

Overall Information

Table 1- Overall Information

Vehicle plate number	85476
CPK data logger number	LN: 001508, DN: 2003, Sim +989218469624
Bus line	Number 10 (south to north Bus line)
Bus Terminals	Azadi Square - Daneshgah Square
Total path distance	10.7 km
DPF producer company	HJS_04 (Passive system with FBC)
Installation date	23/Feb/2015
Report period	16/May/2015 – 31/May/2015 (sixteen days)
K value - DPF upstream	1.29 [m^{-1}]
K value – DPF downstream	0.09 [m^{-1}]

Table 2- Maintenance Table

Filter maintenance date	DPF has been working from installation until now without any cleaning.
Dosing status	Dosing value has been kept constant from installation date until now.

Table 3- Fuel and Additive Consumption Information

Bus mileage (from DPF installation date)	14494 km
Bus mileage over the period	2464 km
Working days over the period	13 days
Stop days	3 day
Data logger working days	13 days
Working hours over the period	227.73 hours
Average working hours per day (including stop days)	14.23 hours
Bus average speed	10.82 km/hr
idle speed time to all working time ration	47%
Total Bus fuel consumption over the period	1931 lit
fuel consumption per hour	8.48 lit/hr
Average fuel consumption	0.78 lit/km
Total Bus additive consumption over the period	0.81 lit
Average additive consumption	0.329 cc/km
additive consumption to fuel ration	420 cc per 1000 lit (Batch Dosing with Tank Level)

