

$V = \text{Reactor Volume}$

$\dot{m}_{in}$

Gas  
Mixture  
 $V(1 - \varphi)$

$\dot{s}_k$

$\dot{E}_{soot}$

Soot  
Particles  
 $V\varphi$

$\dot{Q}$

$\dot{m}_{out}$

