3rd point results

Speed = 2500 rpm

Bmep = 4 bar

Pin = 1.9bar

Tin = 347K

My hypotheses for the first point are presented in the following table:

Guess values		
f (res. Gas)	*0.05*	*-*
lambda	*2.542*	*-*
R(1)	*282.9*	*J/(kg*K)*
P(1)/Pin	*0.932*	*-*
T(1)	*476*	*K*
P(IVC)/Pin	*1.2365*	*-*
T(IVC)	*397.235*	*K*

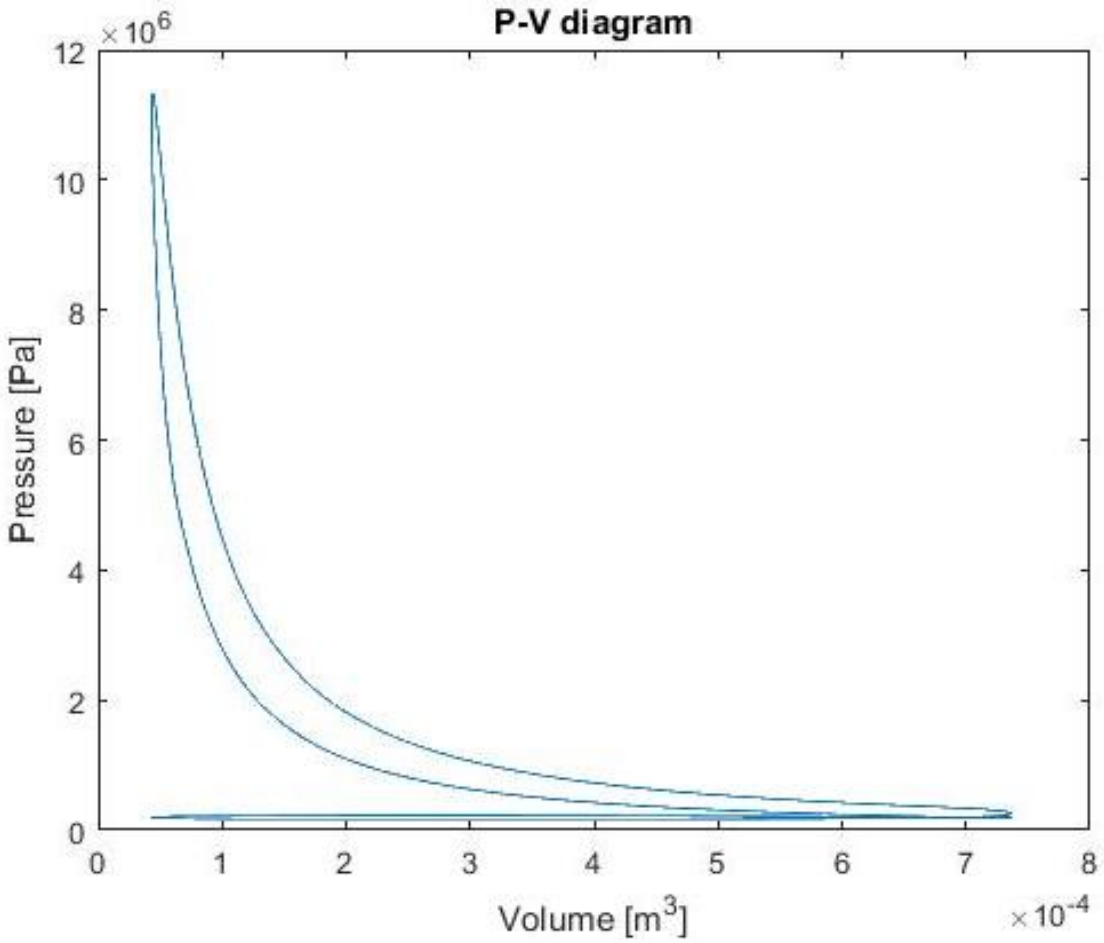
The convergences of the original hypotheses are presented below in the four convergence criteria:

