



**Figure S10.** Analyzed ROP profiles of anthraquinone in the fuel-rich oxidation of ethylbenzene in a flow reactor at three temperatures, 1150 K, 1350 K, and 1550 K. Note that analyzed results in pyrolysis is not presented because of no anthraquinone production. Red-solid, blue-solid, black-solid, black-dashed, and green-solid lines represent R1, R2, R3a, R3b, and R4, respectively.