

Supplementary Materials for

Modelling soot formation in a benchmark ethylene stagnation flame with a new detailed population balance model

Dingyu Hou^{a,b,e}, Casper S. Lindberg^{c,e}, Manoel Y. Manuputty^{c,e}, Xiaoqing You^{a,b,*},

Markus Kraft^{c,d,e,*}

^aCenter for Combustion Energy, Tsinghua University, Beijing, 100084, China

^bKey Laboratory for Thermal Science and Power Engineering of the Ministry of Education, Tsinghua University, Beijing, 100084, China

^cDepartment of Chemical Engineering and Biotechnology, University of Cambridge, Philippa Fawcett Drive, Cambridge, CB3 0AS, United Kingdom

^dSchool of Chemical and Biomedical, Engineering, Nanyang Technological University, 62 Nanyang Drive, 637459, Singapore

^eCambridge Center for Advanced Research and Education in Singapore (CARES), CREATE Tower, 1 Create Way, 138602, Singapore

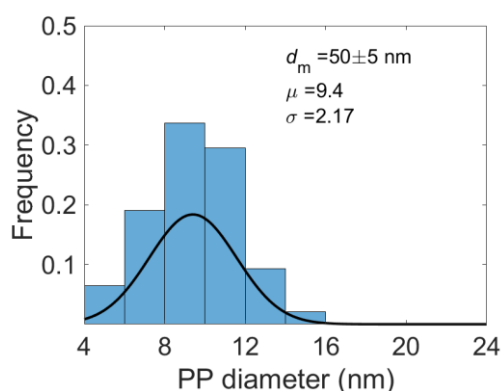


Fig.S1 The simulated primary particle size distribution for particles with $d_m \approx 50$ nm at $H_p = 1.2$ cm. (PP represents primary particle) Black solid line is the fitted normal distribution. μ and σ are the fitted parameters, being the mean and standard deviation of the distribution, respectively.

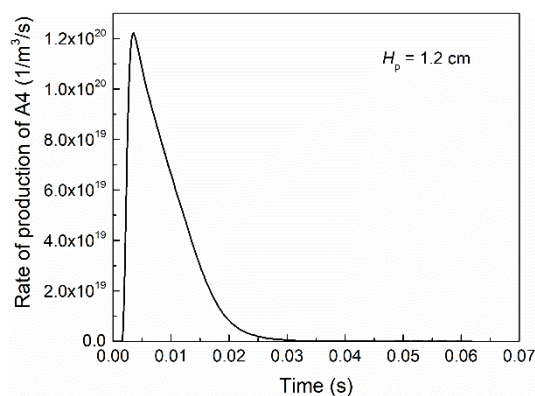


Fig. S2 Rate of production of A4 against time for flame with $H_p = 1.2$ cm.