Hg^0 capture over CoMoS/γ-Al_2O_3 with MoS_2 nanosheet at low temperatures

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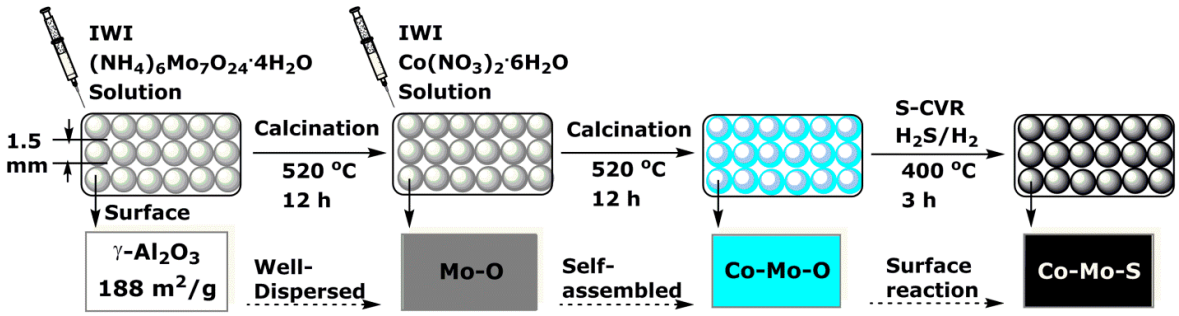

Figure 1S. Procedure for sample preparation

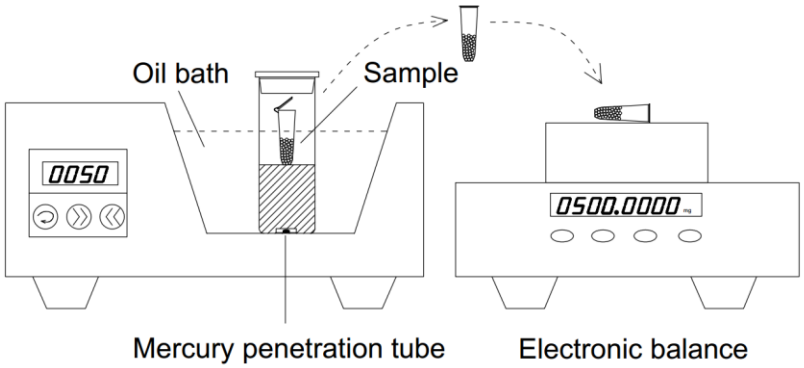

Figure 2S Schematic of the long-term evaluation of Hg^0 capture

Three measures were taken to reduce the experimental errors. Firstly, an analytical balance with a 10^{-4} mg resolution was used to record the change in mass. Secondly, a sample holder with a lid was designed to avoid contamination during the measurement of the mass change outside the mercury penetration tube. Finally, prior to the test, the mercury penetration tube was kept isothermal at 50 °C for 1 h to remove moisture and other adsorbed matters.

