Supplementary Material

Iron, Cobalt, and Nickel Phthalocyanine Tri-Doped Electrospun Carbon Nanofibre-Based Catalyst for Rechargeable Zinc-Air Battery Air Electrode

Kaur Muuli [1], Rohit Kumar [1], Marek Mooste [1,*], Viktoria Gudkova [2], Alexey Treshchalov [3], Helle-Mai Piirsoo [3], Arvo Kikas [3], Jaan Aruväli [4], Vambola Kisand [3], Aile Tamm [3], Andres Krumme [2], Prabu Moni [5], Michaela Wilhelm [5] and Kaido Tammeveski [1]

1 Institute of Chemistry, University of Tartu, Ravila 14a, 50411 Tartu, Estonia
2 Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn, Estonia
3 Institute of Physics, University of Tartu, W. Ostwald Str. 1, 50411 Tartu, Estonia
4 Institute of Ecology and Earth Sciences, University of Tartu, Vanemuise 46, 51014 Tartu, Estonia
5 University of Bremen, Advanced Ceramics, Am Biologischen Garten 2, IW3, 28359 Bremen, Germany
* Correspondence: marek.mooste@ut.ee

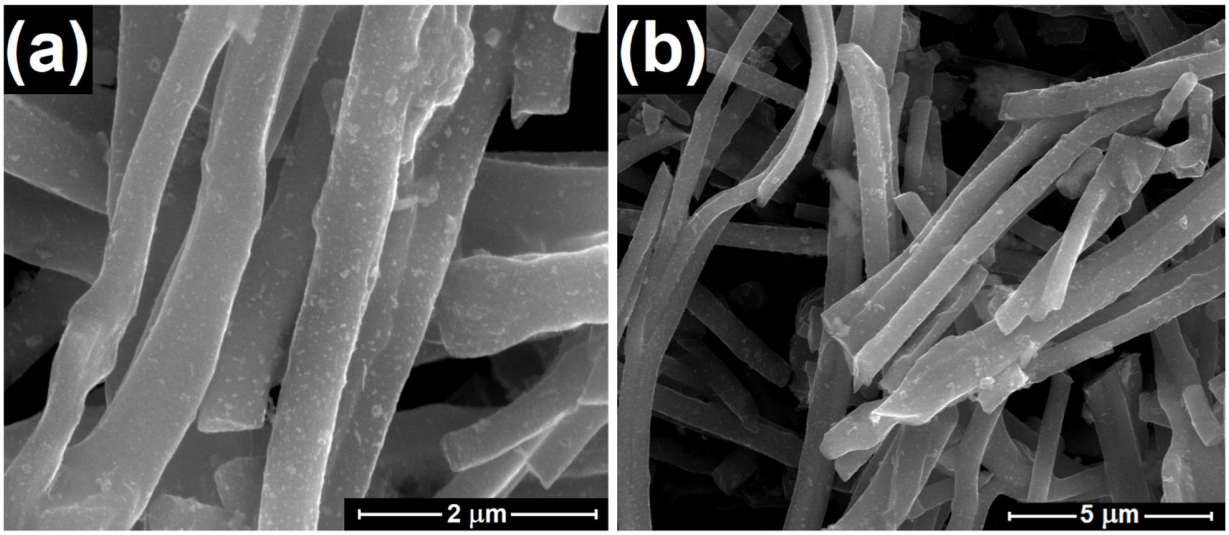

Figure S1. (a, b) SEM micrographs of FeCoNi-CNF-1M catalyst with different magnifications.

Table S1. Cost estimation for 10 g of FeCoNi-CNF catalyst considering the price of the precursor materials, approximate material loss during mixing and electrospinning procedures (5%), the pyrolysis yield (52%), equipment and production costs. The price for 5 g of Pt-Ru/C (50:25:25, Alfa Aesar) catalyst, which was employed for primary and secondary ZAB performance comparison is also listed. The prices for the products are given with internet geolocation in Estonia as of 11 June 2023 without VAT.

Precursor material	CAS number	Product number	Pack size	Price	Total weight	Required amount	Cost per amount
DMF[a]	68-12-2	319937-2.5L	2.5L	€239.00	2370 g	52.20 g	€5.30
PAN[a]	25014-41-9	181315-50G	50 g	€155.00	50 g	5.80 g	€18.00
IL[a]	284049-75-8	39952-1KG-F	1 kg	€1290.00	1000 g	1.00 g	€1.30
FePc[a]	132-16-1	379549-10G	10 g	€149.00	10 g	1.06 g	€15.80
CoPc[a]	3317-67-7	307696-50G	50 g	€719.00	50 g	1.06 g	€15.25
NiPc[a]	14055-02-8	360635-5G	5 g	€149.00	5 g	1.06 g	€31.60

Catalyst material	Influence factor on the material cost	Final cost
FeCoNi-CNF	Cost of all precursor materials for 10 g of electrospun fibre material	€87.25
FeCoNi-CNF	Cost of labor, consumables, equipment, and energy for 10 g of fibre material	€37.00
FeCoNi-CNF	Combined cost of precursors and production (€124.25) including material loss (5%)	€130.80
FeCoNi-CNF	Consideration of the pyrolysis yield (52%) for FeCoNi-CNF (10 g)	€251.52
Pt (50%), Ru (25%) on high surface area advanced carbon support (Stock No. 47371.06, 5 g)[b]		€1092.00

[a]Product information obtained from the webpage https://www.sigmaaldrich.com/.
[b]Product information obtained from the webpage https://www.alfa.com/.