

Supplemental document

Precursors and dosing time	Recipe scheme	Sample
A CoCp ₂ for 2 s	(A B) ₆₀₀	Co ₃ O ₄
B O ₂ plasma for 5 s	(A B C D) ₆₀₀	CoPi-1.4
C TMP for 0.6 s	{ (A B C D) ₂₃ (A B) ₁ } ₂₅	CoPi-1.6
D O ₂ plasma for 2s	{ (A B C D) ₁₁ (A B) ₁ } ₅₀	CoPi-1.7
	{ (A B C D) ₅ (A B) ₁ } ₁₀₀	CoPi-1.9

FIG. 1. Schematic illustration of CoPi films and Co₃O₄ film preparation process by ALD

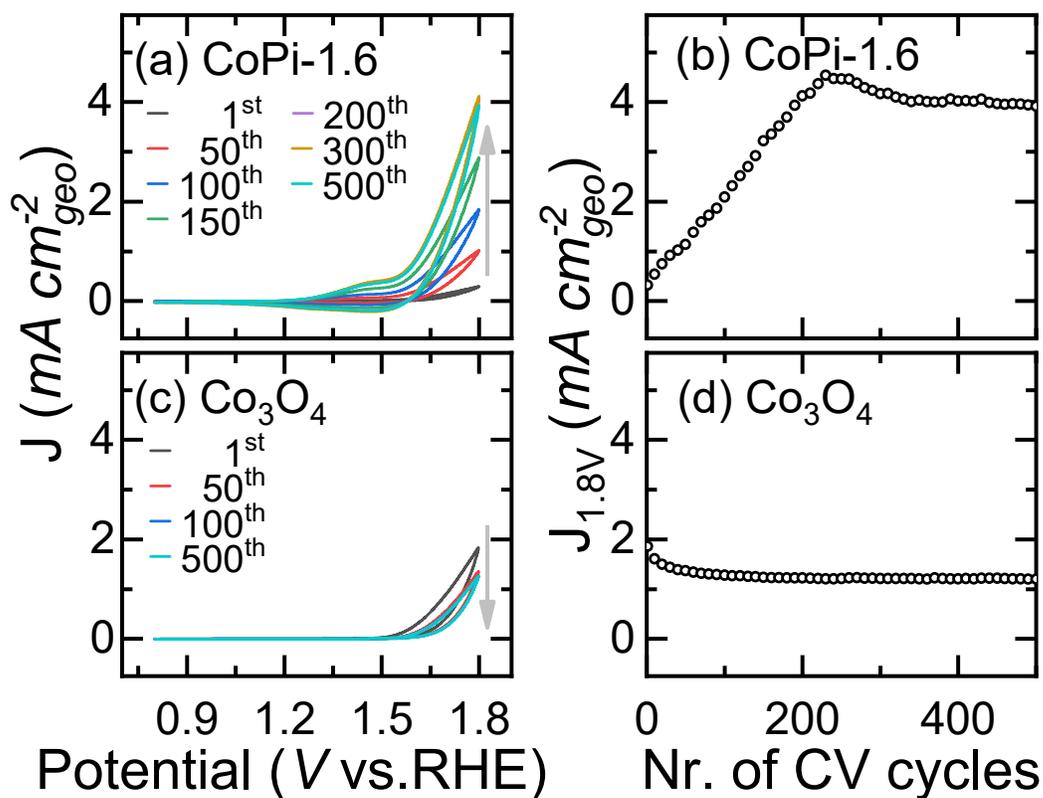


FIG. 2. a., c.): Evolution of cyclic voltammograms with increasing number of CV cycles for the best performing CoPi film, as well as an ALD Co₃O₄ reference. b., d.) Evolution of the OER current density (measured at 1.8 V vs. RHE) as a function of increasing number of CV cycles for CoPi and Co₃O₄

