

Supplementary Information of Improvement of Time-zero Analysis Method in Activity Evaluation of Powder Electrocatalyst for Gas Evolution Reaction

**Kensaku NAGASAWA,^{a,*} Li KUNPENG,^a Yu TAKENAGA,^b Yoshiyuki KURODA,^{a,b} and
Shigenori MITSUSHIMA^{a,b}**

*^aInstitute of Advanced Sciences, Yokohama National University, 79-5 Tokiwadai, Hodogaya-ku,
Yokohama 240-8501, Japan*

*^bGraduate school of Engineering Science, Yokohama National University, 79-5 Tokiwadai, Hodogaya-
ku, Yokohama 240-8501, Japan*

*Corresponding author: Kensaku Nagasawa, Tel: +81-45-339-4013, Fax: +81-45-339-4024, E-mail:
nagasawa-kensaku-st@ynu.ac.jp

[§]ECSJ Active Member

ORCID:

K. Nagasawa: 0000-0002-8703-358X

Y. Kuroda: 0000-0001-6095-0313

S. Mitsushima: 0000-0002-9888-0725

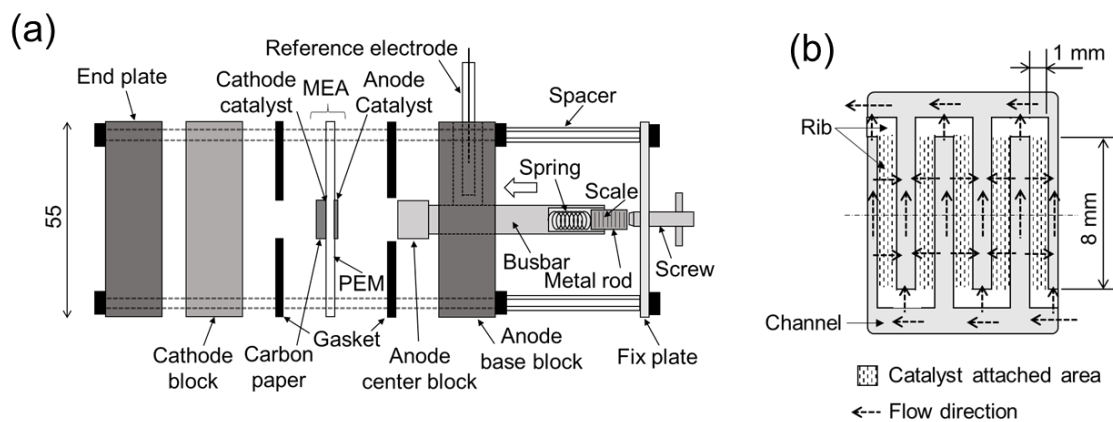


Figure S1 Schematic of (a) side view of electrolyzer, (b) interdigit flow field.¹²

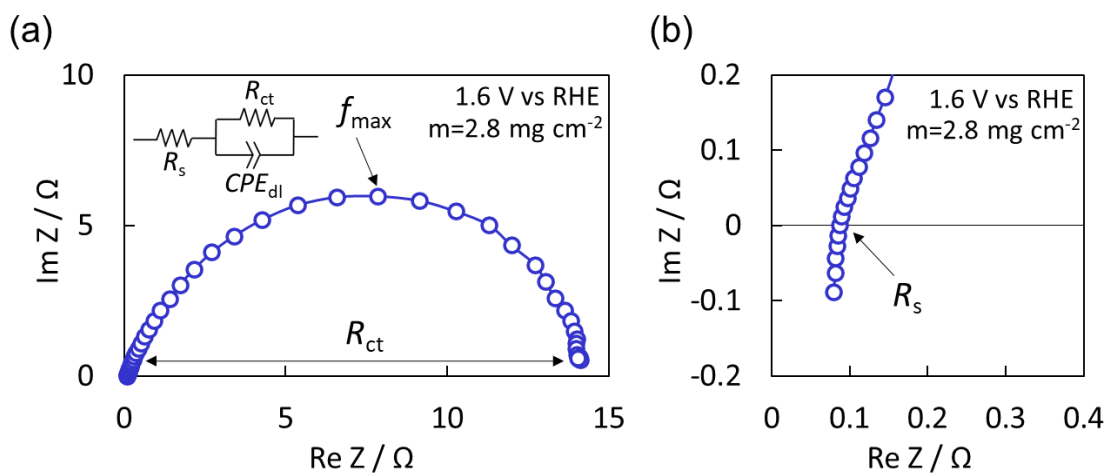


Figure S2 The example of (a) the frequency at the top of the semicircle f_{max} and the charge transfer resistance R_{ct} in the Nyquist plot and equivalent circuit, and (b) the magnified plot in the vicinity of the solution resistance R_s . m represents the catalyst loading (mg-LNO cm^{-2}).

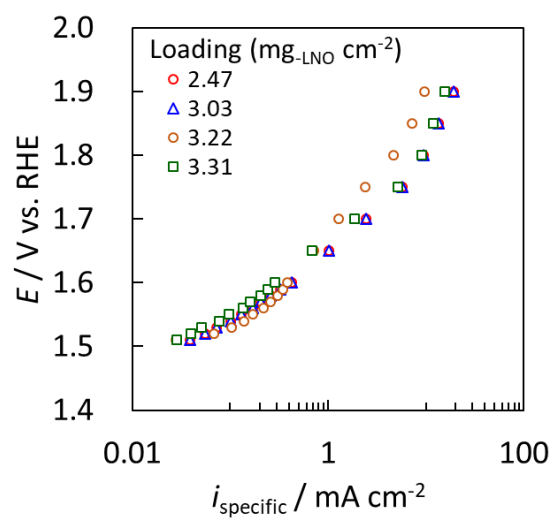


Figure S3 the Tafel plots of LaNiO_3 obtained by extrapolation to time zero for each catalyst loading after iR correction at 30 °C for LNO.