

Supplementary Material

Halide-Doping Effect of Strontium Cobalt Oxide Electrocatalyst and the Induced Activity for Oxygen Evolution in an Alkaline Solution

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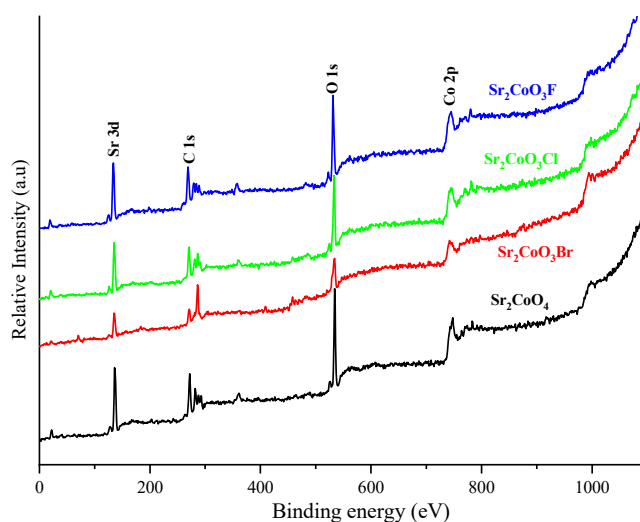


Figure S1. Comparative XPS survey spectra of Sr_2CoO_4 , $\text{Sr}_2\text{CoO}_3\text{Br}$, $\text{Sr}_2\text{CoO}_3\text{Cl}$, and $\text{Sr}_2\text{CoO}_3\text{F}$ catalysts.

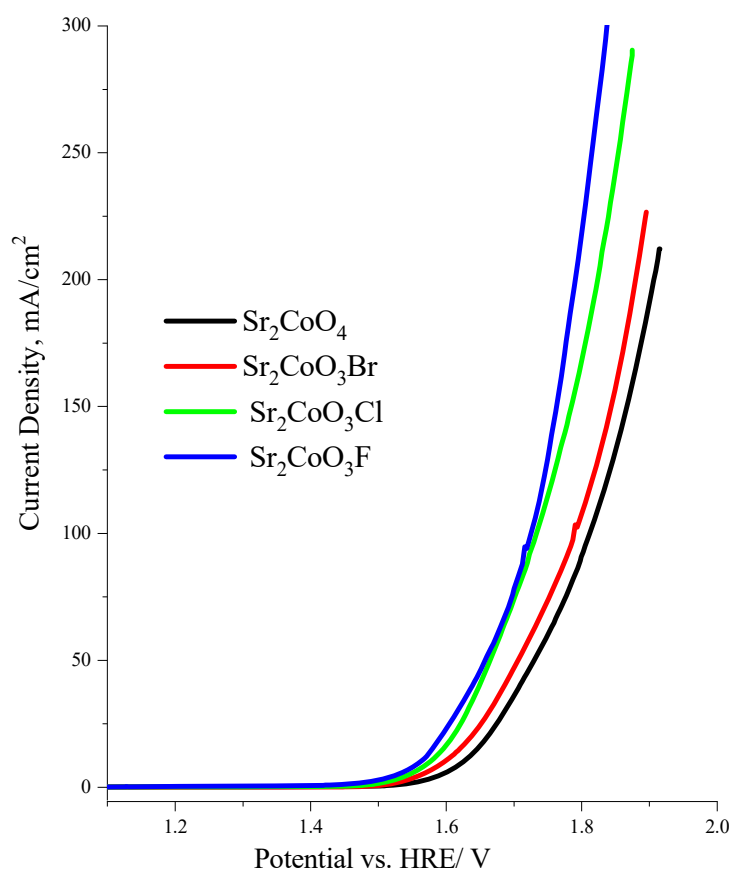


Figure S2. linear sweep voltammetry (LSV) of Sr_2CoO_4 , $\text{Sr}_2\text{CoO}_3\text{Br}$, $\text{Sr}_2\text{CoO}_3\text{Cl}$, and $\text{Sr}_2\text{CoO}_3\text{F}$ electrodes at rotation speed of 1600 rpm, in N_2 deaerated 1.0 M NaOH at a scan rate of 10 mV s^{-1} and catalyst loading of 0.8 mg/cm^2 .

Table S1. Electrochemical activity comparison of strontium cobalt oxyhalides catalysts activities of OER onset overpotential and the overpotential required to achieve 10 mA/cm^2 current density ($\eta_{10 \text{ mA/cm}^2}$) with the benchmarking catalysts that reported in the literature.

Catalysts	Electrolyte	Onset overpotential (mV)	Overpotential at (10 mA cm^{-2})	Ref.
$\text{Sr}_3\text{Co}_2\text{O}_5 (\text{OH})_2 \cdot 2\text{H}_2\text{O}$	10 mM LiCl / 2.0 M LiOH	390	410	[1]
$\text{Sr}_2\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_3\text{Cl}$	1.0 M KOH	255	300	[2]
$\text{Sr}_3\text{Co}_2\text{O}_5\text{Cl}_2$	1.0 M KOH	310	360	[3]
$\text{NiFe}_2\text{F}_{4.4}\text{O}_{1.8}$	1.0 M KOH	240	270	[4]
$\text{SrCo}_{0.8}\text{Fe}_{0.5-x}\text{O}_{3-\delta}/\text{Fe}_x\text{O}_y$	1.0 M KOH	290	352	[5]
$\text{Sr}_4\text{Fe}_3\text{O}_8\text{Cl}_2$	1.0 M KOH	390	465	[6]
Defected-Fe-F-nonporous oxide	1.0 M KOH	160	260	[7]
F-CoOOH/NF	1.0 M KOH	NA	270	[8]
Ni-Co-F-1,1	1.0 M KOH	280	300	[9]
NiFeOF	1.0 M NaOH	270	295	[10]
IrO_2	1.0 M NaOH	320	--	[11]
$\text{Sr}_2\text{CoO}_3\text{F}$	1.0 M NaOH	270	330	This work
$\text{Sr}_2\text{CoO}_3\text{Cl}$	1.0 M NaOH	300	370	This work
$\text{Sr}_2\text{CoO}_3\text{Br}$	1.0 M NaOH	380	420	This work

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