

## Zwitterionic-surfactant modified Laponites® for removal of ions (Cs<sup>+</sup>; Sr<sup>2+</sup> and Co<sup>2+</sup>) from aqueous solution as a sustainable recovery of radionuclides from aqueous wastes.

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### Supplementary data

Table S1: General informations on the selected surfactant, Cocamidopropyl Betaine

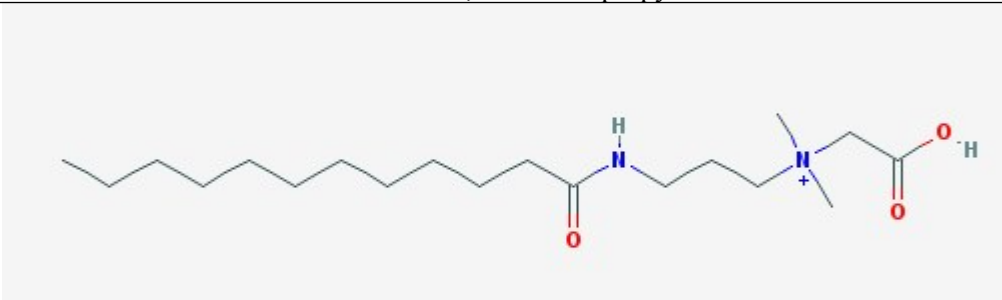
Structure	
Formula	C <sub>19</sub> H <sub>38</sub> N <sub>2</sub> O <sub>3</sub>
CAS-Number	86438-79-1
Mass weight	342.52 g.mol <sup>-1</sup>

Table S2: Quantitative information derived from TG curves of sorbents, with Global the whole adsorbed amount of CB and Intercalation the intercalated adsorbed amount of CB expressed according to the CEC of LAP

	Water Content %	OM Content %	Intercalation %	Surface %	Global CEC	Intercalation CEC
LAP	13.7					
LAP-CB-0.5CEC	9.9	4.9	4.6	0.3	0.21	0.20
LAP-CB-1CEC	6.9	9.4	8.5	0.9	0.39	0.36
LAP-CB-2CEC	4.5	20.5	12.1	8.4	0.84	0.49
LAP-CB-4CEC	4.0	27.1	12.3	14.8	1.10	0.50

