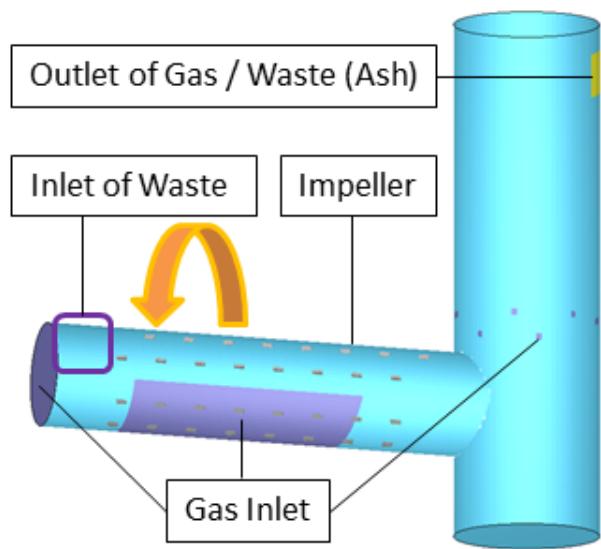
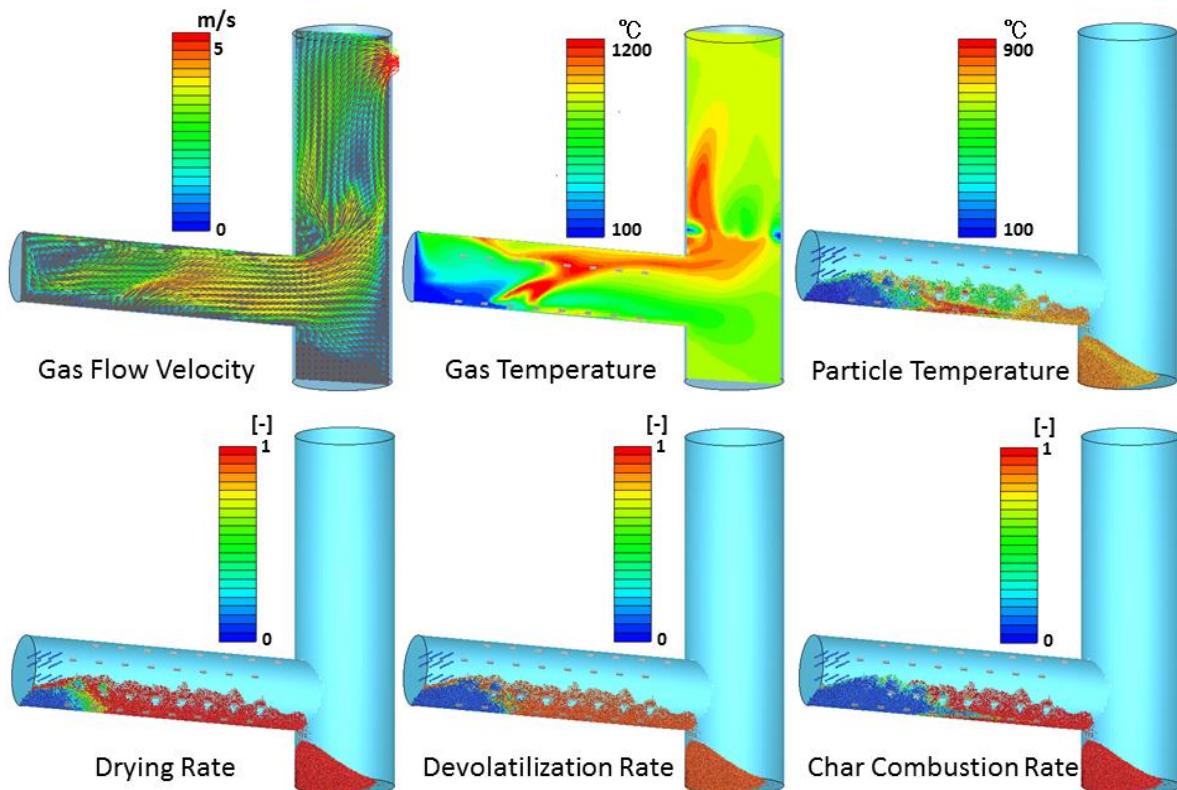


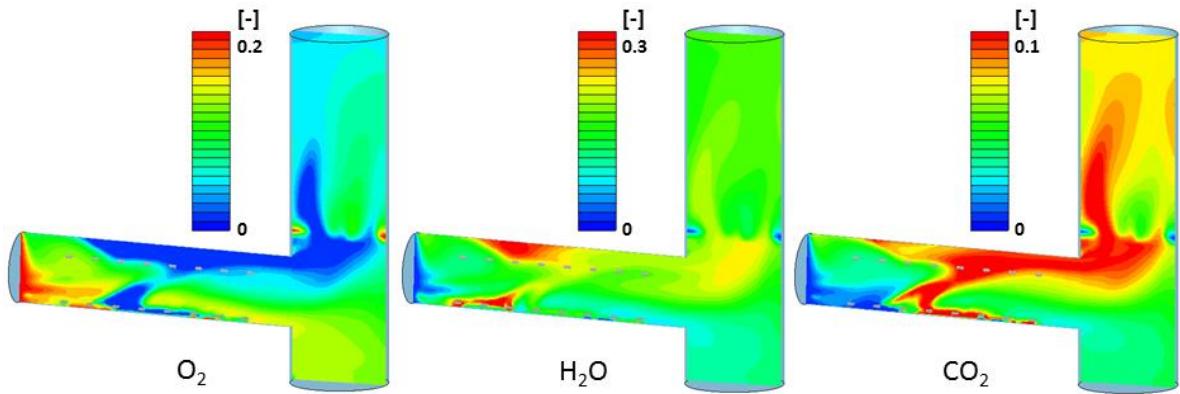
## Combustion Simulation of Waste in Rotary Kiln Incinerator



The combustion process of solid waste fed into a rotary kiln incinerator is represented by simulating the behavior of solid waste particles, compressible flows of reactive gases, radiation fields, and combustion reactions. The combustion process of solid waste particles is modeled in three stages: water evaporation, devolatilization (pyrolysis), and combustion of fixed carbon (char). The concentrations of reactive gases such as Oxygen ( $O_2$ ), water vapor ( $H_2O$ ), carbon dioxide ( $CO_2$ ), carbon monoxide (CO), methane ( $CH_4$ ), hydrogen ( $H_2$ ) produced and extinguished in the combustion process are also simulated simultaneously.



The combustion process of the solid waste particles is simulated in three stages: water evaporation, devolatilization (pyrolysis) and fixed carbon (char) combustion.



Concentration (volume fraction) distributions of reactive gases. In addition to oxygen ( $O_2$ ), water vapor ( $H_2O$ ) and carbon dioxide ( $CO_2$ ), combustible gases such as carbon monoxide ( $CO$ ), methane ( $CH_4$ ) and hydrogen ( $H_2$ ) are also simulated numerically.