

Electronic Supporting Information

Dissolution Induced Self-Selective Zn- and Ru-doped TiO₂ Structure for Electrochemical Generation of KClO₃

Sulay Saha[#], Koshal Kishor[#], and Raj Ganesh S. Pala^{*}

**Department of Chemical Engineering, Indian Institute of Technology, Kanpur, 208016,
India**

Materials Science Programme, Indian Institute of Technology, Kanpur, 208016, India

***Corresponding authors: rpala@iitk.ac.in**

#equally contributed to the work

Section S1: (a) The current density and (b) the rate of reduction in current density of engineered (Zn, Ru)-doped TiO_2 ($\text{Ru}_{0.26}\text{Ti}_{0.73}\text{Zn}_{0.01}\text{O}_x$) electrocatalyst at an electrochemical potential of 1.35 V vs Ag/AgCl in neutral 0.5 M KCl solution. The electrolyte is change after 7 hours. (Page 3)

Section S2: Individual fitted XPS peaks of Ru-3d zone (278 eV-292 eV) of engineered (Zn, Ru)-doped TiO_2 ($\text{Ru}_{0.26}\text{Ti}_{0.73}\text{Zn}_{0.01}\text{O}_x$), untreated (Zn, Ru)-doped TiO_2 ($\text{Ru}_{0.31}\text{Ti}_{0.67}\text{Zn}_{0.02}\text{O}_x$), Ru-doped TiO_2 having a composition of $\text{Ru}_{0.3}\text{Ti}_{0.7}\text{O}_2$ and RuO_2 . (Page 4-7)

