Parameters used to validate the fully coupled model in Validation Study 2

	Parameter	Unit	Value
Solid fuel	Height	m	0.065
	Dry fuel density	kg m^{-3}	511
	Surface area-to-volume ratio	m^{-1}	3057
	Packing ratio	-	0.035
	Pre-exponential factor (A_{pyr})	s^{-1}	36300
	Activation energy (E_{pyr})	$Jmol^{-1}$	60300
	Heat of combustion (ΔH_c)	kJ kg^{-1}	16360
	Mass fraction of dry fuel converted to char	-	0.27
Moisture	Fuel moisture content (for constant FMC case only)	m^{-1}	0.05
	Heat of vaporization of water(ΔH_{vap})	kJ kg^{-1}	2259
	Pre-exponential factor (A_{H_2O})	$K^{1/2}$ s^{-1}	600,000
	Activation energy (E_{H_2O})	K	5800
Char	Density	kg m^{-3}	511
	Thermal conductivity	$Wm^{-1}K^{-1}$	0.11
	Specific heat (As a function of temperature T)	kJ $kg^{-1}K^{-1}$	2.04
	Pre-exponential factor (A_{char})	m s^{-1}	215
	Activation energy (E_{char})	K	9000
	Heat of formation (ΔH_{char})	kJ kg^{-1}	-32740
	Mass fraction of char converted to ash	-	0.11
	Mass fraction of oxygen	-	1.65
Ash	Density	kg m^{-3}	15
	Thermal conductivity	$Wm^{-1}K^{-1}$	0.1
	Specific heat	kJ $kg^{-1}K^{-1}$	2