

Table 1S: Composition of the Catalysts by XPS and EDX (atomic percentage)

Catalysts	Carbon		Nitrogen		Oxygen		Palladium		Cobalt	
	XPS	EDX	XPS	EDX	XPS	EDX	XPS	EDX	XPS	EDX
Pd/N-rGO	94.36	92.2	1.88		0.8	4.78	2.01	1.90	--	-
Pd ₁ Co ₁ /CNT		93.96		0		2.61		2.34		0.53
Pd ₁ Co ₁ /N-rGO	89.36	85.89	1.0	2.96	8.13	6.0	1.12	3.34	0.38	0.69