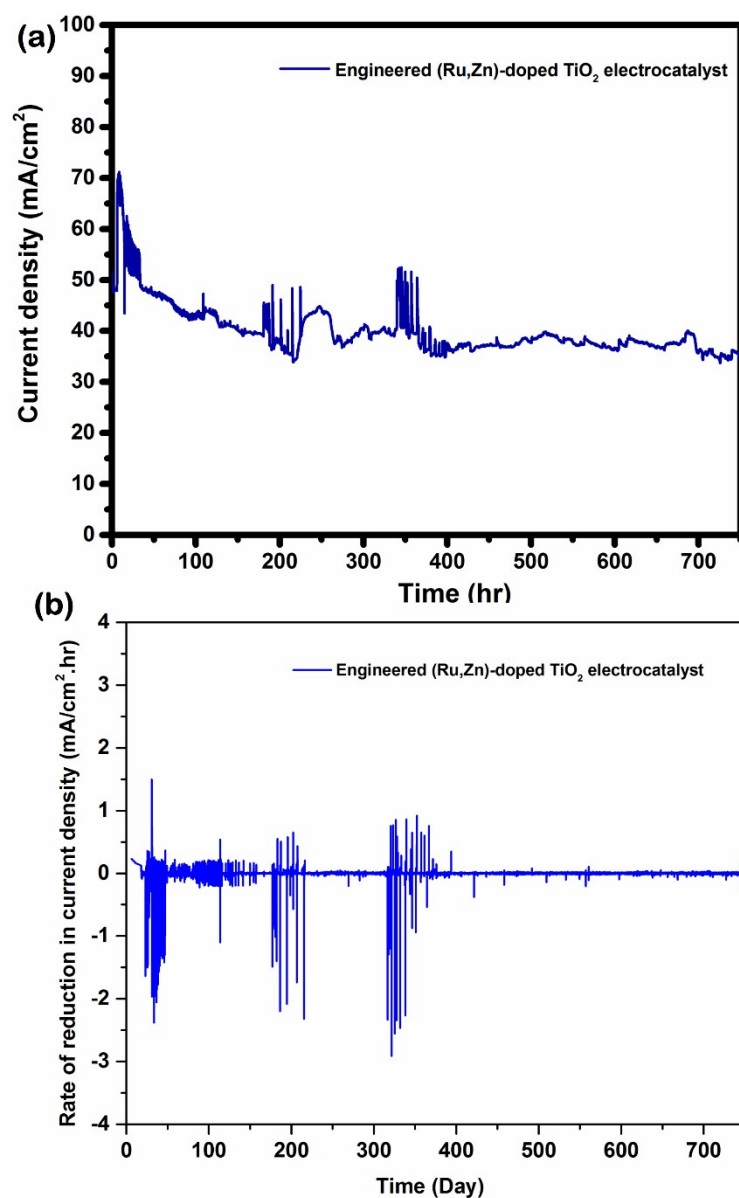


Fig. S1: (a) The current density and (b) the rate of reduction in current density of engineered (Zn, Ru)-doped TiO_2 ($\text{Ru}_{0.26}\text{Ti}_{0.73}\text{Zn}_{0.01}\text{O}_x$) electrocatalyst at an electrochemical potential of 1.35 V vs Ag/AgCl in neutral 0.5 M KCl solution. The electrolyte was changed after 7 hours. The positive values and the negative values in Figure (b) represent reduction in current density and increase in current density due to (1) increase in ECSA or (2) change in electrolyte.

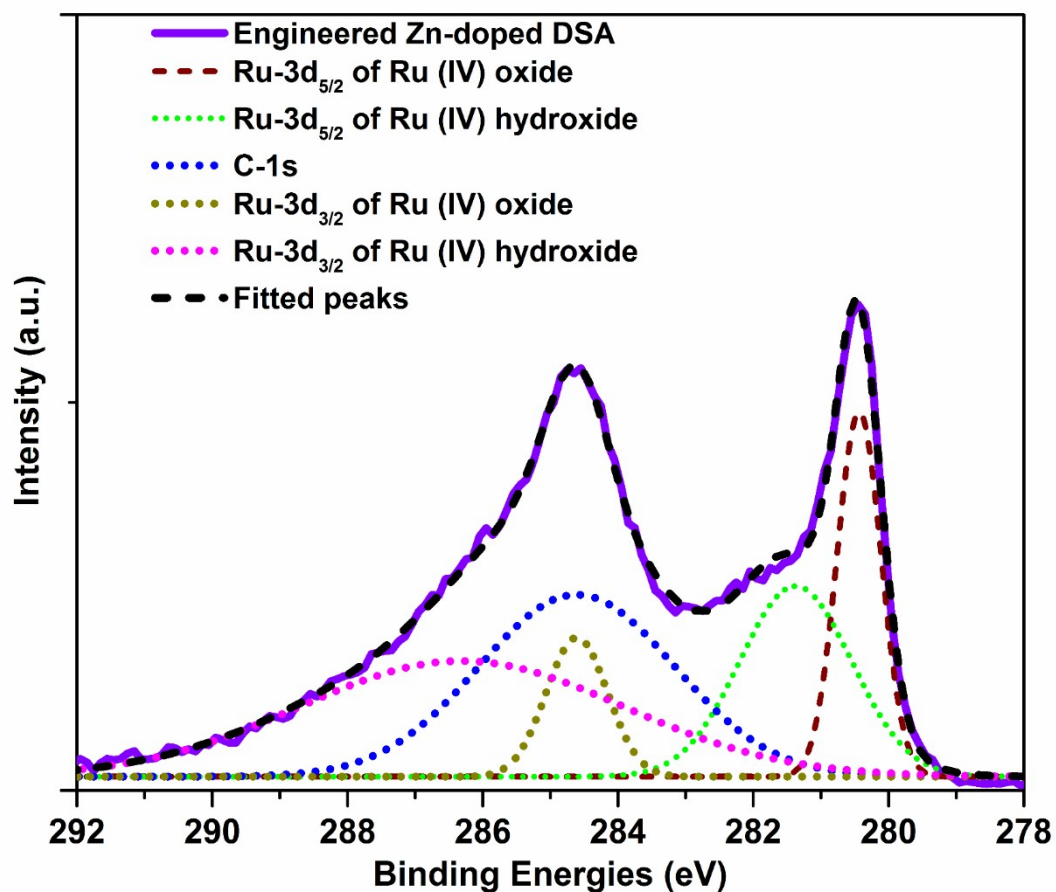


Fig. S2: Fitted XPS peaks of Ru-3d zone (278 eV-292 eV) of engineered Zn-doped DSA electrocatalyst.