Temperature, Pressure and Engine Speed Overview

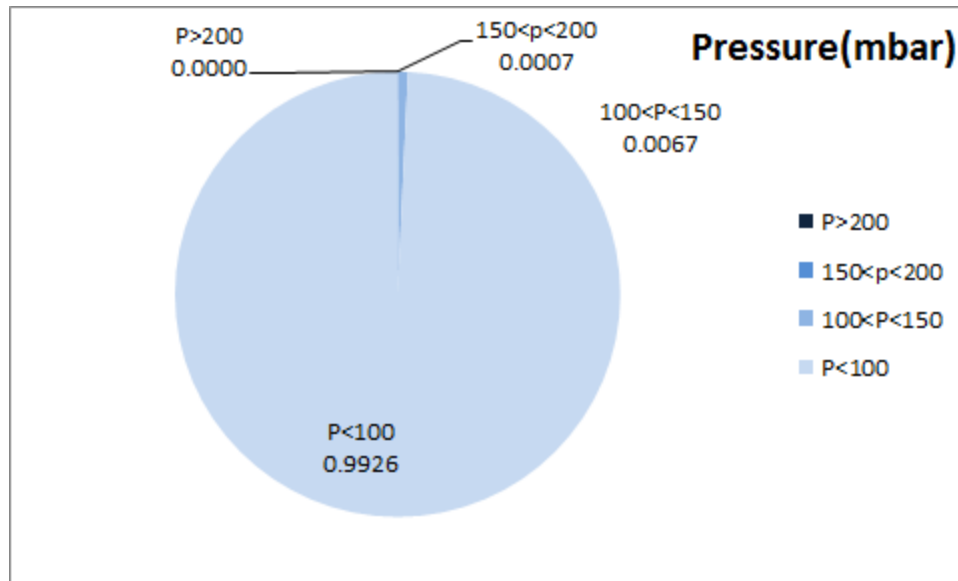


Figure 1- Pressure distribution over the working hours

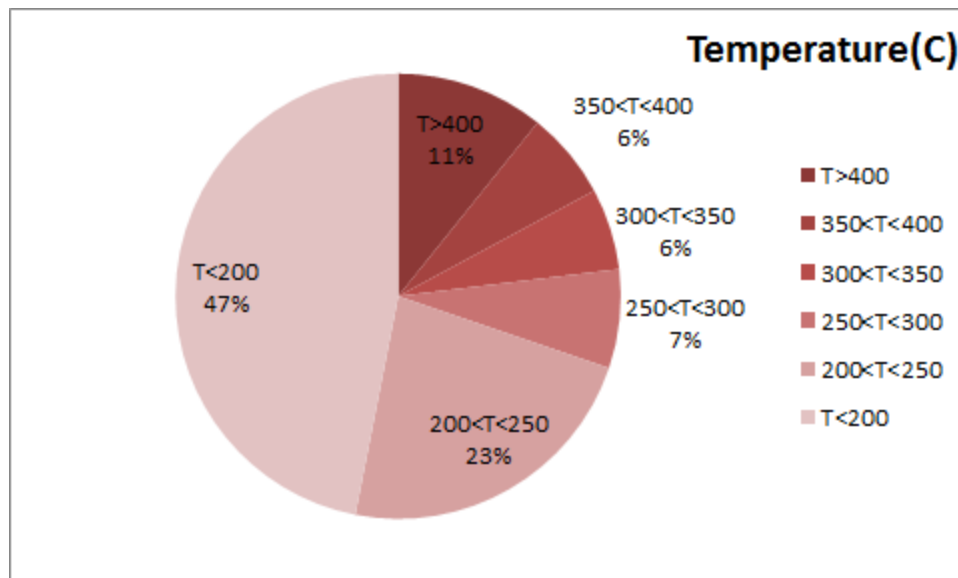


Figure 2-Temperature¹ distribution over the working hours

¹ - Exhaust temperature before the DPF

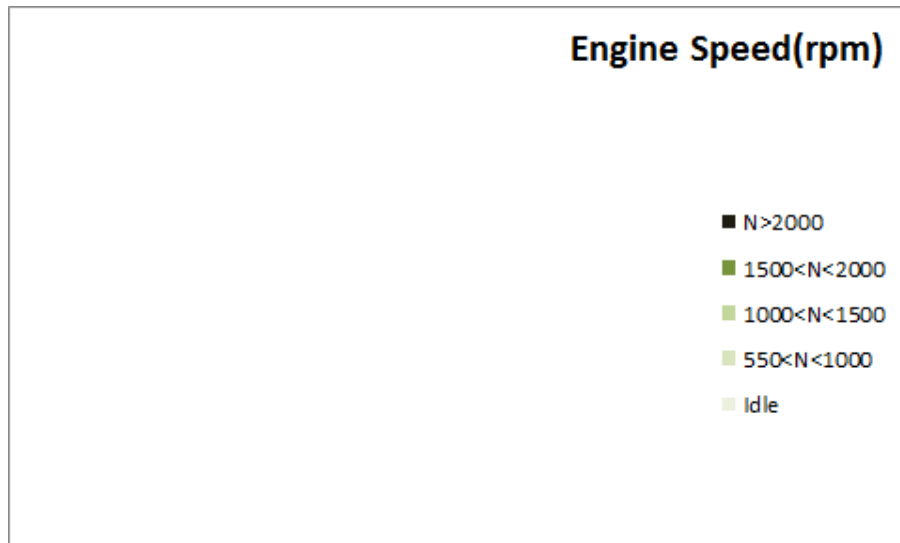


Figure 3- Engine speed distribution over the working hours

Notice: because of engine speed sensor problem some data missed. So engine speed diagrams are blank.

Table 4- Mean values

Mean temperature ² (C)	Mean pressure(mbar)	Mean engine speed(rpm)
235	10.96	-

Table 5- Mean values without idling

Mean temperature(C)	Mean pressure(mbar)	Mean engine speed(rpm)
307.04	17.39	-

Table 6- Max-min values

Max-min temperature(C)	Max-min pressure(mbar)	Max-min engine speed(rpm)
602-74	195-0	-

