Supporting information

## Impact of composite structure and morphology on electronic and ionic conductivity of carbon contained LiCoO<sub>2</sub> cathode

Nam Hee Kwon<sup>1\*</sup>, Hui Yin<sup>1</sup>, Pierre Brodard<sup>2</sup>, Claudia Sugnaux<sup>1</sup> and Katharina M. Fromm<sup>1</sup>

1 University of Fribourg, Department of Chemistry, Chemin du Musée 9, CH-1700 Fribourg, Switzerland

2 University of Applied Sciences of Western Switzerland, College of Engineering and Architecture of Fribourg, Boulevard de Pérolles 80, CH-1705 Fribourg, Switzerland

Corresponding author:

Dr. Nam Hee Kwon,

University of Fribourg

Department of Chemistry

Chemin du Musée 9

CH-1700 Fribourg

Switzerland

Tel: +41 26 300 87 35

Fax: +41 26 300 97 38

E-mail: namhee.kwon@unifr.ch



Fig. S1. The images of scanning electron microscopy of  $LiCoO_2$  material before (a) and after ballmilling for 5 (b), 30 (c) and 60 min (d). The inset images have all the same scale bar of 10  $\mu$ m.



Fig. S2. XRD patterns of the SFG/LiCoO<sub>2</sub> and Ket/LiCoO<sub>2</sub> composites before and after ball-milling.