SUPPORTING INFORMATION

A new generation of sludge-based adsorbents for H_2S abatement at room temperature

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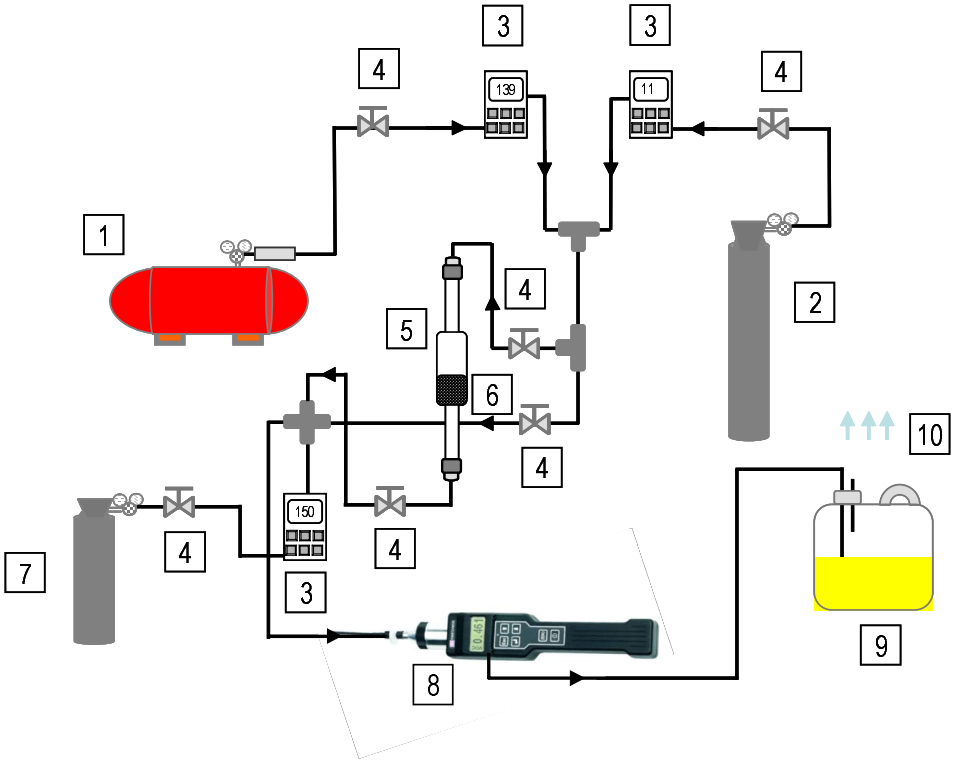

1. Air Compressor
2. Certified H_2S cylinder
3. Mass Flow controllers
4. Valves
5. Fixed bed reactor
6. Adsorbent/Catalyst Bed
7. N_2 cylinder
8. Photoionisation Detector
9. NaOH solution
10. Treated air outlet

Figure SI1. Details of the lab-scale pilot plant designed to perform the H_2S removal tests.

