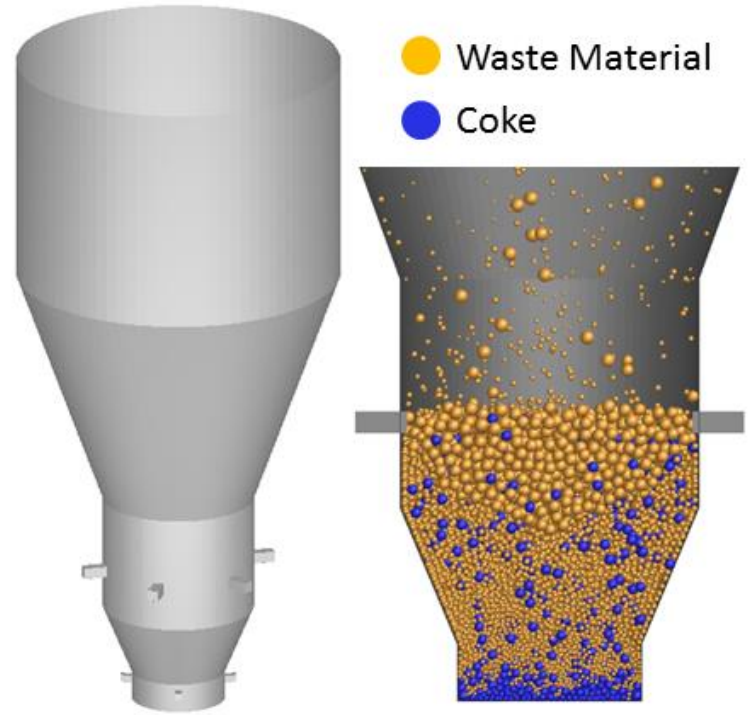
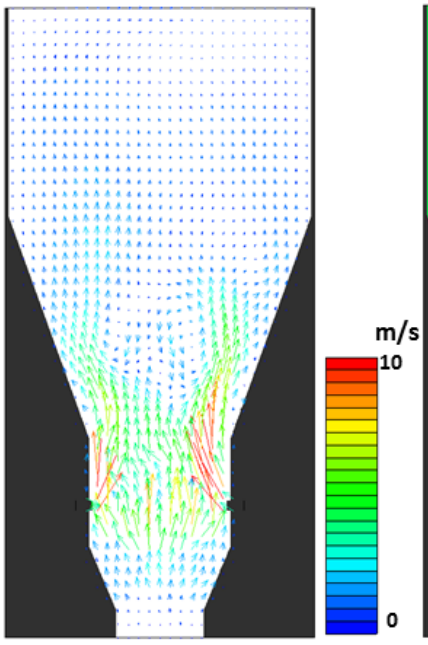
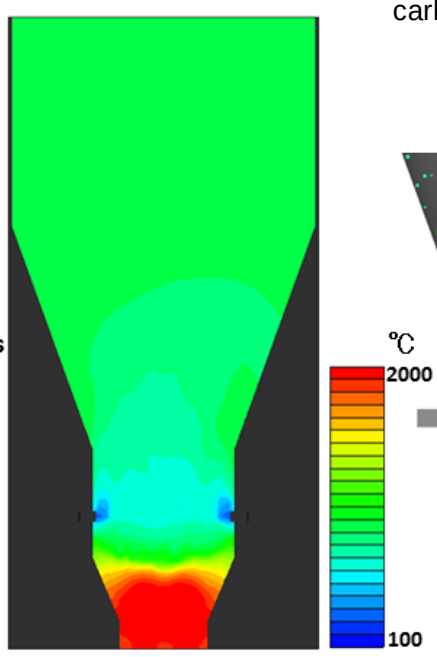
Combustion Simulation of Waste Material and Coke in Fluidized Bed Gasifier



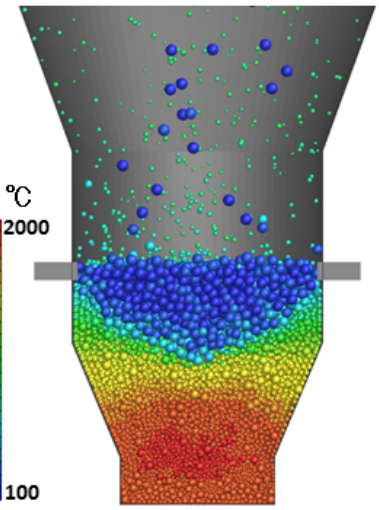
Combustion process of solid waste material and coke fed into a fluidized bed gasifier is simulated numerically. Combustible gases such as carbon monoxide, hydrogen and methane are produced in the gasification process. The combustion of solid waste particles is modeled in three stages: water evaporation, devolatilization (pyrolysis), and fixed carbon (char) combustion. Coke combustion, on the other hand, is simulated by modeling only fixed carbon combustion.