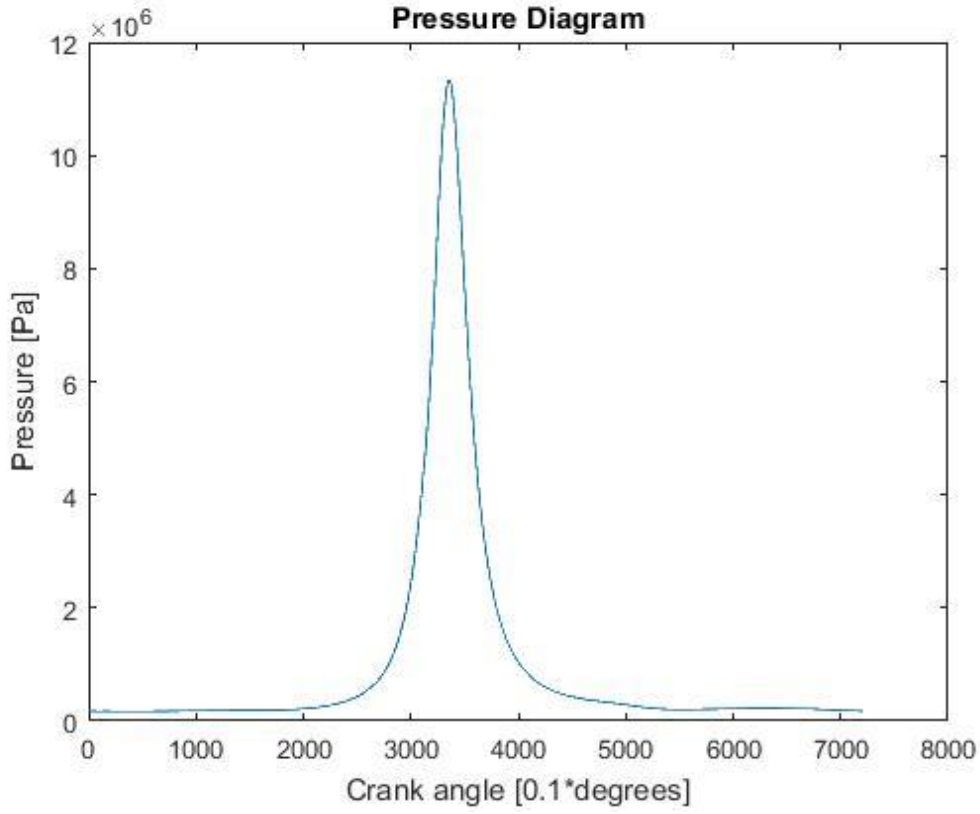
- error1 = 3.51 Pascal
- error2 = -0.03 K
- error3 = -0.258 J/(kg*K)
- error4 = -0.00066 bar

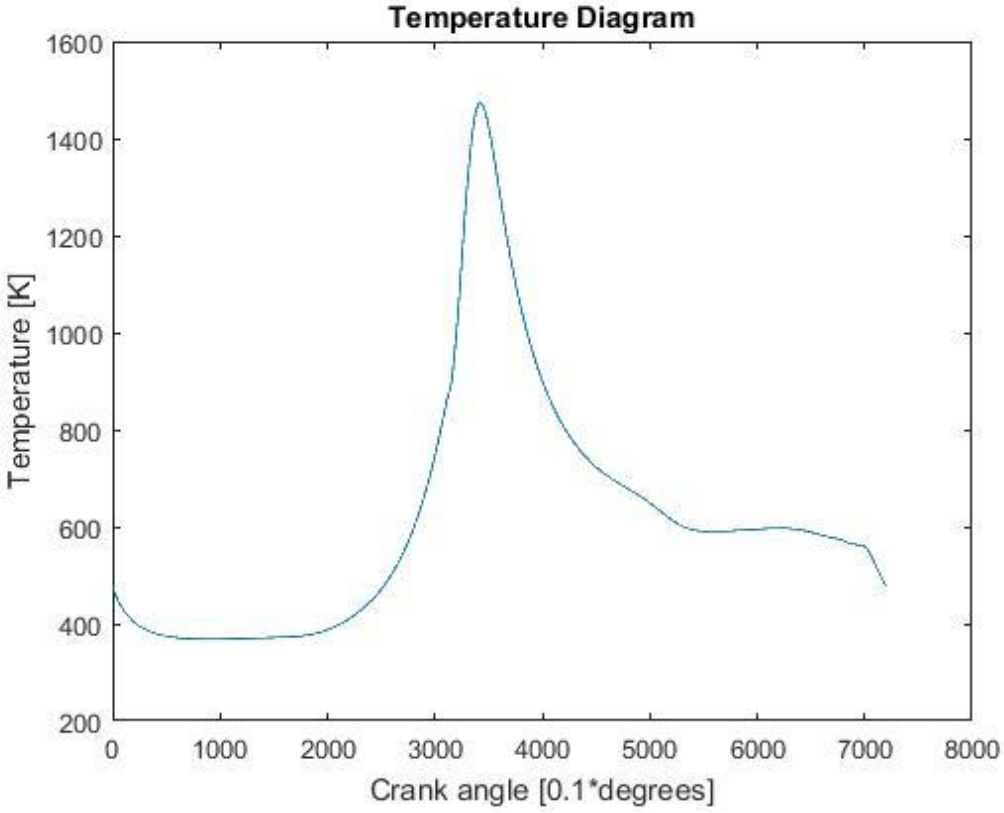
The results are presented below:

