

Supplementary materials

Synthesis of CuAl-LDHs by Co-Precipitation and Mechanochemical Methods and Selective Hydrogenation Catalysts Based on Them

Olga B. Belskaya^{1*}, Elena N. Terekhova¹, Oksana V. Gorbunova¹, Ivan V. Muromtsev¹, Mikhail V. Trenikhin¹, Aleksei N. Salanov², Vladimir A. Likholobov².

¹Center of New Chemical Technologies BIC, Neftezhavodskaya Str., 54, 644540 Omsk, Russian Federation

²Boreskov Institute of Catalysis, Siberian Branch, Russian Academy of Sciences, prosp. Akademika Lavrentieva 5, 630090 Novosibirsk, Russian Federation

* Corresponding author: Olga B. Belskaya.

Present address: Center of New Chemical Technologies BIC, Neftezhavodskaya Str., 54, 644040 Omsk, Russia.

E-mail address: obelska@ihcp.ru

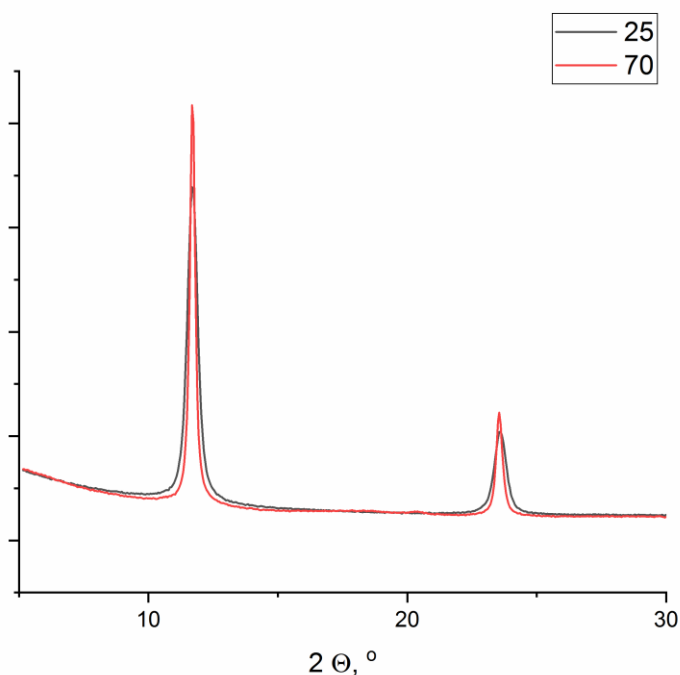
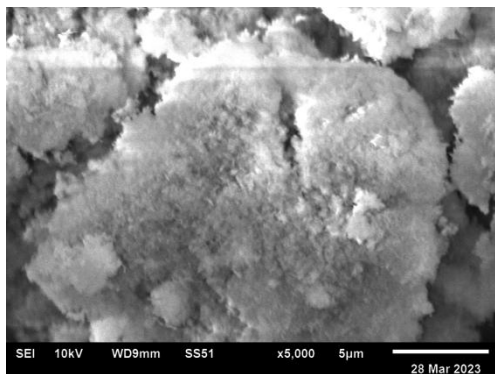


Figure S1. Diffraction patterns of the sample synthesized by co-precipitation at the $\text{CO}_3^{2-}/\text{Al}^{3+}$ ratio equal to 0.76, pH 9, at different aging temperatures

Table S1. Results of local EDX analysis (by scanning electron microscopy)

	Content, wt. %							
	CuAl- ma	O	Al	Cu	CuAl- cp	O	Al	Cu
Spectrum 1		29.09	11.30	59.60		38.53	9.65	51.82
Spectrum 2		31.84	10.38	57.78		25.51	13.53	60.95
Spectrum 3		31.88	10.77	57.35		30.75	12.04	57.20
Spectrum 4		31.61	10.52	57.87		36.76	9.63	53.61
Mean		31.11	10.74	58.15		32.89	11.21	55.90

Table S2. Microstructural parameters of CuAl-LDHs and CuAlO_x mixed oxides.

Sample	Spacegroup	<i>c</i> , nm	<i>a</i> , nm	CSR, nm
CuAl-2-cp	P2/m	2.261	0.304	-
CuAl-2-ma	P2/m	2.268	0.305	-
CuAlO _x -2-cp*	C2/c	0.512	0.472	14.2
CuAlO _x -2-ma*	C2/c	0.511	0.473	10.2

*- samples were calcined at 550 °C

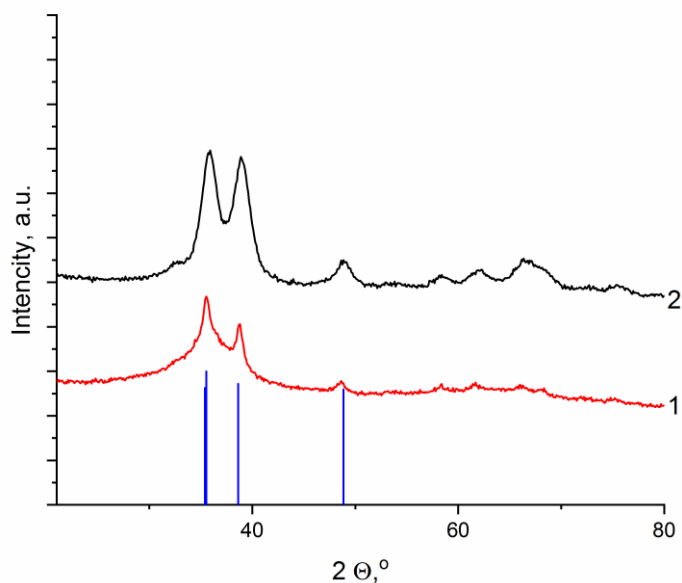


Figure S2. Diffraction patterns of the samples calcined at 550 °C (1) - obtained by co-precipitation and (2) - mechanical activation (blue line – basic reflections of CuO, PDF file No. 01-080-0076).