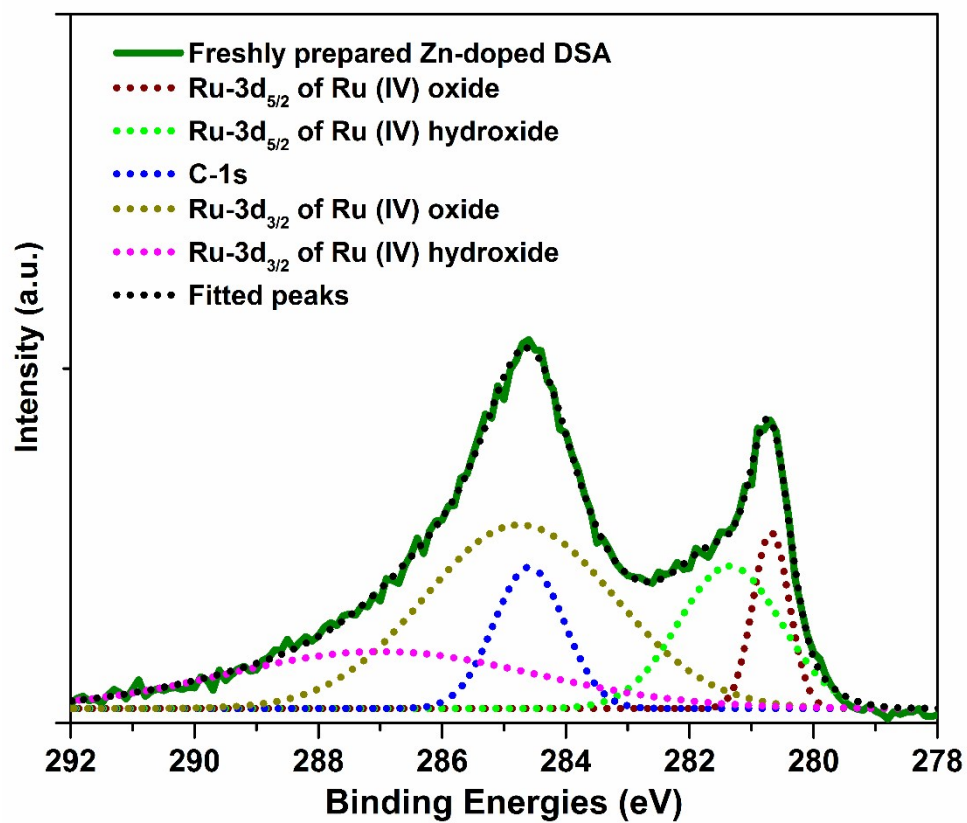


Fig. S3: Fitted XPS peaks of Ru-3d zone (278 eV-292 eV) of freshly prepared Zn-doped DSA electrocatalyst.

