Material Properties used in the Model

Source: NIST-Database with polynomial fit at 5 bars

Material Properties of **CH4** @T=300 K		
Density	0.348	kg/m^3
Heat Capacity	2250.0957	J/(kg K)
Thermal Conductivity	0.034361738	W/(m K)
Dynamic Viscosity	1.11984765e-05	Pa s
Molecular Weight	0.01604	kg/mol
Collision Area	4.6e-19	m^2
Diffusion Volume	25.14	-

Material Properties of **H2O** @T=300 K		
Density	0.322	kg/m^3
Heat Capacity	2145.057	J/(kg K)
Thermal Conductivity	0.0189191734	W/(m K)
Dynamic Viscosity	8.526385e-06	Pa s
Molecular Weight	0.01802	kg/mol
Collision Area	4.6e-19	m^2
Diffusion Volume	13.1	-

Material Properties of **CO2** @T=300 K		
Density	0.725	kg/m^3
Heat Capacity	880.444	J/(kg K)
Thermal Conductivity	0.0168103329	W/(m K)
Dynamic Viscosity	1.512299981e-05	Pa s
Molecular Weight	0.04401	kg/mol
Collision Area	5.2e-19	m^2
Diffusion Volume	26.9	-

Material Properties of **H2** @T=300 K		
Density	0.041	kg/m^3
Heat Capacity	14375.357	J/(kg K)
Thermal Conductivity	0.1891166703	W/(m K)
Dynamic Viscosity	8.97482918e-06	Pa s
Molecular Weight	0.002016	kg/mol
Collision Area	2.7e-19	m^2
Diffusion Volume	6.12	