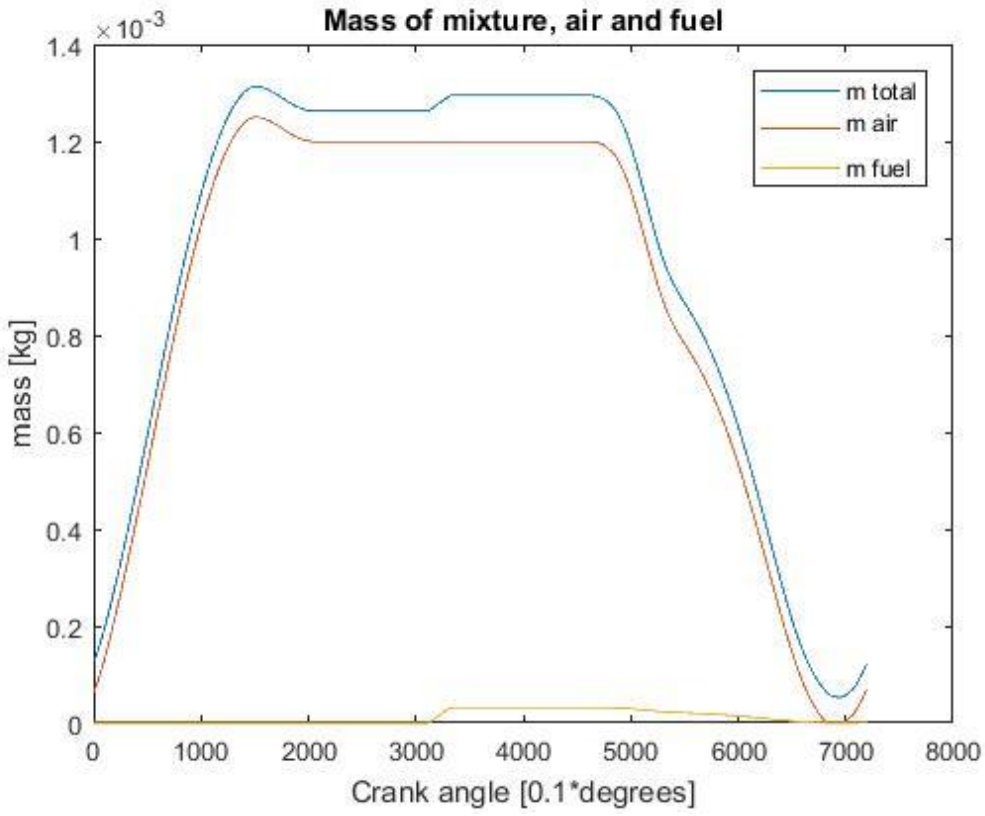
Results		
$d\varphi_{ZV}$	*15*	*degrees*
η	*26.8636%*	*-*
ev	*0.9073*	*-*
bsfc	*308.78*	*Gr/kWh*
P	*43.03*	*hp*
imep	*5.4*	*bar*