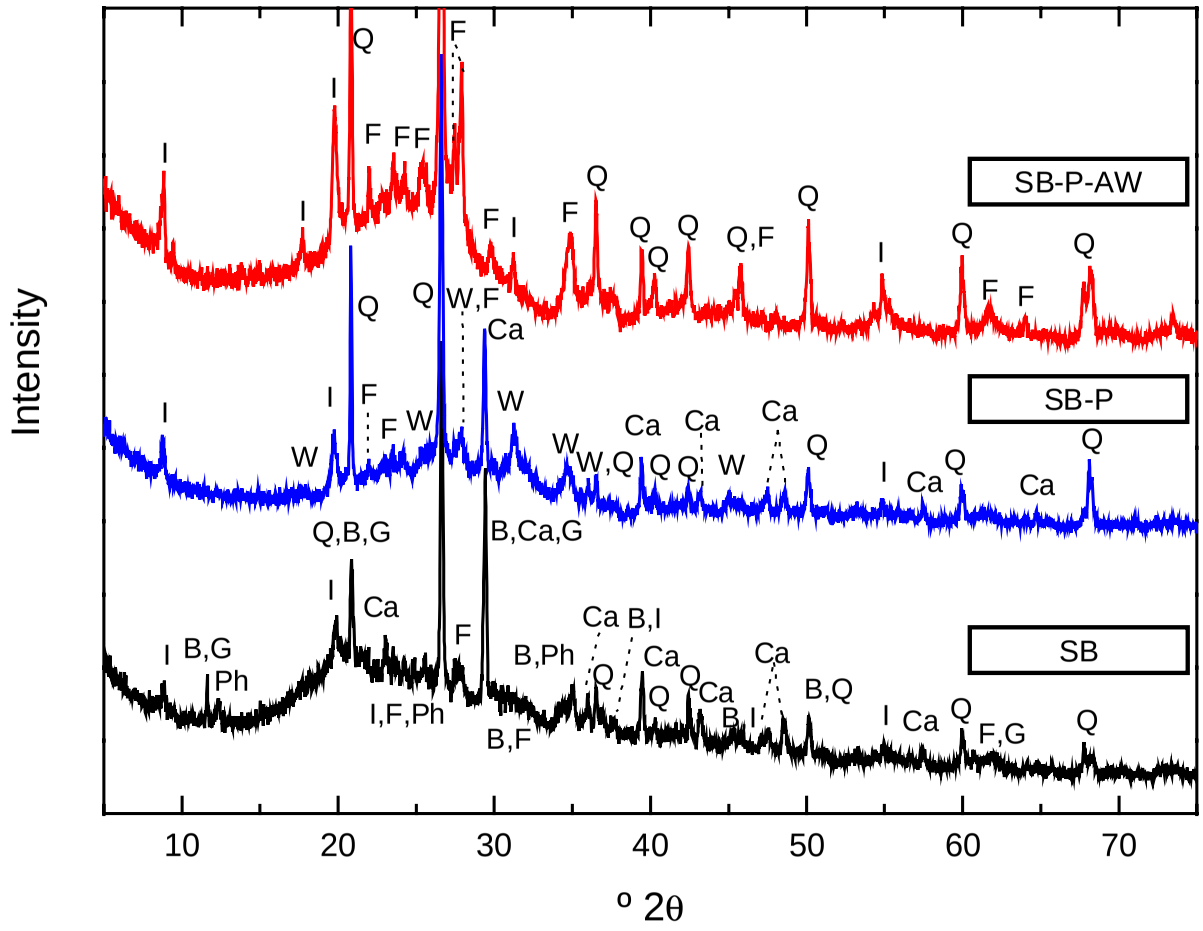

Figure SI2a. XRD diffraction patterns of the dried, pyrolysed and pyrolysed plus acid washed SB sludge. Band labelling.- B: brushite ;Ca: calcite; F: Na-Ca feldspars (albite, anorthite); G: gypsum; I: illite; Ph: hydrated calcium phosphates; Q: quartz; W: whitlockite.

