Verification type	Analytical Solutions
Database reference	ANA-9
Topic / Application	Analytical solution Combustion
Physics	Heat of reaction Flame temperature
Summary	This solves the energy equation for a hydrogen-air mixture to calculate the flame temperature.
Description	The calculation of adiabatic flame temperature for a given composition of reactants and combustion products may be used as a relatively simple verification problem for combustion modelling. The reference solves the energy equation for a fixed composition of reactants, and gives the resulting energy equation. The test is insensitive to combustion model. Instead this is a test to verify that material properties are correctly set, and that e.g. adiabatic boundary conditions (required for the numerical procedure to give the flame temperature) are also set correctly.
Case Title	Adiabatic flame temperature
Authors	University of Ulster
Year	Dmitriy Makarov, University of Ulster
Online reference	Susana deliverable 4.1
Case image	None
Governing equations	Available in source reference
Results	Verification is not undertaken in this paper, rather it presents the analytical solution that could be used for verification.

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