² - Temperature of before the DPF

Detailed Pressure Analysis

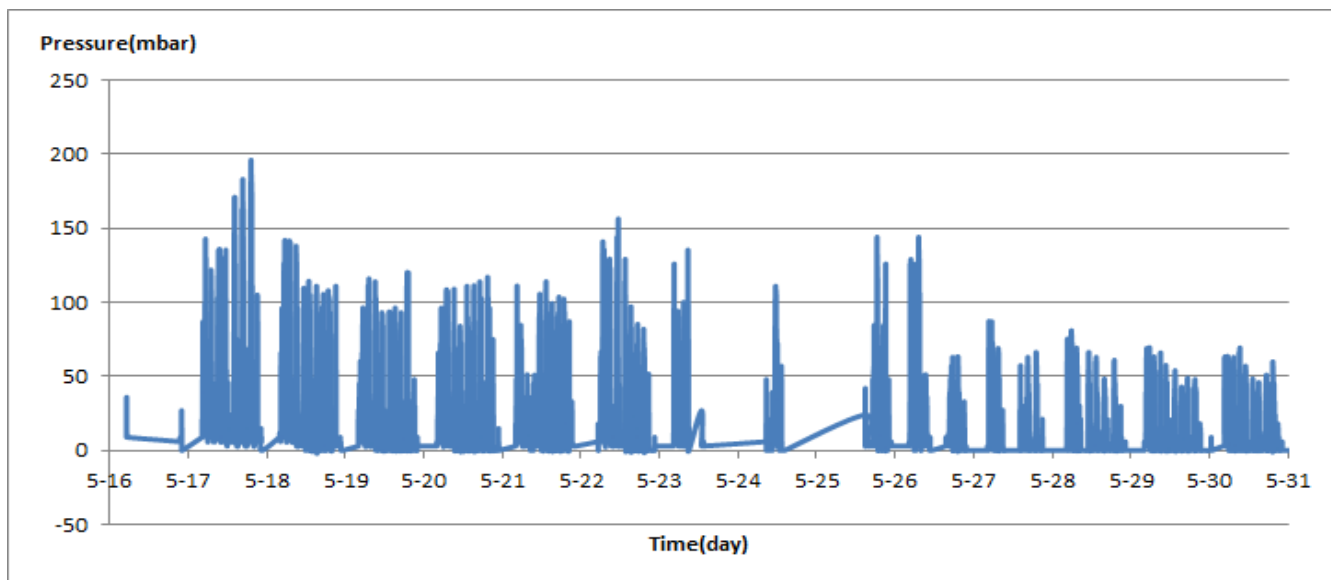


Figure 4- Pressure distribution over sixteen days

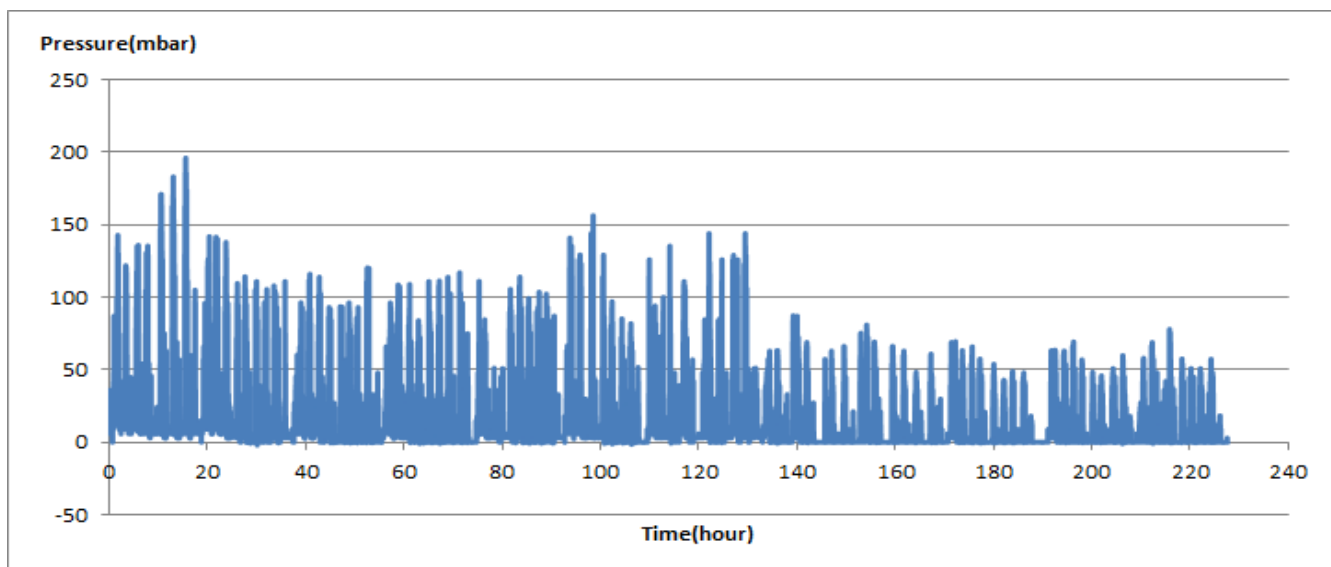


Figure 5- Pressure vs. working hours

Notice: backpressure distribution shown into two diagrams. As obvious in figure 5, stop-working periods were eliminated and pressure is displayed along working-hours.