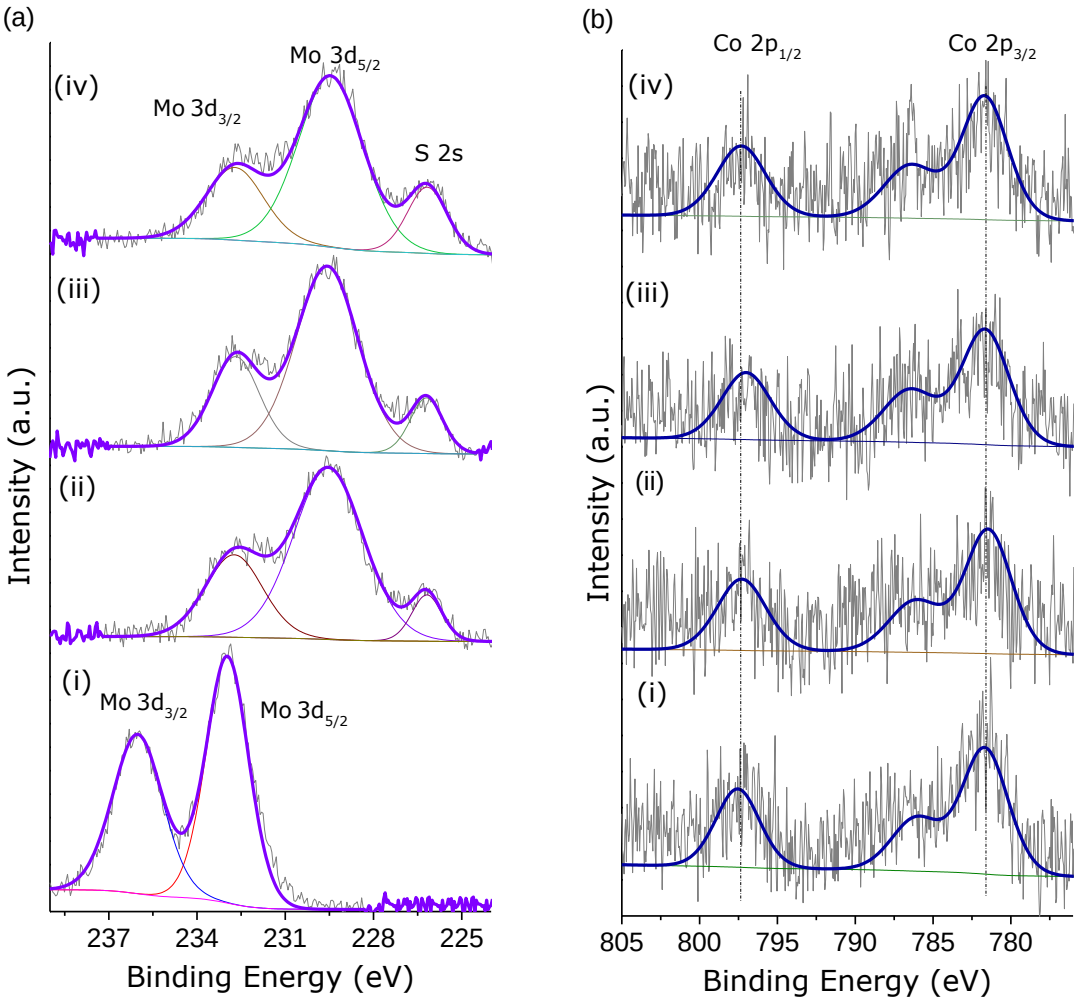

Figure 3S. XPS spectra of (a) Mo 3d and (b) Co 2p for (i) CoMoO/γ-Al_2O_3, (ii) CoMoS/γ-Al_2O_3, spent CoMoS/γ-Al_2O_3 experienced Hg^0 capture for (iii) 2000 min, and (iv) 2000 h

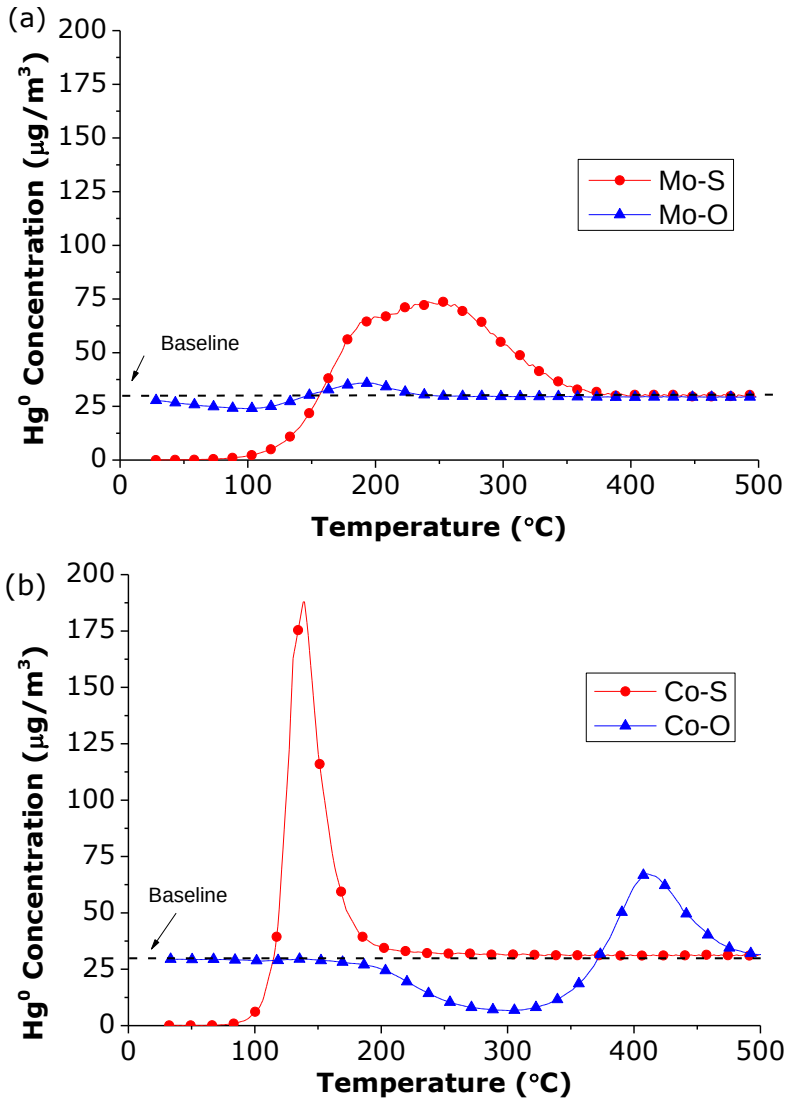

Figure 4S Dynamic transient behaviours of Hg^0 capture over the oxidized and sulphided forms of Co and Mo

