

# Sponge-like CoNi Catalysts Synthesized by Combustion of Reactive Solutions: Stability and Performance for CO<sub>2</sub> Hydrogenation

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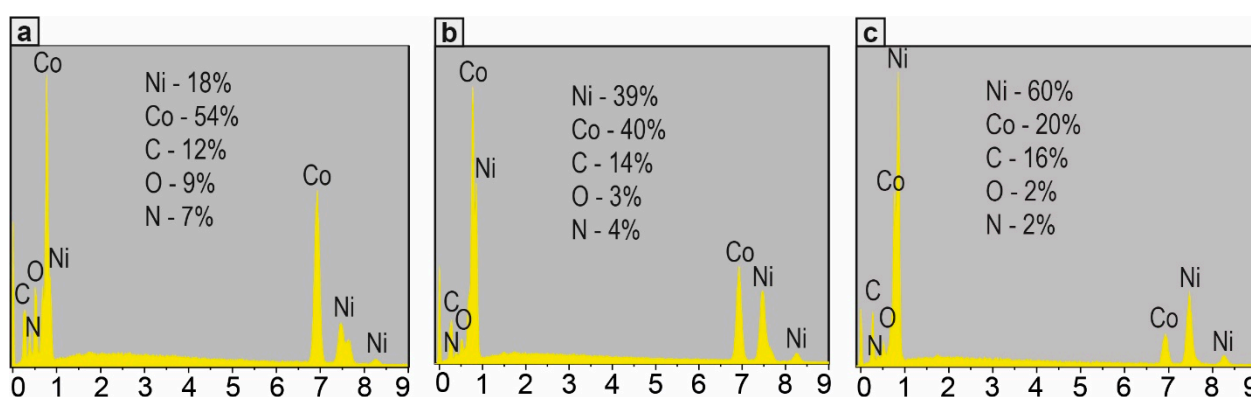
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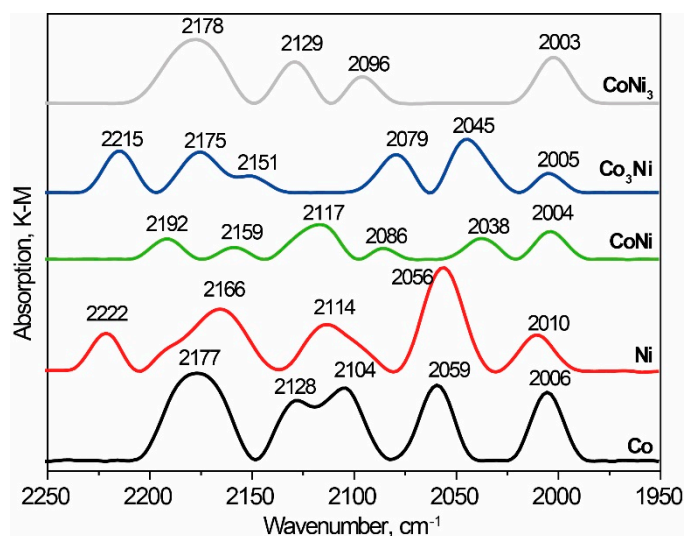
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**Table S1.** XPS average elements content in the outermost surface of the Co-Ni catalysts.

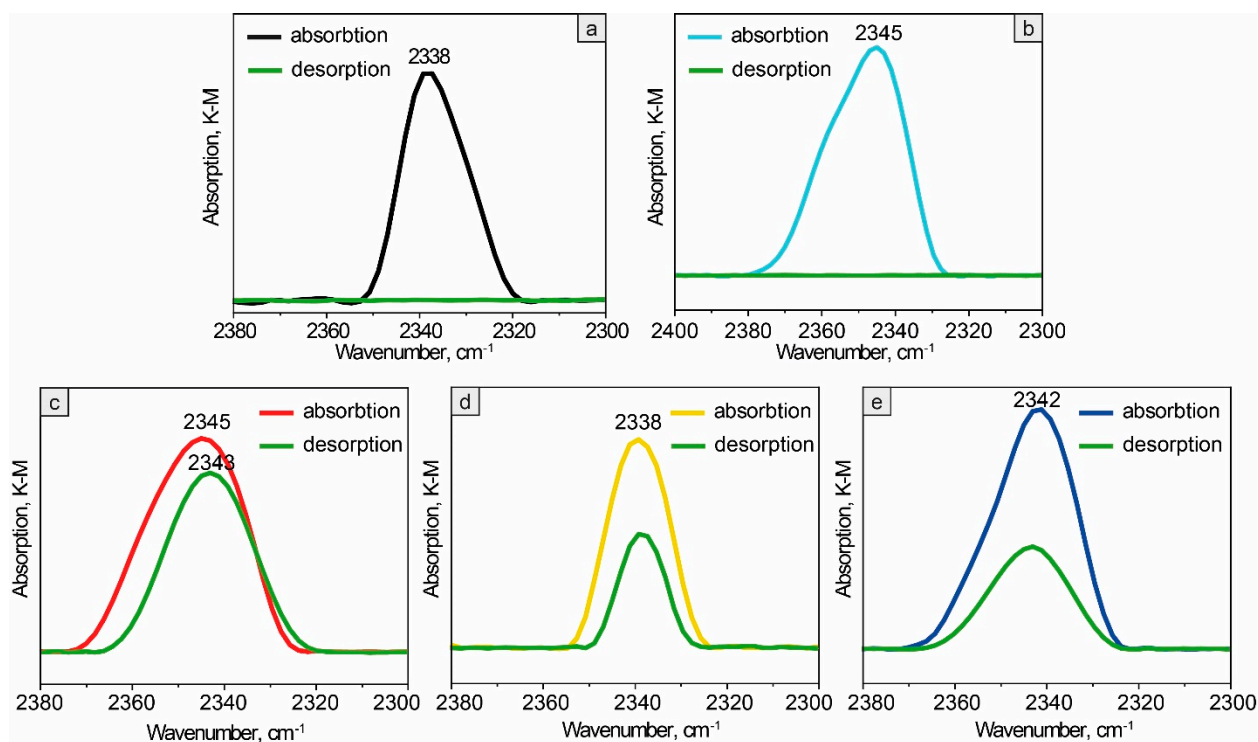
Catalysts	Element content, at. %					Co/Ni atomic ratio
	O	C	N	Co	Ni	
Co, as-synthesized	26.0	58.5	7.2	8.3	–	–
Co <sub>3</sub> Ni, as-synthesized	23.4	47.3	15.5	11.6	2.2	5.2
CoNi, as-synthesized	19.0	56.6	13.5	7.2	3.7	1.9
CoNi <sub>3</sub> , as-synthesized	28.5	48.9	10.3	5.5	6.8	0.8
Ni, as-synthesized	32.5	52.6	8.4	–	6.5	–
CoNi <sub>3</sub> , spent	35.0	38.6	–	11.1	15.3	0.7
CoNi, spent	48.4	26.3	–	15.2	10.1	1.5
Ni, spent	30.0	56.1	–	–	13.9	–



**Figure S1.** EDS spectra of Co<sub>3</sub>Ni (a), CoNi (b), and CoNi<sub>3</sub> (c) catalysts.



**Figure S2.** DRIFT-CO spectra of single Co, Ni, and bimetallic  $\text{Co}_x\text{Ni}_{1-x}$  catalysts.



**Figure S3.** DRIFT-CO<sub>2</sub> absorption-desorption spectra of Co (a), Ni (b), Co<sub>3</sub>Ni (c), CoNi (d), and CoNi<sub>3</sub> (e).