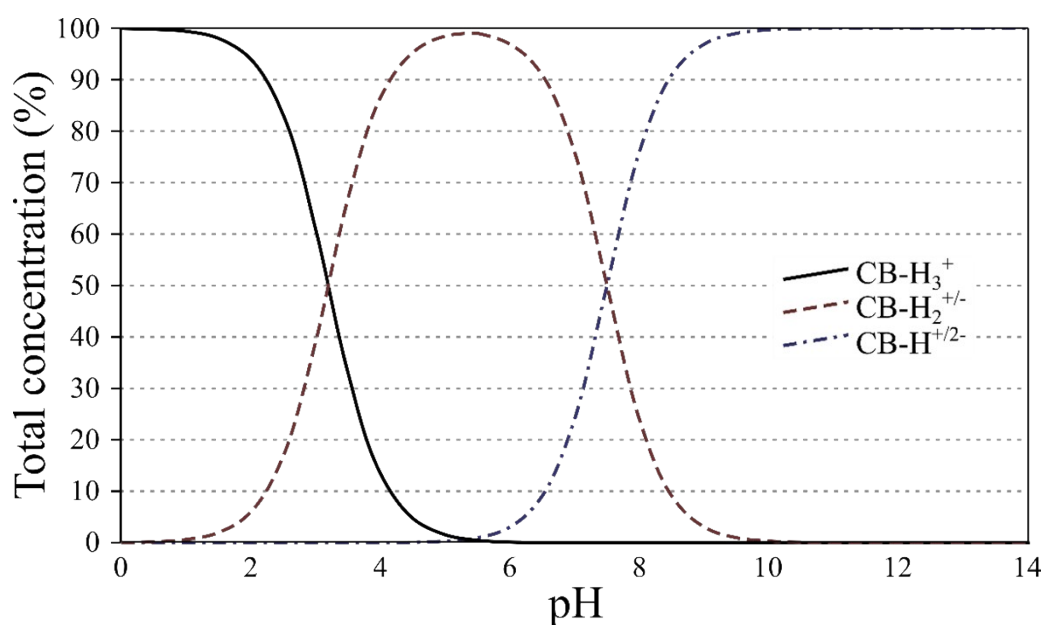


Figure S1: Distribution of CB species as a function of pH

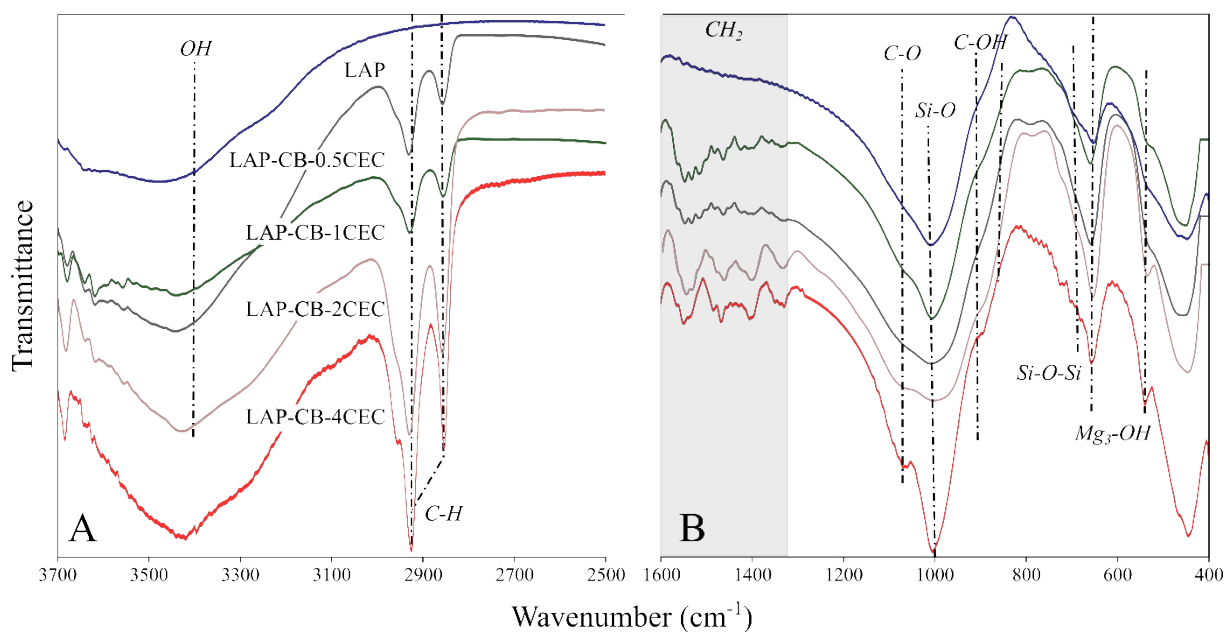


Figure S2: FTIR spectra of LAP and LAP-CBs for wavenumbers range between 400 and 1600  $\text{cm}^{-1}$  (B) and between 2500 and 3700  $\text{cm}^{-1}$

