

## Supporting information

### Novel cobalt-free $\text{BaFe}_{1-x}\text{Gd}_x\text{O}_{3-\delta}$ perovskite membranes for oxygen separation

Yao Lu,<sup>a</sup> Hailei Zhao,<sup>\*ab</sup> Xiwang Chang,<sup>c</sup> Xuefei Du,<sup>a</sup> Kui Li,<sup>a</sup> Yanhui Ma,<sup>a</sup> Sha Yi,<sup>a</sup> Zhihong Du,<sup>a</sup> Kun Zheng,<sup>d</sup> and Konrad Świerczek<sup>d</sup>

<sup>a</sup>School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China. E-mail: hlzhao@ustb.edu.cn; Fax: +86 10 82376837; Tel: +86 10 82376837

<sup>b</sup>Beijing Municipal Key Laboratory of New Energy Materials and Technologies, Beijing 100083, China

<sup>c</sup>State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing, Beijing 100083, China

<sup>d</sup>Department of Hydrogen Energy, Faculty of Energy and Fuels, AGH University of Science and Technology, al. A. Mickiewicza 30, 30-059 Krakow, Poland

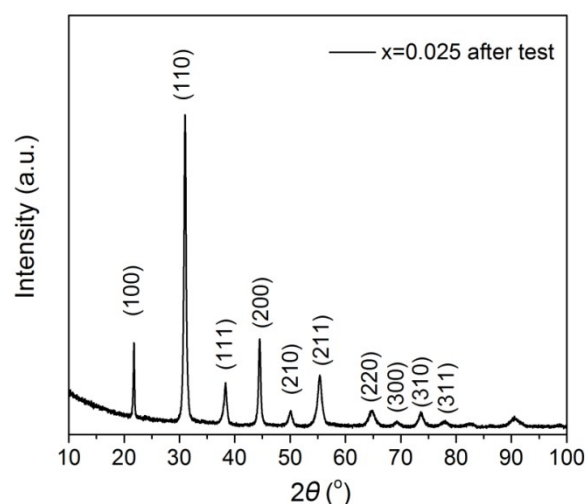


Figure S1. XRD result of  $x=0.025$  membrane after oxygen permeation experiment