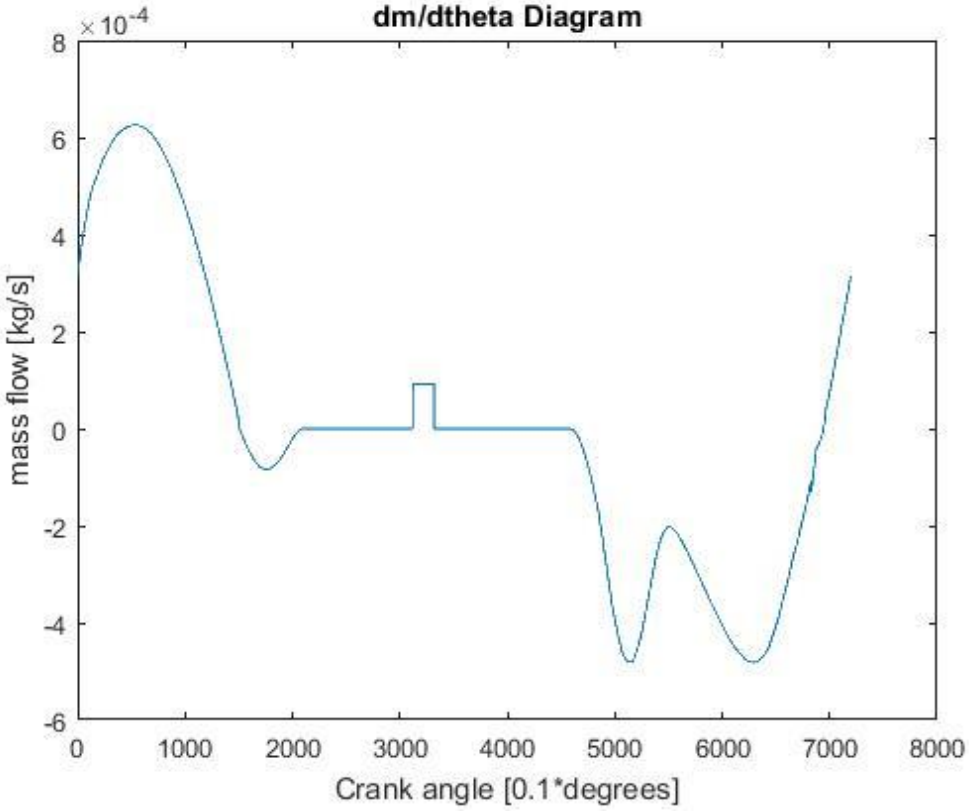
Also, the following diagrams are presented:

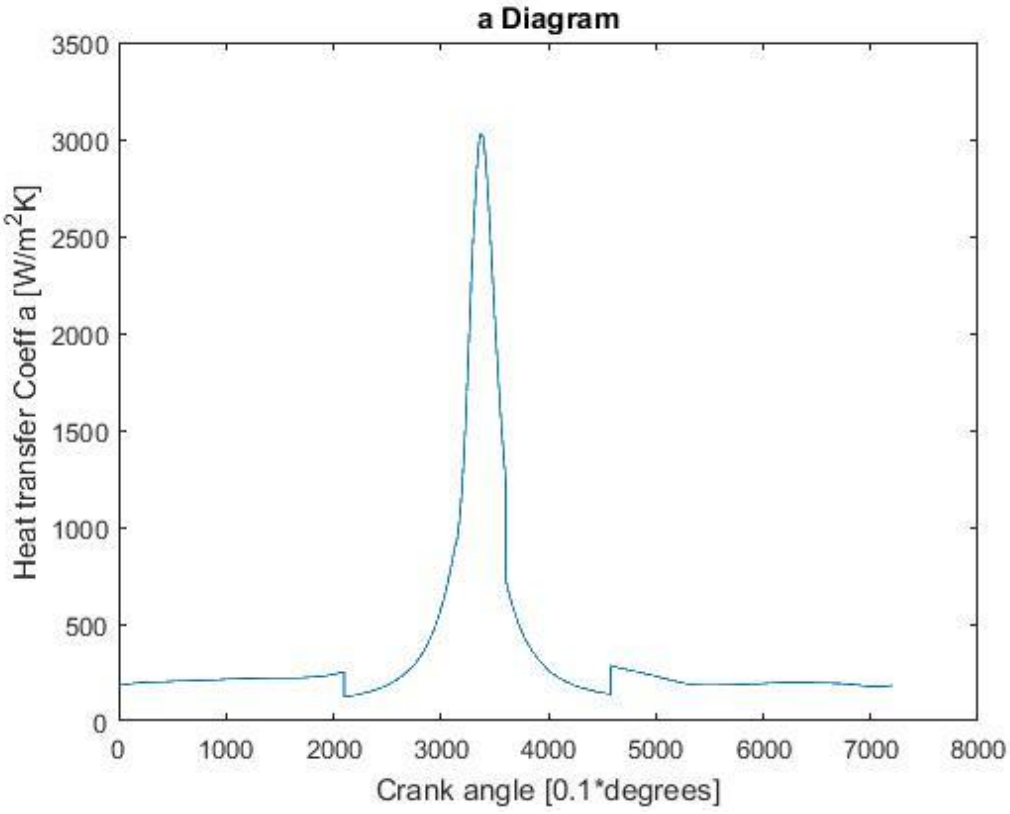


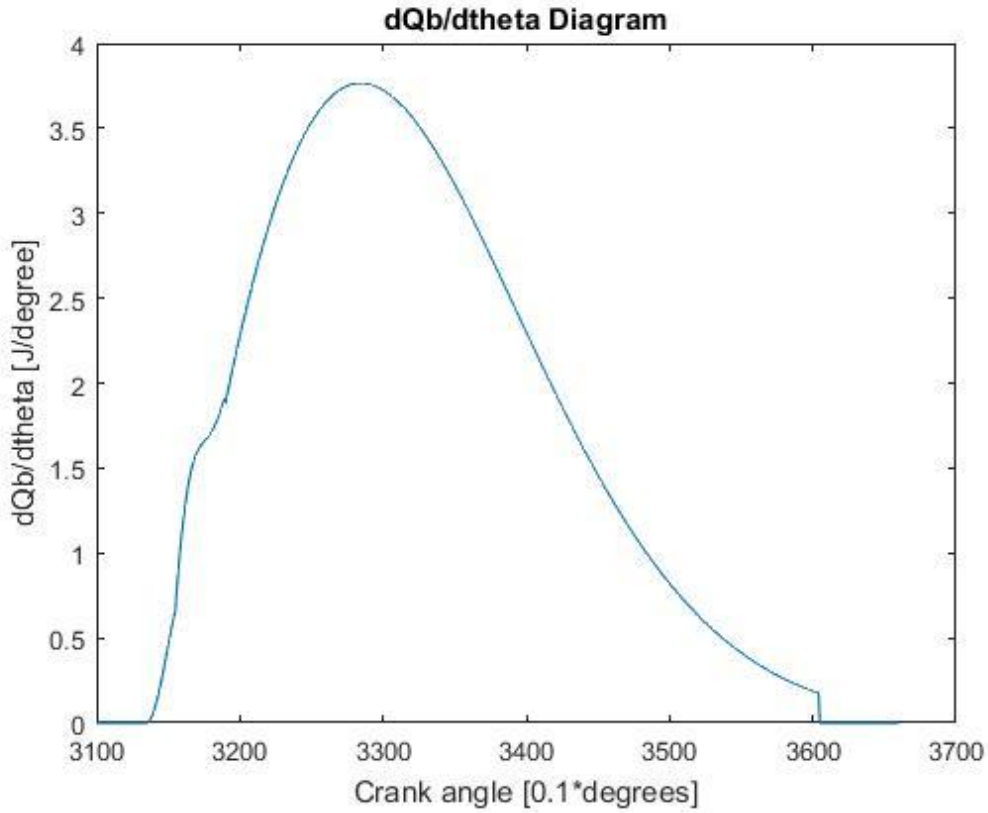

Pressure Diagram
×10^6
12
10
8
6
4
2
0
Pressure [Pa]
0
1000
2000
3000
4000
5000
6000
7000
8000
Crank angle [0.1*degrees]

