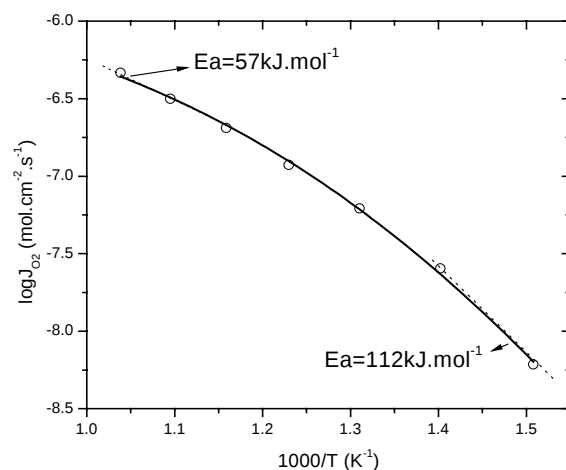




Supplementary Figure. 9 Temperature dependence of the oxygen permeability through BSCF over the temperature range 390 - 690 °C (see S7 for details of experimental procedure). The total flux exhibited non-Arrhenius behavior, which can be explained in terms of bulk diffusion control of the overall permeation at high temperatures and surface exchange control at low temperatures. This interpretation implies that the activation energy for oxygen bulk diffusion must be lower than 58 kJ.mol⁻¹ (the slope at high temperature) and that of oxygen surface exchange must be greater than 112 kJ.mol⁻¹ (the slope at low temperature). These results are in excellent agreement with the detailed studies presented in S8.