Detailed Temperature Analysis

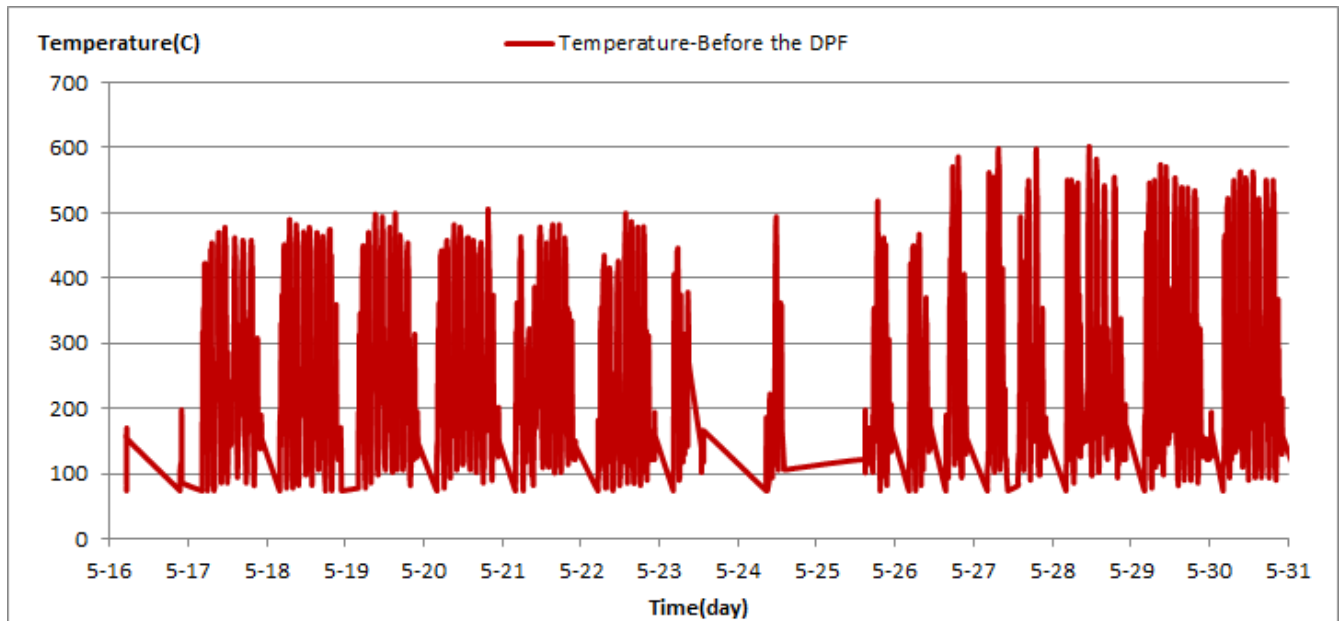


Figure 6- Temperature distribution over sixteen days

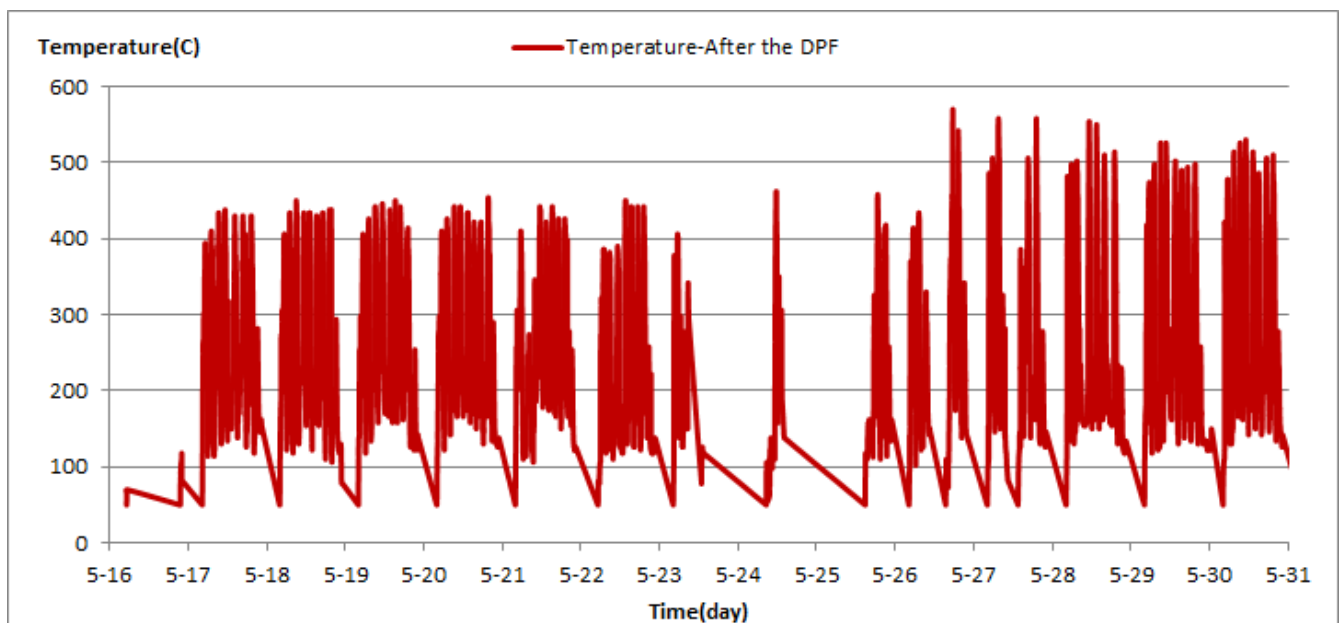


Figure 7- Temperature distribution over sixteen days

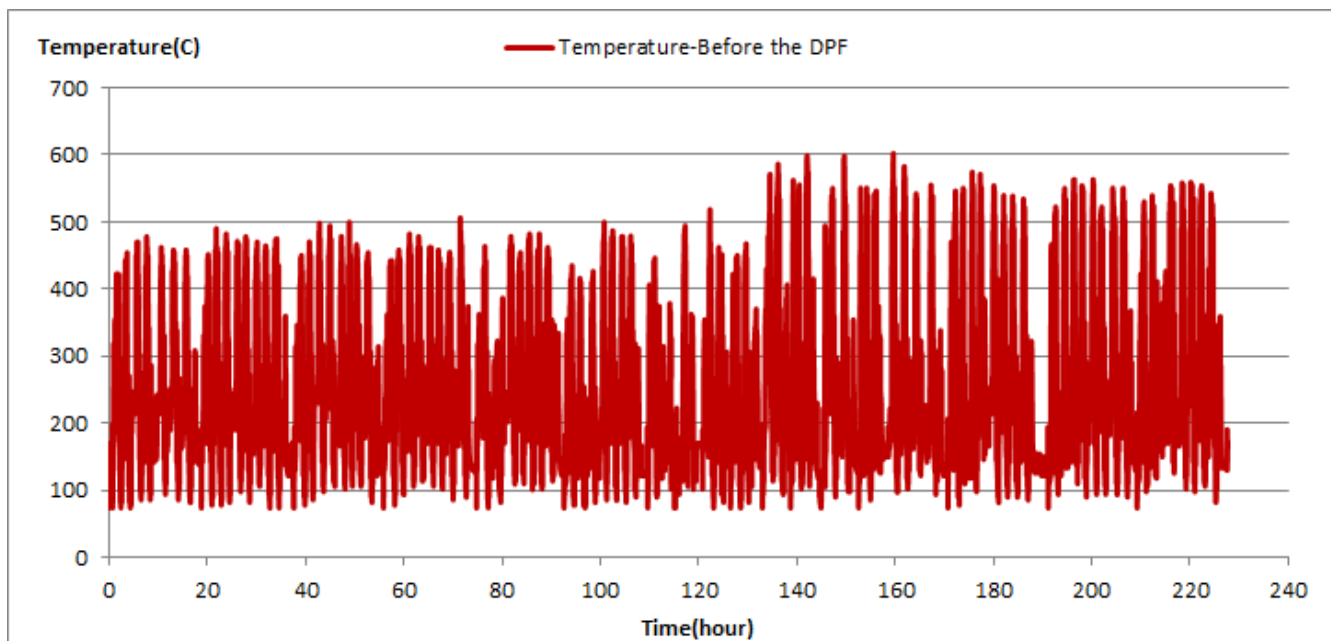


Figure 8- Before DPF temperature vs. working hours

