

### **Description for the Supplementary File(s) for the Figure S1 and S2**

Examples of the resulting Arrhenius-type plots for the samples pure zirconia and graphene–zirconia, shown in Figs. S1 and S2 make it possible to obtain the necessary information for calculating the sintering activation energy  $Q$  and determining the mechanisms of mass transfer. Figure S1 shows the points corresponding to the density of the material at the beginning of sintering, but not more than 4% of the initial value. It is also seen how the angle of inclination changes when graphene is introduced into the zirconium dioxide powder, which leads to a change in the activation energy.