Max T at each height
Soot particle TEM images

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Condition B
Ethylene Sooting Flame Incipient Smoking
Fuel: Ethylene
Oxidizer: Air
Fuel flow rate: 4.60 cm3/s
Fuel velocity: 4.75 cm/s
Oxidizer flow rate: 713.3 cm3/s
Oxidizer velocity: 8.90 cm/s
Recommended T boundary condition: use conjugate heat transfer to 1 cm below the fuel tube exit plane and T = 300 K. If conjugate heat transfer is unavailable, use fuel: 400 K, air: 300 K.
Recommended computational domain: At least 15 cm above the fuel tube exit plane and at least 4.75 cm in the radial direction. At least 15,000 non-equispaced control volumes with careful attention paid to grid independence, tolerance independence, and domain length independence.

I.M. Kennedy, C. Yam, D.C. Rapp, R.J. Santoro, Combust. Flame, 107 (1996) 368-382.

Experimental data available:

      Integrated soot volume fraction as a function of height.

      Soot volume fraction along the centreline, wings, and selected radial profiles

      Primary particle number density, particle number density, and primary particle diameter along the max soot line

      Max T as a function of height