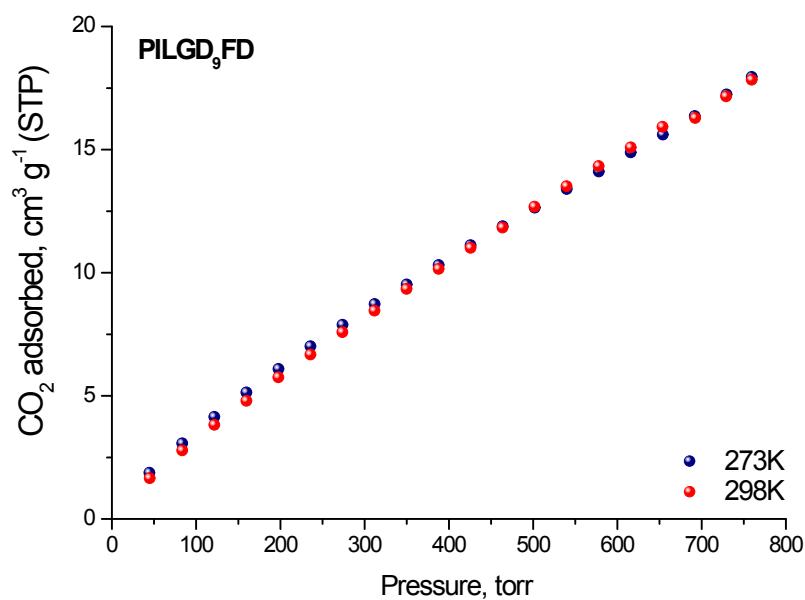
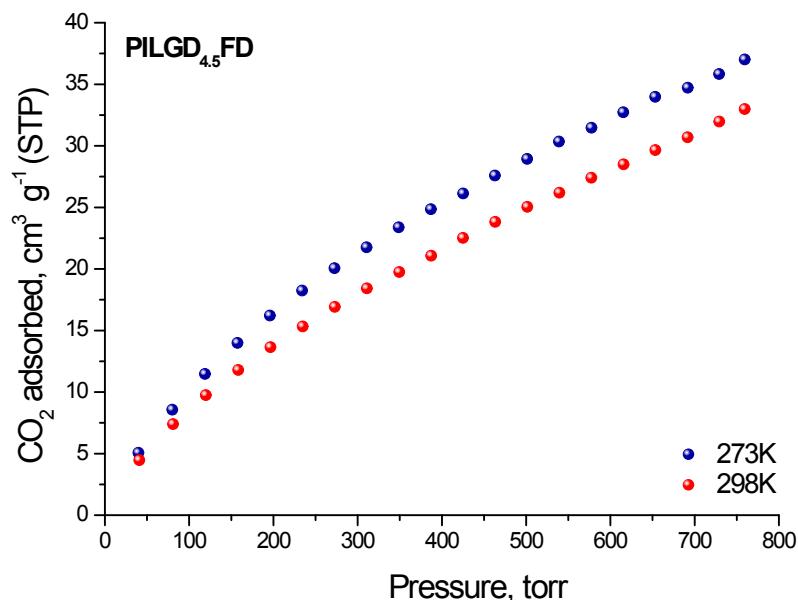


Figure S2. CO<sub>2</sub> adsorption (full symbols)-desorption (empty symbols) isotherms at 273 K and 298 K up to 1 bar for graphene oxide (air dried and freeze-dried) and for all silsesquioxane-pillared GO structures prepared with different loadings and both ways of drying.