Data availability Statement

for

Experimental and theoretical study of the Sn – O bond formation between atomic tin and molecular oxygen

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Essential data are provided in the main text and the SI.†

Raw data for crossed molecular beams experiment is available at <https://doi.org/10.5281/zenodo.13831697>.

Supplementary Information available: Potential energy surface with included bond distances (Å) and bond angles of each transition state, intermediate, minimum on the seam of crossing. Optimized Cartesian coordinates and vibrational frequencies for all intermediates, transition states, MSX, reactants, and products involved in the reactions of the atomic tin (Sn; 3Pj) with oxygen (O2; X3Σg–).