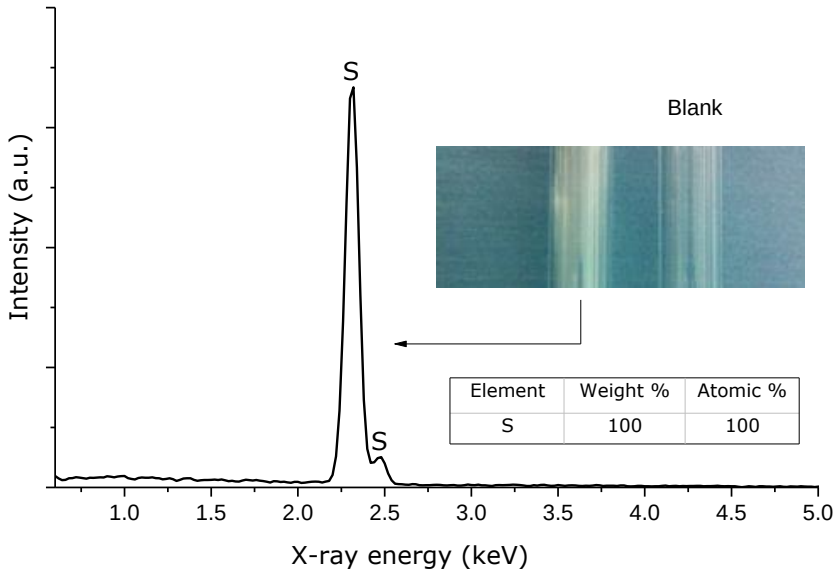

Figure 5S. EDS analysis of the decomposition product.

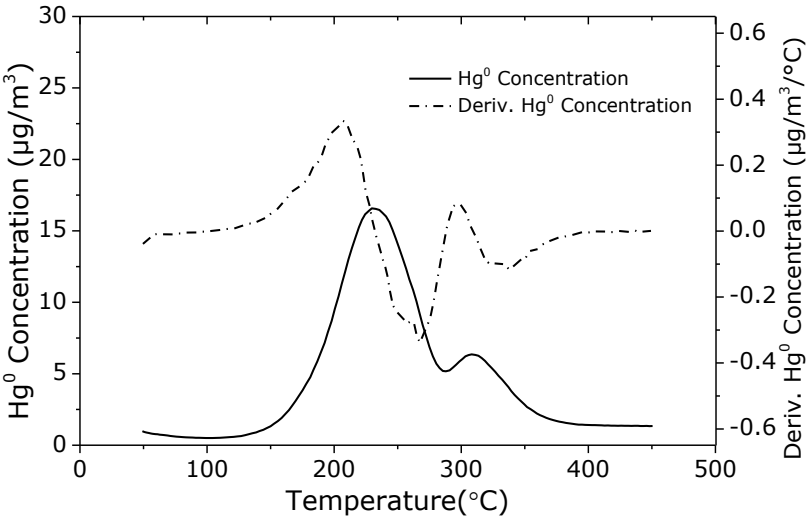

Figure 6S. TPDD analysis of the S/γ-Al_2O_3 catalyst.

The space velocity was about 45 000 h^{-1}. The sample was initially kept isothermal at 50°C in N_2, exposed to a N_2 gas containing 30 μg/m^3 of Hg^0, and then heated from 50°C to 450°C at a heating rate of 1°C/min.

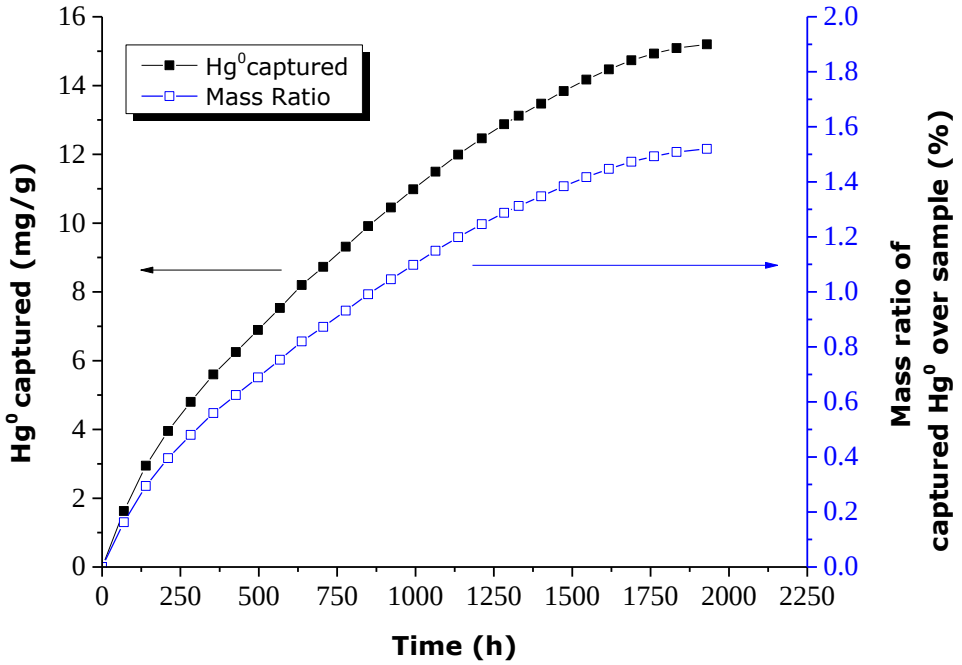

Figure 7S The long-term evaluation of Hg^0 capture at 50°C