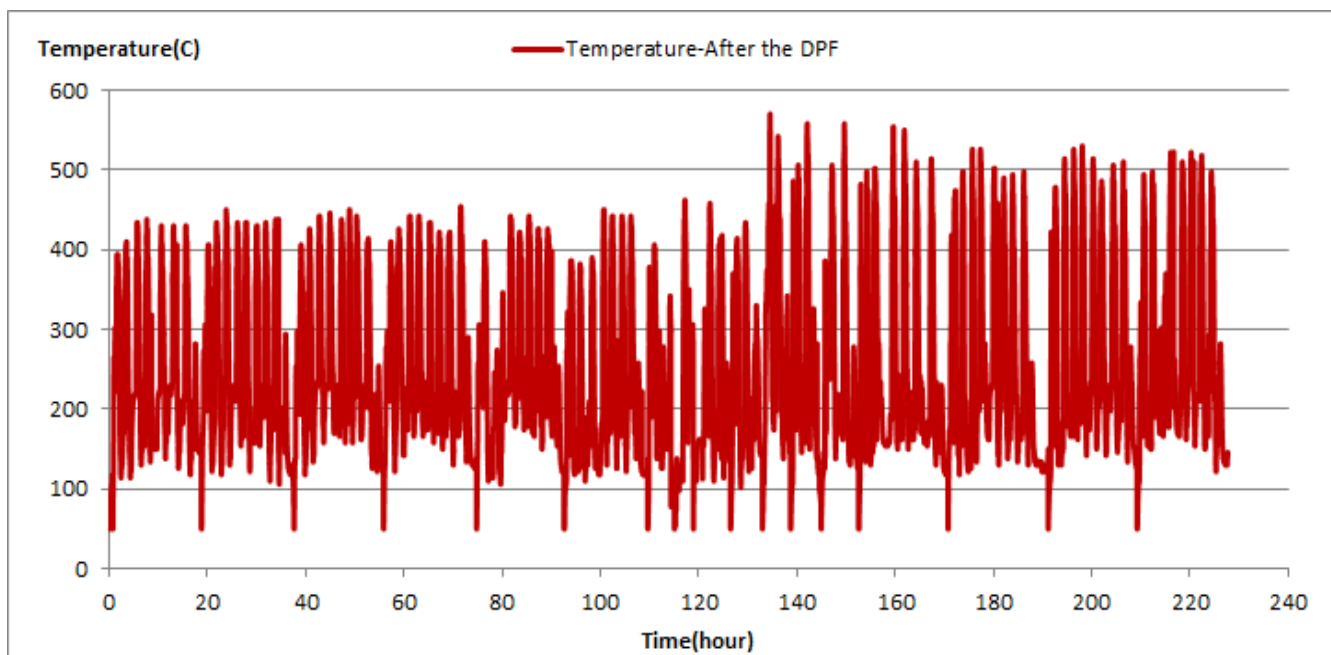


Figure 9- After DPF temperature vs. working hours

Engine Speed Diagrams

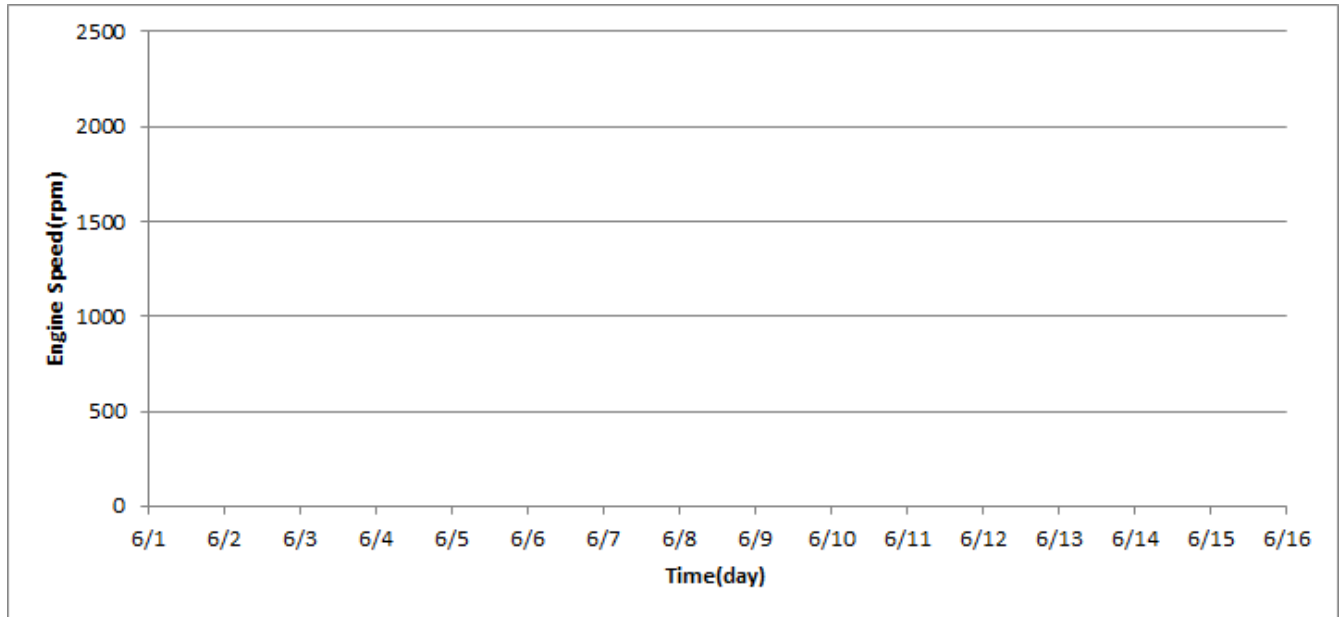


Figure 10- Engine speed distribution over sixteen days

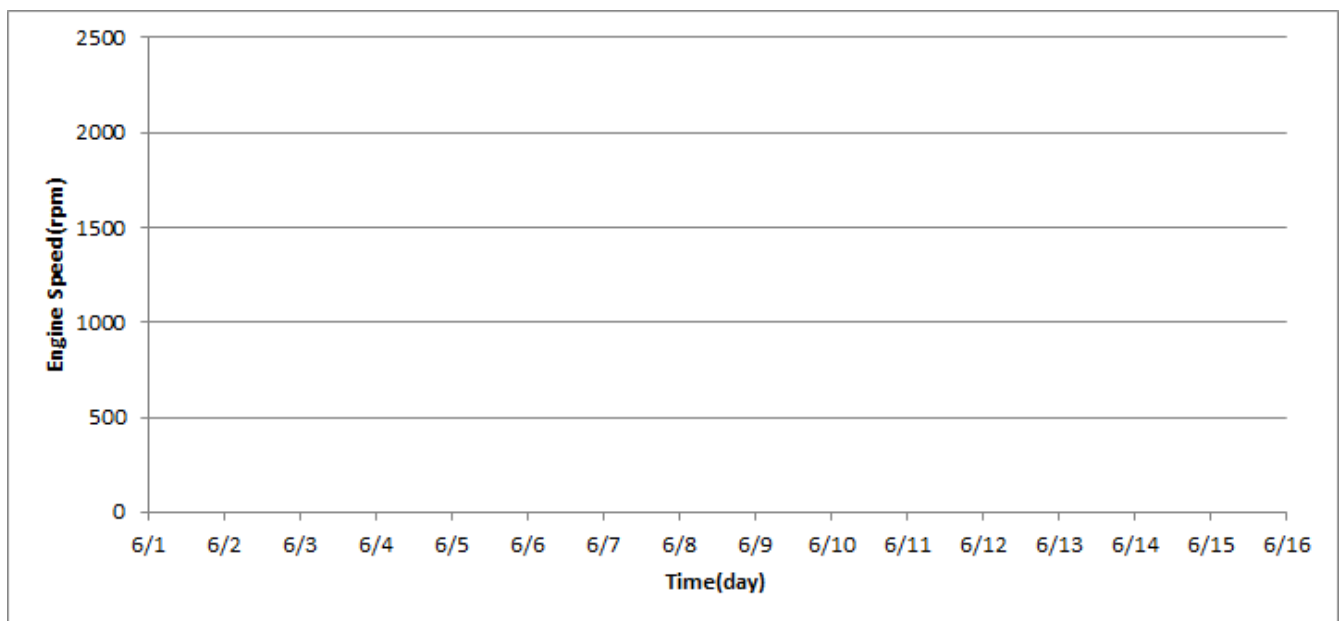


Figure 11- Engine speed diagram for calculating CPK's working days