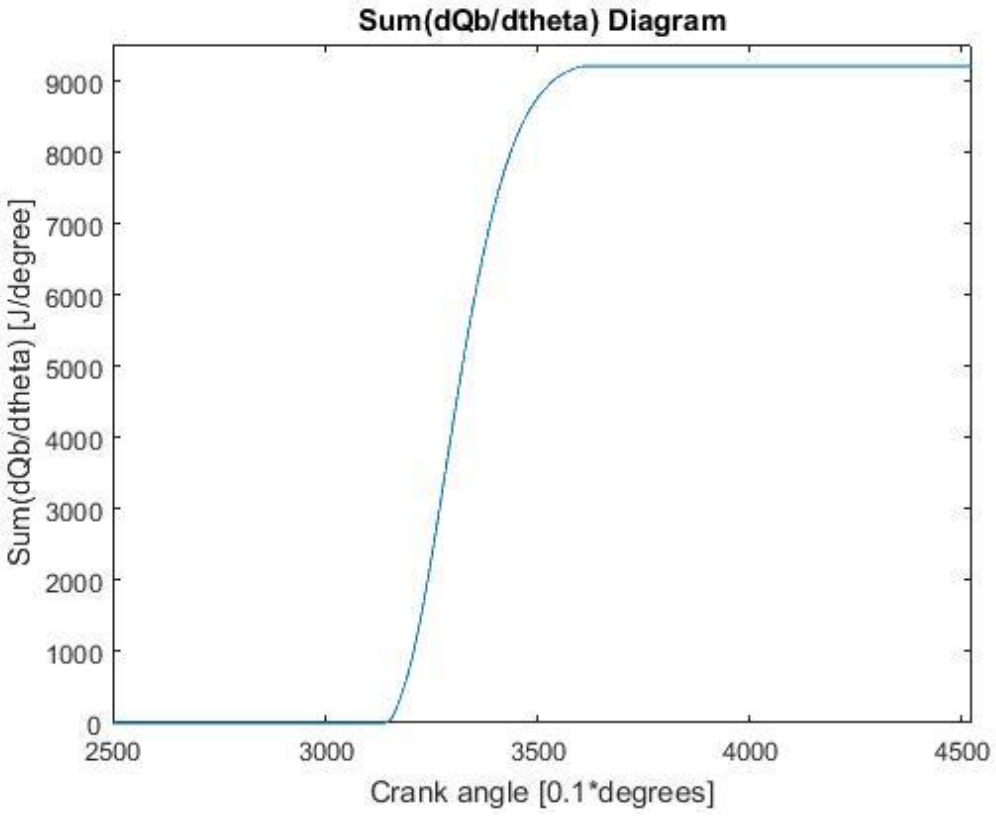

Temperature Diagram
1600
1400
1200
1000
800
600
400
200
Temperature [K]
0
1000
2000
3000
4000
5000
6000
7000
8000
Crank angle [0.1*degrees]

