

1 **Supplementary data:**

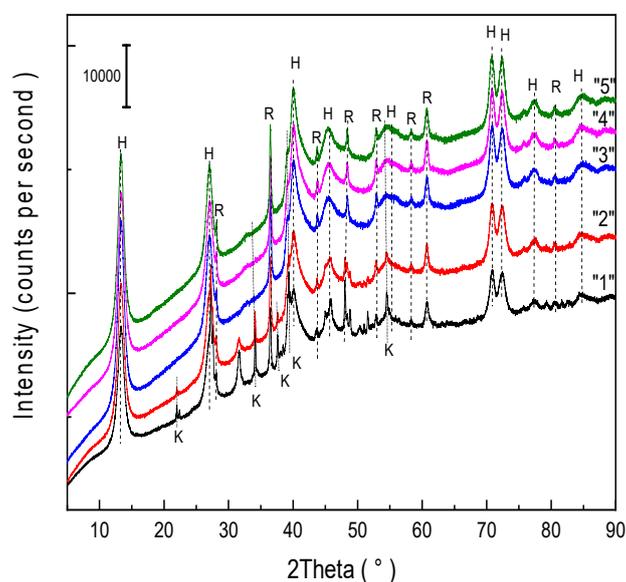
2 **Table S1.** Details of the preparation method and concentration of K and Na (mg/l) in filtrate and  
 3 washing waters.

Step	Washing					Filtration			
	Sample	g	ml <sup>a</sup>	g <sup>b</sup>	g <sup>c</sup>	g <sup>d</sup>	g <sup>e</sup>	ml <sup>f</sup>	Na <sup>g</sup>
"1"	143.0	-	26.6	5.550	4.5402	116.4	405 <sup>h</sup>	670	33665
"2"	116.4	200	26.9	4.8714	3.6352	73.6	225 <sup>i</sup>	275	11885
"3"	73.6	200	24.4	3.8408	2.7786	74.4	200 <sup>i</sup>	62	2506
"4"	50.3	200	21.8	3.9221	2.8419	41.9	220 <sup>i</sup>	21	492
"5"	28.5	200	17.5	3.6168	2.6207	17.5	210 <sup>i</sup>	2	39

4 <sup>a</sup> added water, <sup>b</sup> wet cake for drying, <sup>c</sup> dried solid, <sup>d</sup> calcined solid, <sup>e</sup> wet cake after washing, <sup>f</sup> volume,

5 <sup>g</sup> mg l<sup>-1</sup>, <sup>h</sup> filtrate, <sup>i</sup> washing water.

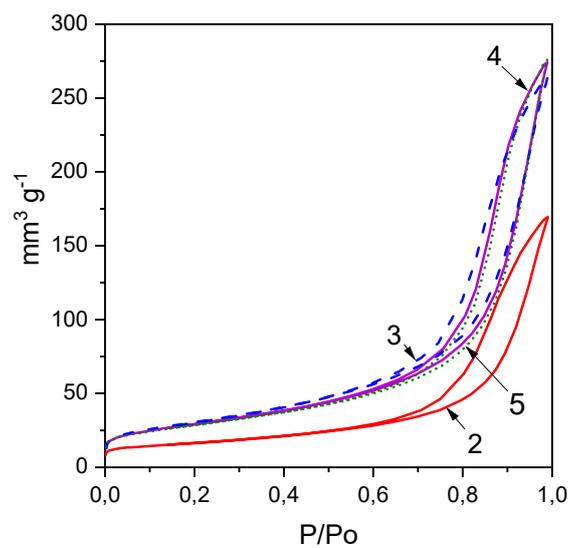
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8 **Figure S1.** Diffraction patterns of the dried K-precipitated Co-Mn-Al compounds containing various  
 9 amounts of potassium. H – hydrotalcite-like compounds, R – rhodochrosite, K – KNO<sub>3</sub>.

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**Figure S2.** Adsorption-desorption isotherms of nitrogen for K-precipitated Co-Mn-Al mixed oxides containing various amounts of potassium in wt. %: curve 2 – 8.20, curve 3 – 2.39, curve 4 – 0.92, curve 5 – 0.60.