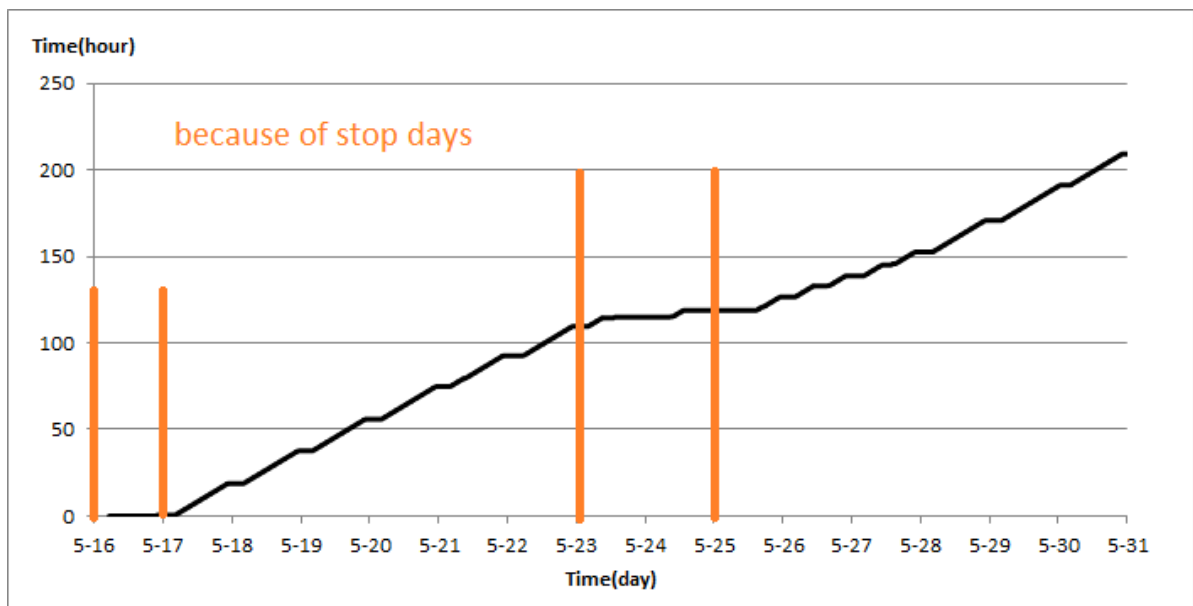


Figure 12- Time diagram for calculating CPK's working days

Notice: Data logger sampling time can be calculated from Figure 12. The lines parallel with time (day) axis show days without data logger data. As depicted in Figure 12, data logger didn't sample three days because of stop days.

