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Corrigendum

Corrigendum to “Dependence of sooting characteristics and temperature field of co-flow laminar pure and nitrogen-diluted ethylene–air diffusion flames on pressure” [Combust. Flame 162 (2015) 1566–1574]

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The aim of this corrigendum is to point out to a typographical mistake in the acceleration constant used in estimating the soot yield in laminar co-flow diffusion flames at pressures above atmospheric. The soot yield is defined as the percentage of the carbon in the fuel converted to soot. The mass flow rate of carbon at the desired axial height above the burner, in the form of soot, can be expressed by the following relationship

$$\dot{m}_s(z) = 2\pi \rho_s \int v_z(r, z) f_v(r, z) r \mathrm{d}r$$

where v_z is the axial velocity, $\rho_s = 1.8$ g/cm^3 is the soot density, f_v is the soot volume fraction, r is the radial coordinate, and z is the axial height. The soot yield is simply $Y_s = \dot{m}_s/\dot{m}_c$, where $\dot{m}_c$ is the carbon mass flow rate at the nozzle exit. The axial velocity is approximated as $v_z(z) = \sqrt{2az}$, where a is an acceleration constant estimated as 41 m/s^2 based on numerical simulations [1,2]. This acceleration constant as compared to the constant suggested by Roper [3] for atmospheric flames, i.e. 25 m/s^2, gives about 28% higher soot yield. In some of our previous publications on the subject [4–6], the value 41 m/s^2 was given inadvertently as 32 m/s^2 (25 multiplied by 1.28) in the text of the paper, although we used the proper value of 41 m/s^2 in evaluating the data or used the computed velocity results from simulations.

We sincerely apologize for this typographical mistake which does not affect the validity of any data or conclusions reported in the related publications appeared since 2012. In the papers published before 2012 the acceleration constant of 25 m/s^2 was used in soot yield estimations; however, this was noted and the data were corrected in a paper published in 2011 [7].

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