

Adiabatic Flame Temperature: New Calculation Methode

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Abstract : The present paper introduces the methane-air flame and its main chemical reaction, the mass burning rate, the burning velocity, and the most important parameter, the adiabatic and its evaluation. Those major important flame parameters will be mathematically formulated and computerized using the MATLAB program. The present program established a new technique to decide the true adiabatic flame temperature. The new technique implements the trial and error procedure to obtained the calculated total internal energy of the product species then evaluate of the reactants ones, from both, we can draw two energy lines their intersection will decide the true required temperature. The obtained results show accurate evaluation for the atmospheric Stoichiometric ($\Phi=1.05$) methane-air flame, and the value was 2136.36 K.

Keywords : 1- methane-air flame, 2-, adiabatic flame temperature, 3-, reaction model, 4- matlab program, 5-, new technique

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