



USING XBEE ENZYME FUEL TECHNOLOGY

There are several parameters that can be monitored, looked after and calculated to measure the impact of the XBEE Enzyme Fuel Technology in the fuel.

XBEE enzymes purify fuels _ dispersing organic contaminants, sludge, and water. Consequently, this cleaner fuel also has a natural cleaning effect on the fuel system and engines _ enzymes still acting to remove carbon deposits and other contaminants.

Furthermore, direct result of that cleaning effect is the reduction of smokes and gas emissions, as the reduction of fuel consumption.

1) Organic contaminants:

XBEE enzymes remove water in the fuel and disperse organic contaminants. Said biomass is burned naturally with the fuel, that is completely cleaned up after a few weeks of treatment.

There are two methods to measure how our fuel treatment impact the fuel contamination:

- You can analyze the fuel before the first treatment with XBEE and a couple of samples after one- & two- months of using XBEE fuels.
- Or you can take pictures of fuel filters before the first treatment and simply check the absence of the said contaminants after a month or two of using XBEE fuels.

2) Tanks:

XBEE enzymes purify the fuel, disperse sludge and contaminants in the tanks and from the tanks walls. The cleaning is done in the main storage tanks first, then the settling tank and finally the daily tank.

The best method, although it has no scientific background, is the most objective for a technical engineer: Detailed pictures of the tanks should be taken prior to using XBEE, and comparative pictures should be taken at least six months after the first treatment.

USING XBEE ENZYME FUEL TECHNOLOGY

The cleanliness of tanks filled with XBEE fuel is remarkable and can be easily noticed. Fuel samples can be analyzed before and after to confirm the empirical observation.



3) Engine:

A cleaner fuel do not pollute anymore the fuel system and the engine. Moreover, enzymes keep working up to one million times per second to break the contaminants, including carbon deposits.

The most effective method to measure the cleaning effect of the fuel technology in the engine is to use XBEE fuel during at least six months before a complete overhaul during which it is possible to compare pictures, maintenance reports, cost of spare parts, etc. Within the period of evaluation, it is possible to use endoscopic equipment to take a look at valves, pistons, and see the evolution month after month.





USING XBEE ENZYME FUEL TECHNOLOGY

4) Exhausts:

A cleaner engine naturally performs better, burns more completely the fuel. The direct consequence is a reduction of the volume of gas at the exhaust, a reduction of air pollutants within the gas emissions, and a reduction of lost heat.

This translates quickly in less Carbon Monoxide and Dioxide, Nitrogen Oxide and Dioxide, Sulphur Oxides, Particles...

The first changes can be checked within a couple of weeks of using XBEE Enzyme Fuel Technology just by checking the volume and colour of smokes that will decrease and lighten as days go by.

The most effective and reliable method to control the evolution of the exhausts is to either install an analyzer onboard or call for the service of an accredited laboratory that can measure the different gas in detail. Two measures are necessary in that case: a baseline before using XBEE, and at least one comparative measure after a couple of months of regularly using XBEE fuels.

<i>CMN's ferry Girolata</i>	Without XBEE	With XBEE	Difference (%)
Temperature (°C)	440	426	-3.23
O ₂ – Oxygen (%)	12.03	8.07	-32.94
CO ₂ – Carbon Dioxide (%)	6.90	3.89	-43.57
CO – Carbon Monoxide (mg/m ³)	278.90	105.51	-62.17
NO _x – Nitrogen Oxides (mg/m ³)	2,291.47	1,818.20	-20.65

<i>Veolia Transport fleet in Saumur, France</i>	Fleet average (%)
Particulates	-8.9
CO – Carbon Monoxide (kg/h)	-44.4
CO ₂ – Carbon Dioxide (kg/h)	-34.5
NO – Nitrogen Oxide (kg/h)	-35.5
NO _x – Nitrogen Oxides (kg/h)	-37.4
VOC – Volatile Organic Compounds (kg/h)	-6.6

USING XBEE ENZYME FUEL TECHNOLOGY

5) Consumption:

The logic in mechanics implies that a cleaner engine whose exhausts are reduced consequently consumes less fuel. Actually, the reduction the fuel consumption is only a back to normal _ all engines tending to over consume after a few months or years of work with standard fuels.

This parameter though is difficult to measure as many factors and variables impact fuel consumption. The only scientific and objective method to control the evolution of fuel consumption is to install devices to measure fuel consumption per litre (in & out) and power generation (kW/h). Then, it is possible to calculate the specific fuel oil consumption in g/kWh.

The other approach is more subjective, but not less reliable in many cases as Technical Directors, Fuel Purchasers or Fleet Managers know well the yearly consumption of their engines and can spot a difference of a few percents.