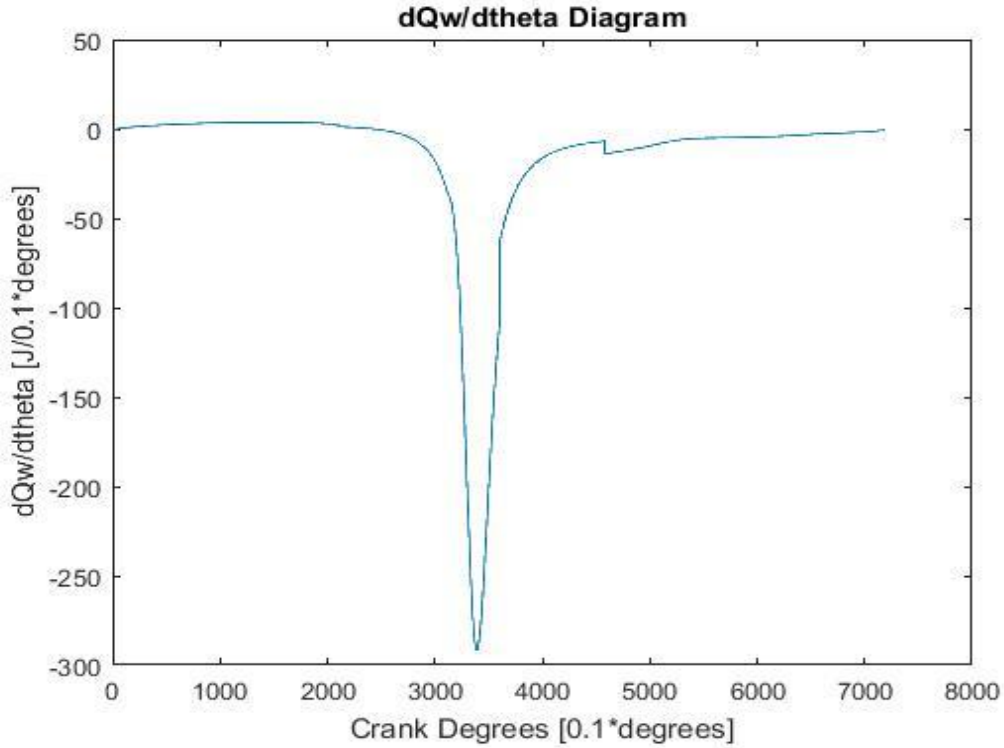

Mass of mixture, air and fuel
×10^-3
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mass [kg]
m total
m air
m fuel
0
1000
2000
3000
4000
5000
6000
7000
8000
Crank angle [0.1*degrees]

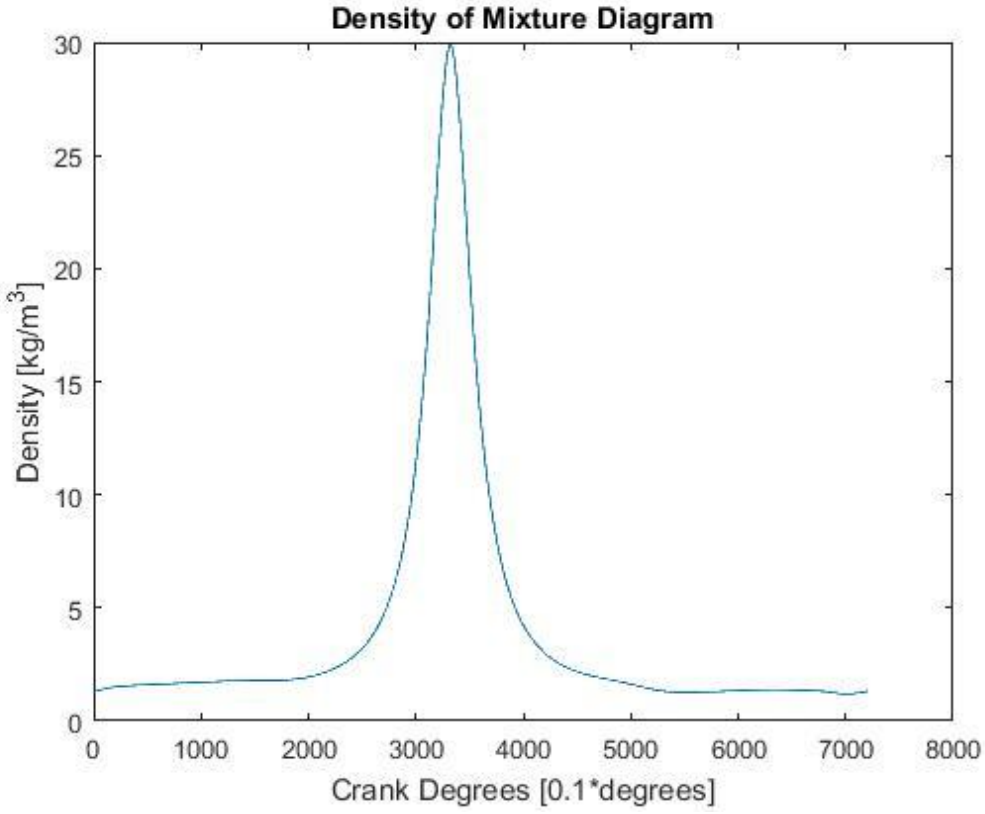

dm/dtheta Diagram
×10^-4
8
6
4
2
0
-2
-4
-6
mass flow [kg/s]
0
1000
2000
3000
4000
5000
6000
7000
8000
Crank angle [0.1*degrees]