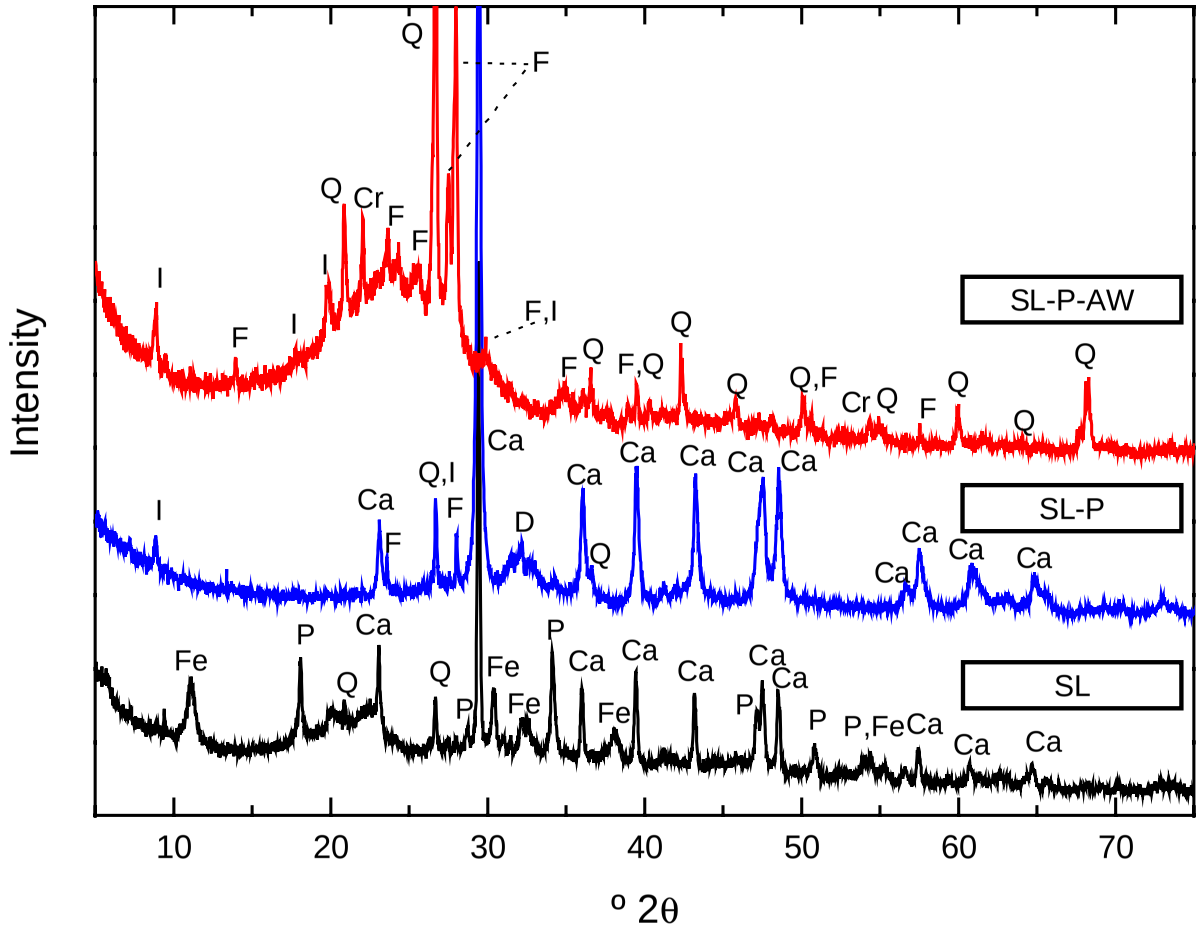

Figure SI2b. XRD diffraction patterns of the dried, pyrolysed and pyrolysed plus acid washed SL sludge. Band labelling.- Ca: calcite; Cr: cristobalite; D: dicalcium ferrite; F: Na-Ca feldspars (albite, anorthite); Fe: calcium iron oxide carbonate hydrate; I: illite; P: portlandite; Q: quartz.

