**Parameters used to validate the fully coupled model in Validation Study 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Value** |
| Solid fuel | Height |  | 0.203 |
| Dry fuel density |  | 398 |
| Surface area-to-volume ratio |  | 7596 |
| Packing ratio | - | 0.005 |
| Pre-exponential factor |  | 36300 |
| Activation energy |  | 60300 |
| Heat of combustion |  | 17260 |
|  | Mass fraction of dry fuel converted to char | - | 0.2 |
| Moisture | Fuel moisture content (for constant FMC case only) |  | 0.03, 0.055, 0.181 |
| Heat of vaporization of water |  | 2259 |
|  | Pre-exponential factor |  | 600,000 |
|  | Activation energy |  | 5800 |
| Char | Density |  | 398 |
| Thermal conductivity |  | 0.11 |
| Specific heat  (As a function of temperature T) |  | 0.44 + 0.0008 T |
| Pre-exponential factor |  | 430 |
| Activation energy |  | 74800 |
| Heat of formation |  | -32370 |
| Mass fraction of char converted to ash | - | 0.02 |
| Mass fraction of oxygen | - | 1.65 |
| Ash | Density |  | 67 |
| Thermal conductivity |  | 0.1 |
| Specific heat |  | 2 |