Pressure-Engine Speed diagrams

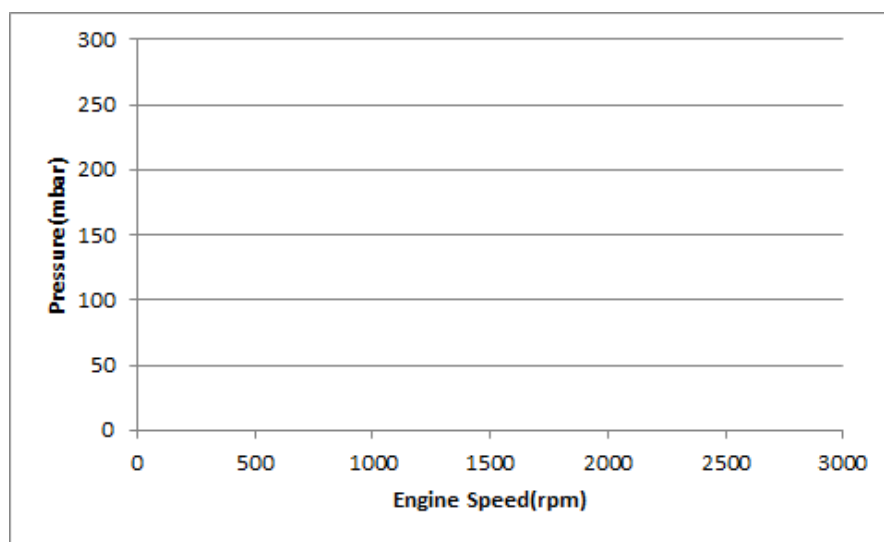


Figure 13- Pressure against speed

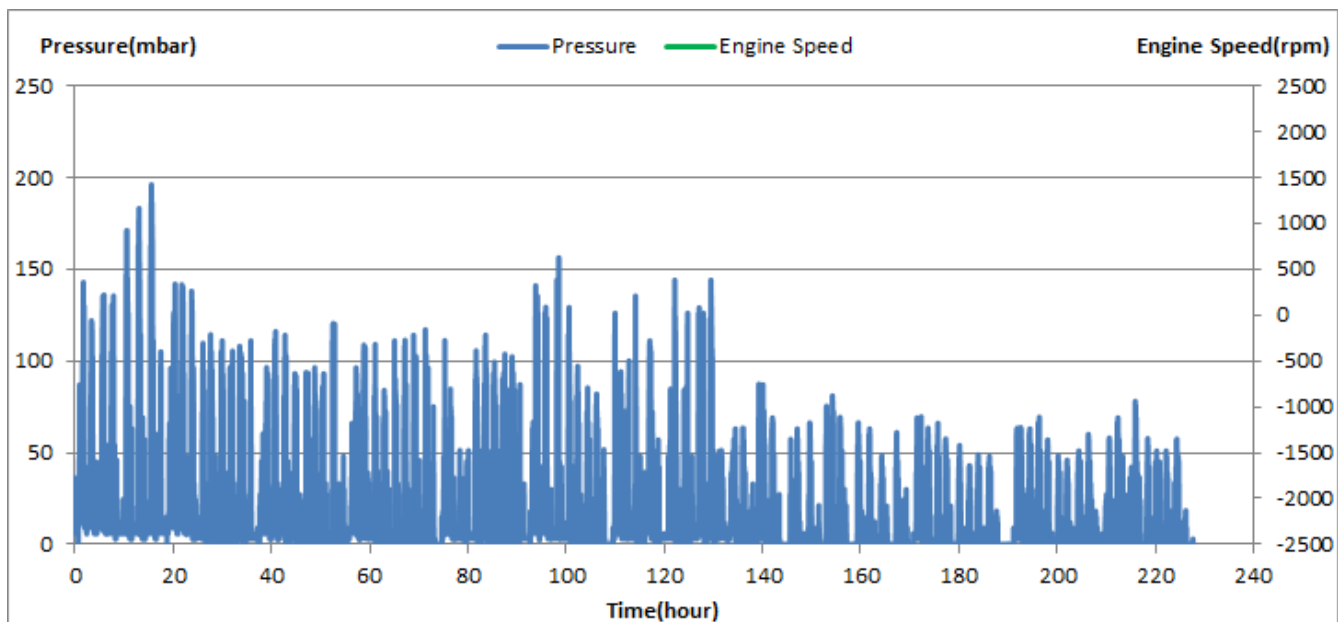


Figure 14- P, N distribution vs. working hours

Temperature- Engine Speed Diagram

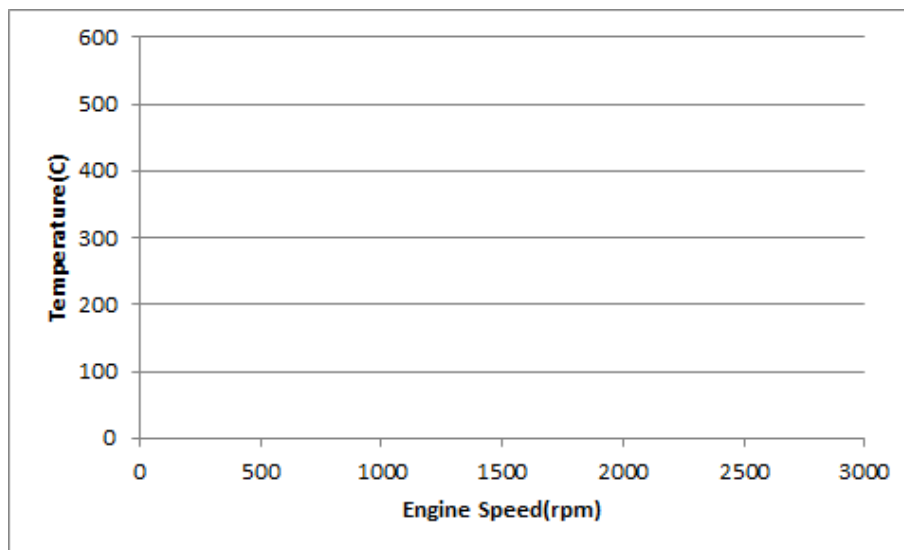


Figure 15- Temperature against speed

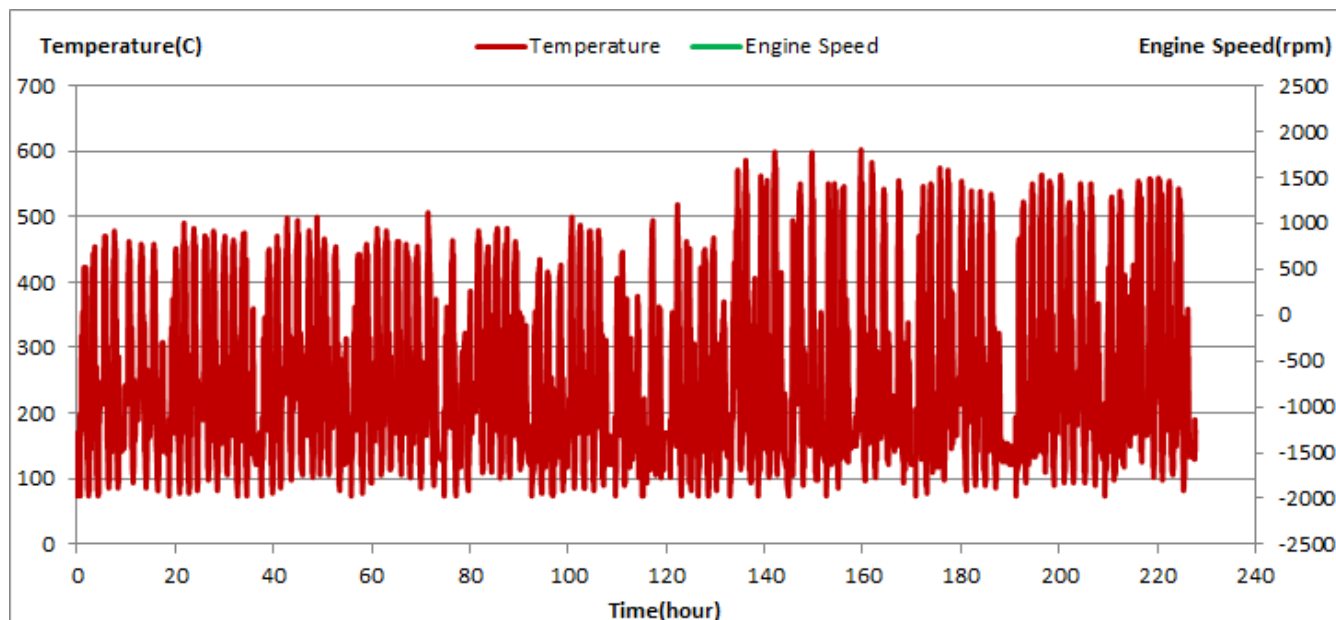


Figure 16- T, N distribution vs. working hours

Filter Operation Analysis

- As depicted in Figure 1, pressure above 200 can't be observed and only 0.07% of working-time pressure is above 150mbar.
- Figure 2 displays flow temperature before the DPF. It can be obviously observed that 11% of total working-time temperature is above 400 °C and 17% above 350°C. This high temperature distribution is cause of acceptable operation of this filter over the period.
- ❖ As mentioned above, engine speed sensor had problem in this period. Hence for calculating some data temperature's data used instead of engine speed's data (idling time for example).

Filter operation status	Excellent <input checked="" type="checkbox"/>	Good <input type="checkbox"/>
	Maintenance required <input type="checkbox"/>	Failed <input type="checkbox"/>