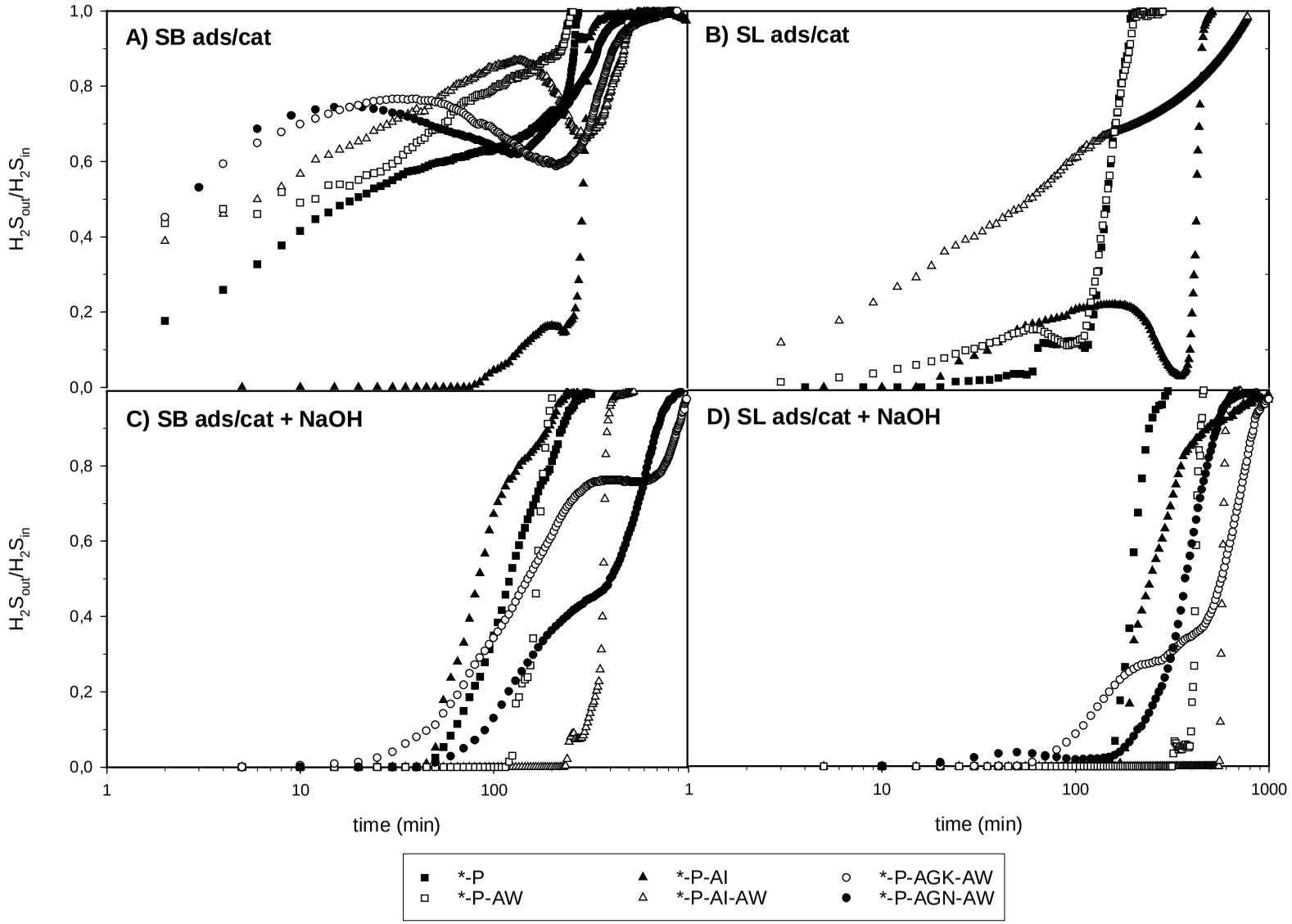

Figure SI3. H_2S Breakthrough curves of all sludge-based adsorbents/catalysts under study, including adsorbents / NaOH admixtures.

