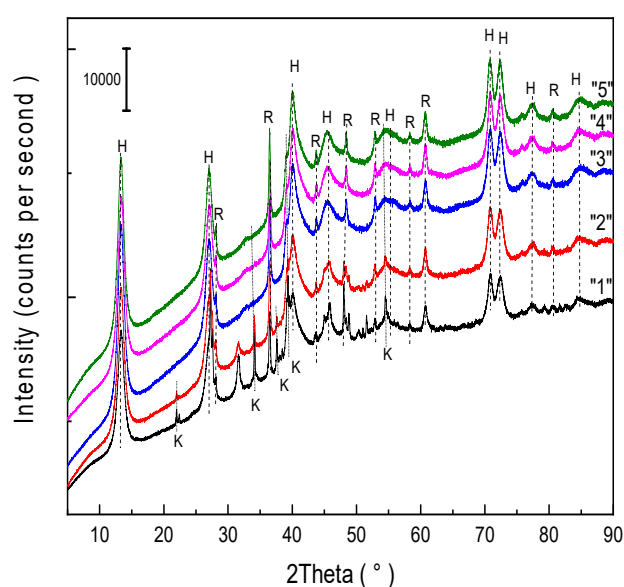


Supplementary data:

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

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

^a added water, ^b wet cake for drying, ^c dried solid, ^d calcined solid, ^e wet cake after washing, ^f volume,^g mg l⁻¹, ^h filtrate, ⁱ washing water.**Figure S1.** Diffraction patterns of the dried K-precipitated Co-Mn-Al compounds containing various amounts of potassium. H – hydrotalcite-like compounds, R – rhodochrosite, K – KNO₃.

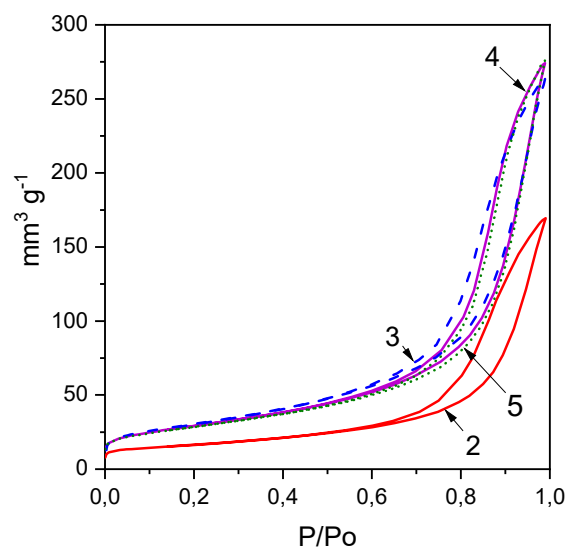


Figure S2. Adsorption-desorption isotherms of nitrogen for K-precipitated Co-Mn-Al mixed oxides containing various amounts of potassium in wt. %: curve 2 – 8.20, curve 3 – 2.39, curve 4 – 0.92, curve 5 – 0.60.