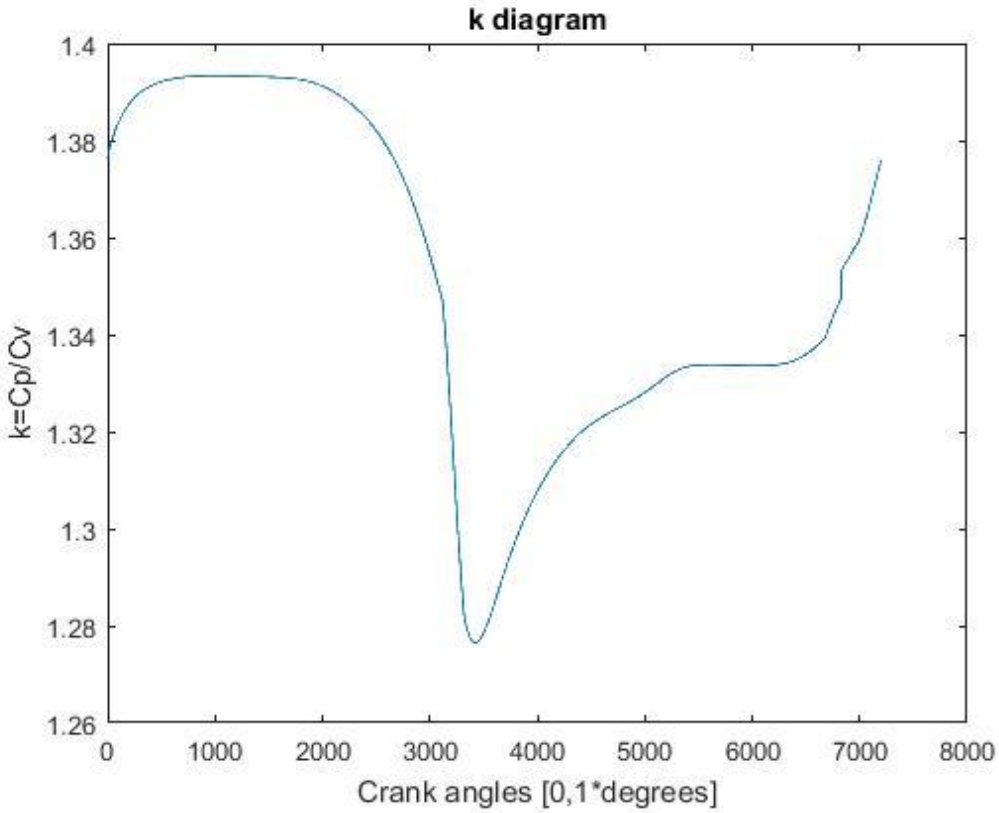

a Diagram
Heat transfer Coeff a [W/m2K]
Crank angle [0.1*degrees]
0
500
1000
1500
2000
2500
3000
3500
0
1000
2000
3000
4000
5000
6000
7000
8000


dQb/dtheta Diagram
dQb/dtheta [J/degree]
Crank angle [0.1*degrees]
0
0.5
1
1.5
2
2.5
3
3.5
4
3100
3200
3300
3400
3500
3600
3700


Sum(dQb/dtheta) Diagram
Sum(dQb/dtheta) [J/degree]
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2500
3000
3500
4000
4500
Crank angle [0.1*degrees]


dQw/dtheta Diagram
dQw/dtheta [J/0.1*degrees]
50
0
-50
-100
-150
-200
-250
-300
0
1000
2000
3000
4000
5000
6000
7000
8000
Crank Degrees [0.1*degrees]


Density of Mixture Diagram
Density [kg/m3]
Crank Degrees [0.1*degrees]
0
5
10
15
20
25
30
0
1000
2000
3000
4000
5000
6000
7000
8000


k diagram
k=Cp/Cv
Crank angles [0,1*degrees]
1.26
1.28
1.3
1.32
1.34
1.36
1.38
1.4
0
1000
2000
3000
4000
5000
6000
7000
8000