

SUpport to SAfety ANalysis of Hydrogen and Fuel Cell Technologies

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| Verification type | Sensitivity Studies (Grid and Parameter sensitivity) |
| Database reference | SEN-9 |
| Topic / Application | Hydrogen flame propagation |
| Physics | Combustion model Turbulence-chemistry interaction Shear Layer MILD |
| Summary | Primarily a validation exercise but where boundary condition sensitivity (on the CFD model) is identified as being important |
| Description | A numerical investigation of a jet in hot coflow (JHC) burner emulating Moderate or Intense Low-oxygen Dilution (MILD) combustion is carried out in order to understand key modelling issues for such three stream problem. The authors show that a proper choice of the turbulent kinetic energy at the inlet boundaries is mandatory for capturing the mixing at the shear layers, as this controls all downstream flowfields. |
| Case Title | Key modelling issues in prediction of minor species in diluted-preheated combustion conditions |
| Authors | J. Aminian, C. Galletti, S. Shahhosseini, L. Tognotti |
| Year | 2011 |
| Online reference | Applied Thermal Engineering 31 (2011) 3287e3300 |
| Case image | |
| Governing equations | |
| Results | |