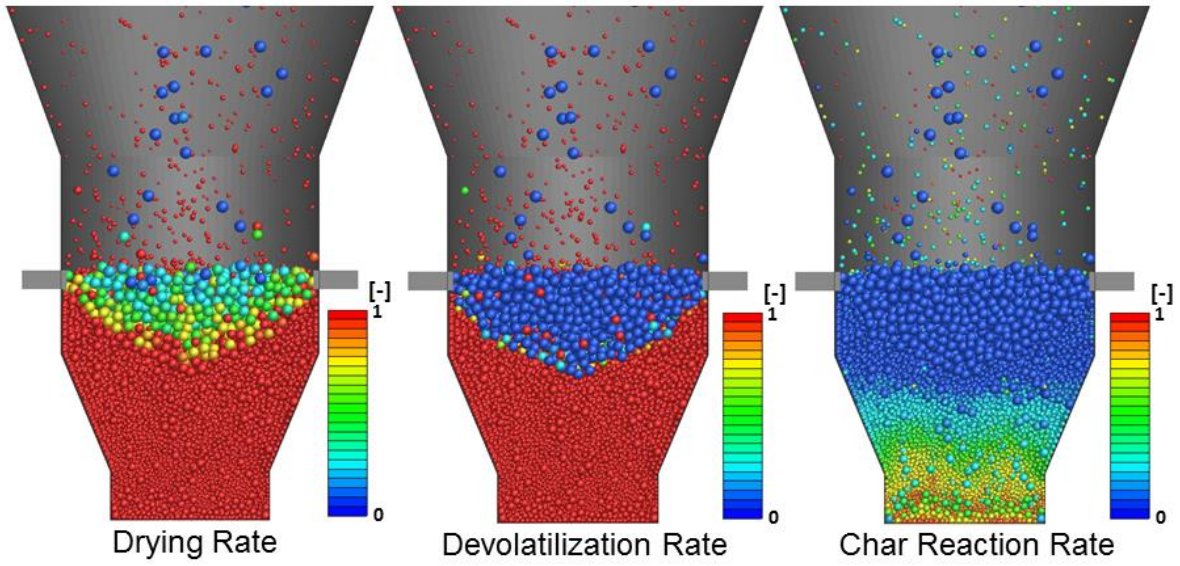
Gas Flow Velocity



Gas Temperature



Particle Temperature



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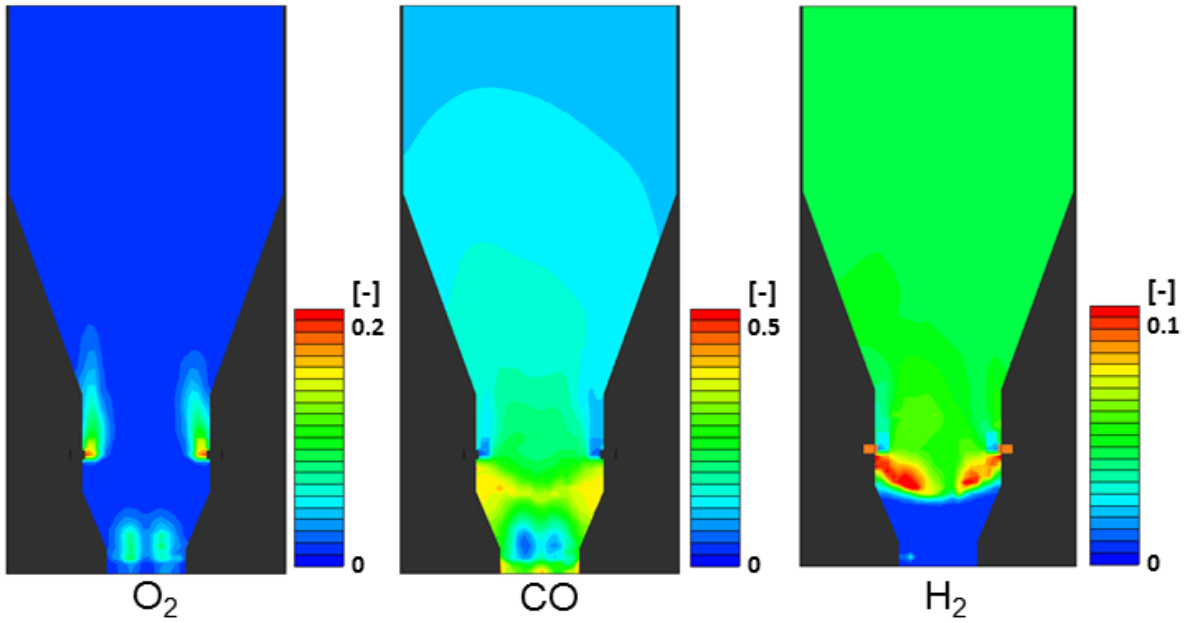

Concentration distributions of oxygen (O_2) and combustible gases. The combustible gases such as carbon monoxide (CO), hydrogen (H_2), and methane (CH_4) are produced in the gasification process.