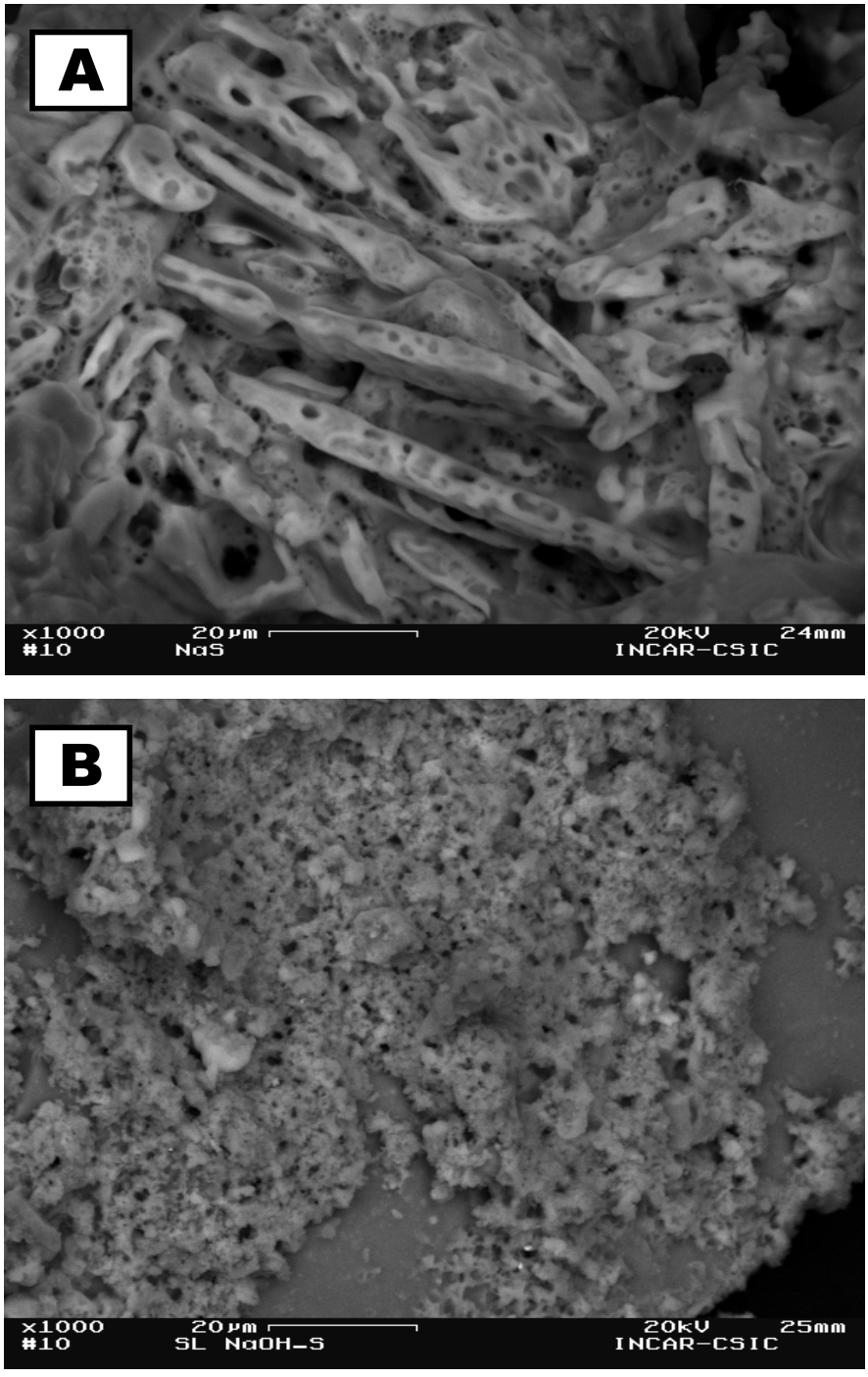

Figure SI4. SEM micrographs of a) pure NaOH and b) SL-P-AW / NaOH 1/1 physical mixture, both after exhaustion.

