Table S1. The Reaction and activated energies, enthalpies and free energies for the reaction of H_2SO4 with OH with zero-point correction (ZPE) included at 298k. (kcal/mol)*

compound	ΔH^a	ΔG^a	ΔE^a	ΔE^b	$\Delta (E^b + ZPE)$	ΔE^c(Ref 10)
H_2SO_4+ H_2O	0.00	0.00	0.00	0.00	0.00	0.00
C1′	-7.69	0.18	-7.15	-10.70	-9.11	-9.1
TS1′	-4.36	4.85	-3.25	4.18	3.95	2.5
TS2′	-3.93	4.95	-2.89	4.47	4.12	2.7
TS3′	-2.53	5.82	-1.70	6.26	4.68	2.8
TS4′	0.40	10.13	1.79	1.67	-0.29	0.7

* a: ΔH, ΔG, ΔE are computed at the B3LYP/6-311+G(2df,2p) level of theory; b: ΔE is calculated at the MP2(full)/aug-cc-pv(T+d)z//B3LYP/6-311+G(2df,2p) level of theory, c: The value is obtained at the CCSD(T)/cc-pvtz// B3LYP/6-311+G(2df,2p) level of theory.