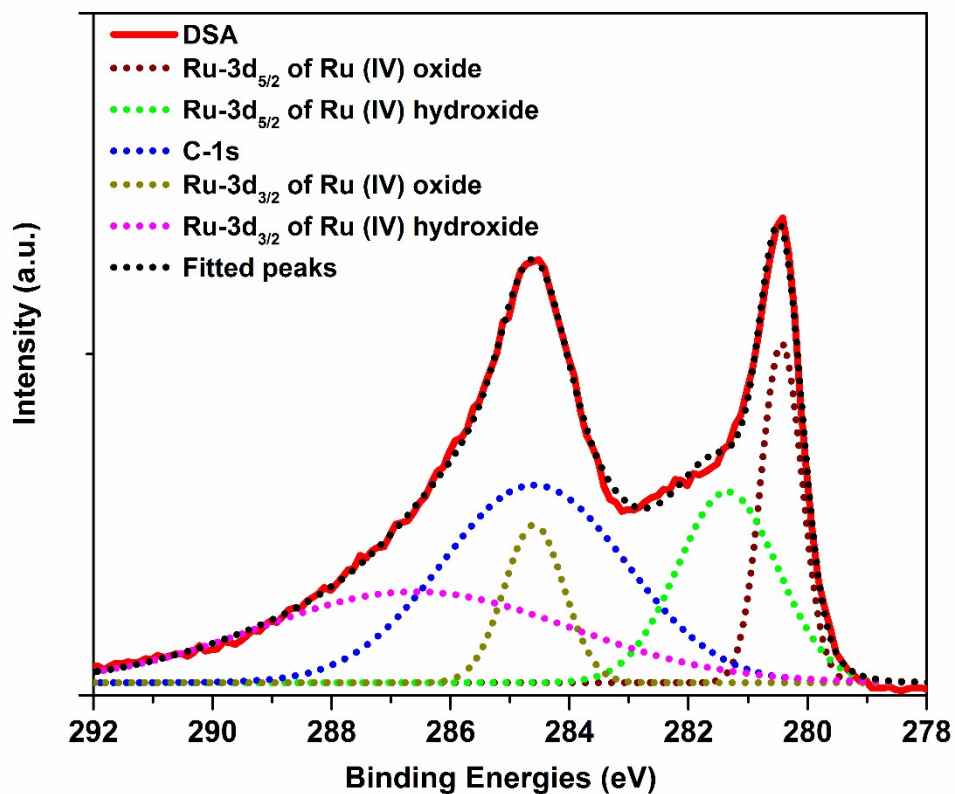


Fig. S4: Fitted XPS peaks of Ru-3d zone (278 eV-292 eV) of freshly prepared DSA electrocatalyst

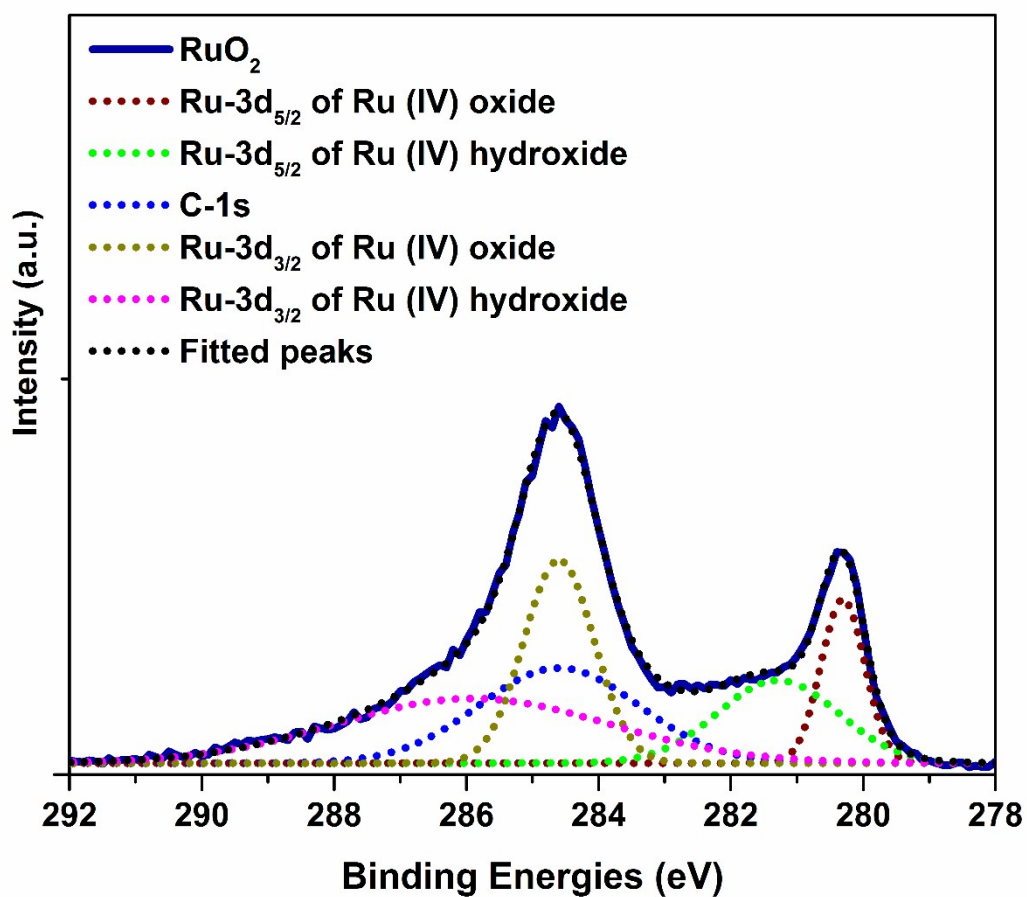


Fig. S5: Fitted XPS peaks of Ru-3d zone (278 eV-292 eV) of RuO₂ electrocatalyst.