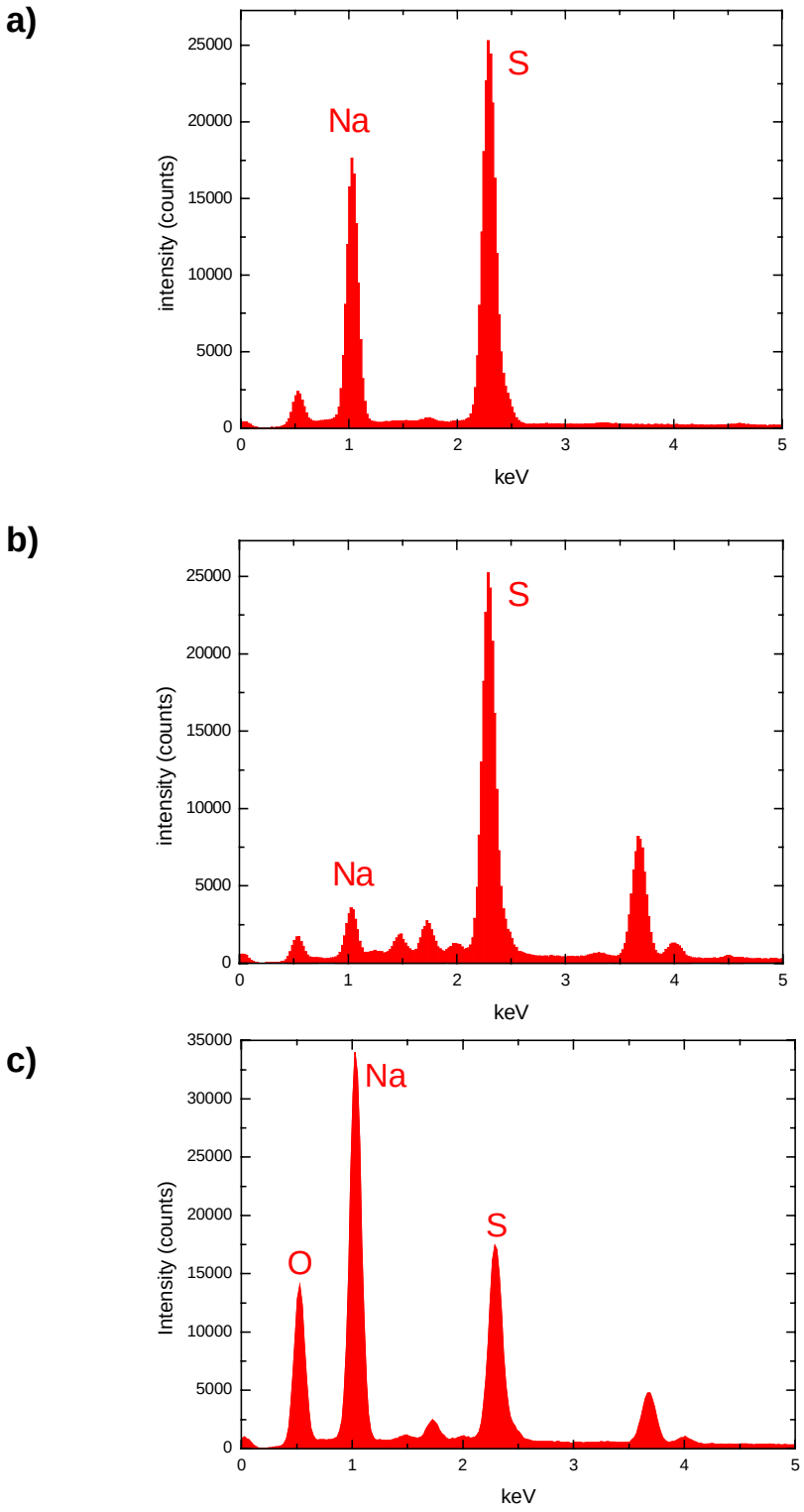

Figure SI5. EDX spectrum corresponding to exhausted a) NaOH; b) SL-P-AW / NaOH 1/1 physical mixture; c) spectrum assigned to an unreacted NaOH particle located in the exhausted SL-P-AW / NaOH 1/1 physical mixture.