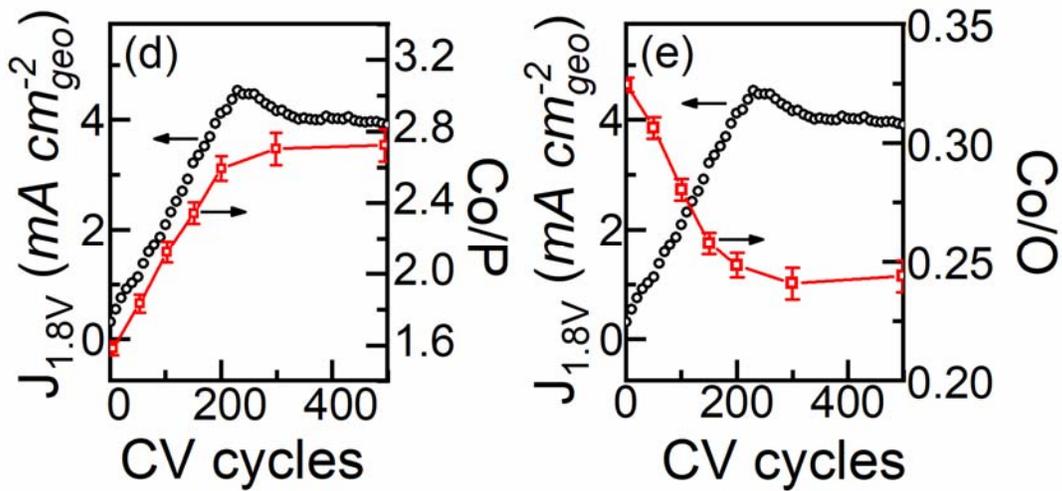


Figure 3: Evolution of the Co-to-P and Co-to-O ratios as measured by XPS a function of the number of cyclic voltammetry cycles, compared to the evolution of the OER current density as function of the same.

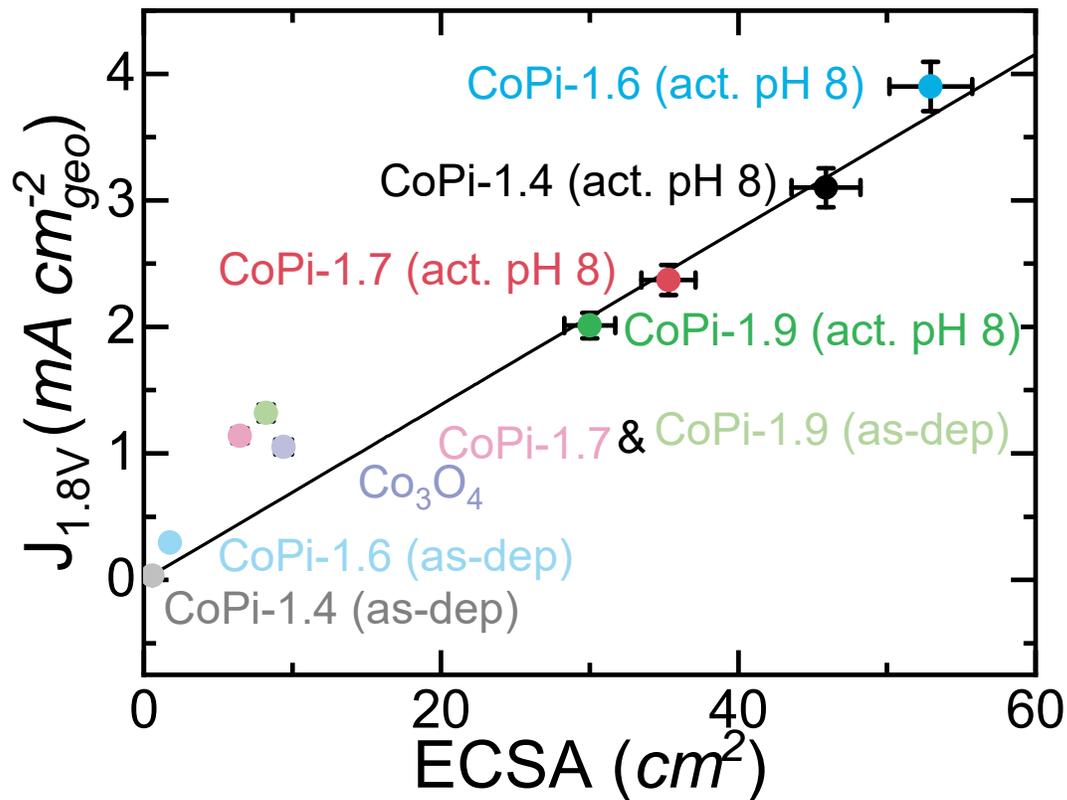


Figure 4: Relationship between the ECSA and the OER current density for ALD CoPi films with different initial compositions both before and after activation by 500 CV cycles.