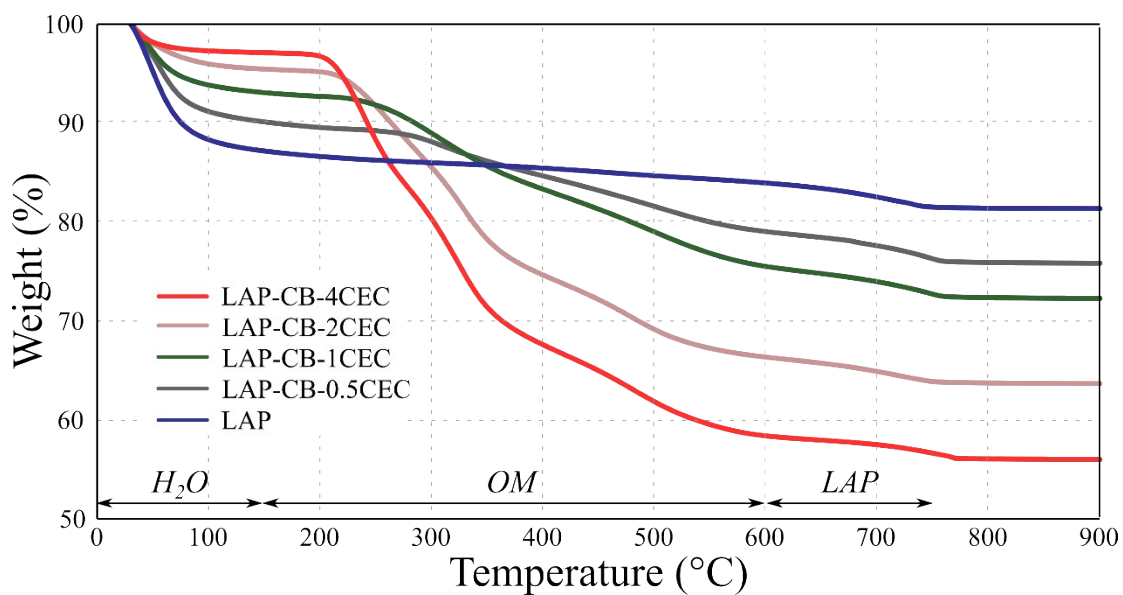


Figure S3: TG curves of LAP and LAP-CBs, the theoretical decomposition domains are specified at the bottom of the figure

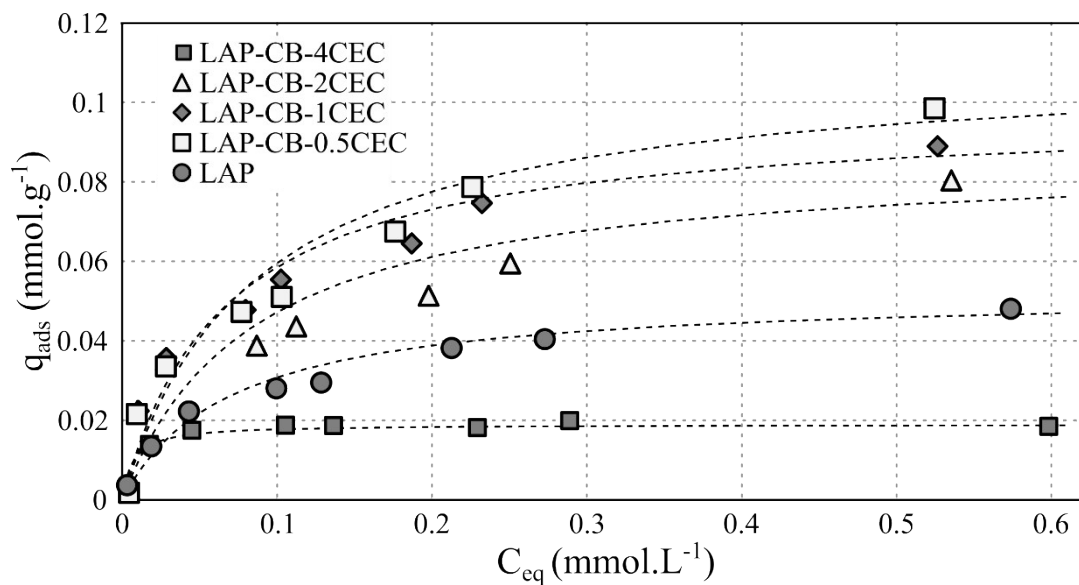


Figure S4: Competitive solution sorption isotherms of  $Cs^+$  onto LAP and LAP-CBs, dashed dark lines represents the Langmuir fits

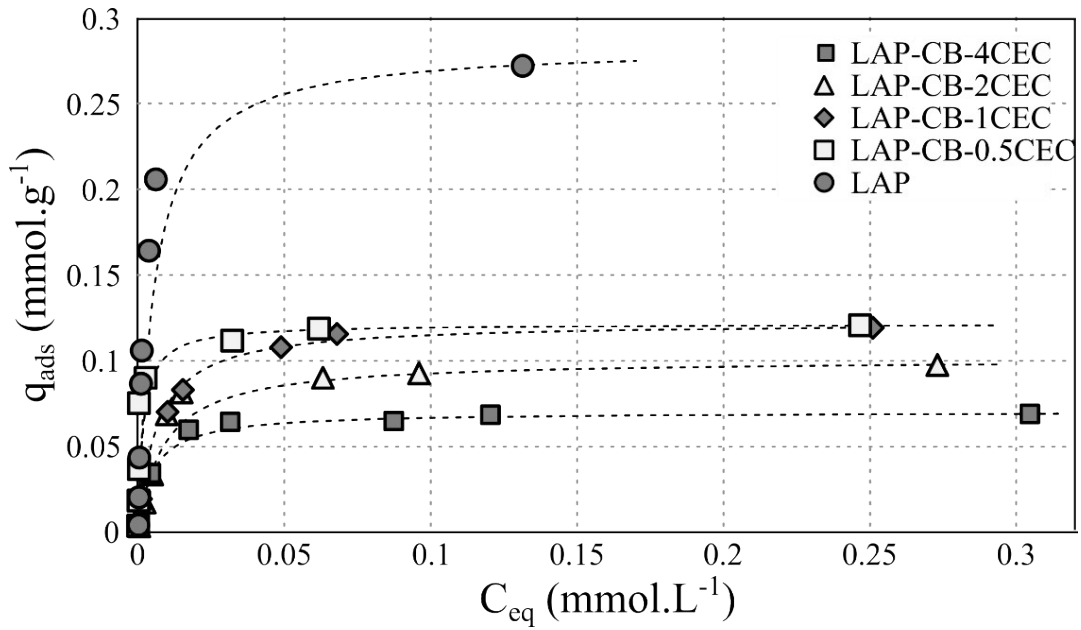


Figure S5: Competitive solution sorption isotherms of  $\text{Sr}^{2+}$  onto LAP and LAP-CBs, dashed dark lines represents the Langmuir fits

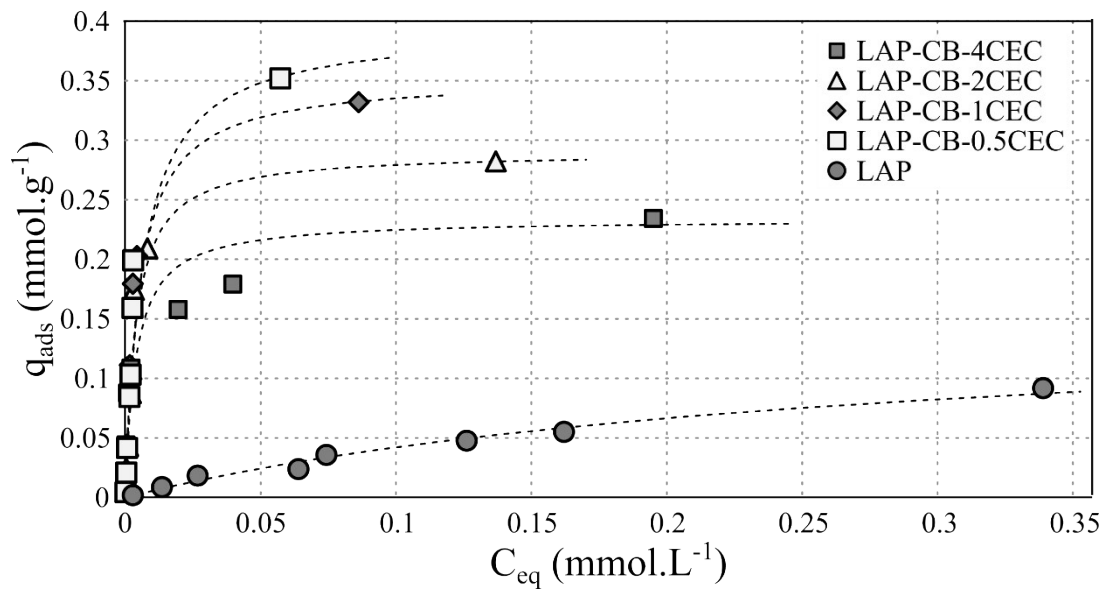


Figure S6: Competitive solution sorption isotherms of  $\text{Co}^{2+}$  onto LAP and LAP-CBs, dashed dark lines represents the Langmuir fits