EQUIPMENT – BOLIERS AND GENERATORS

Profile

Homes, industry, farms and many others generate power via diesel generators. This equipment can be as small as the once used by campers and as large as the one used by electricity generators in municipalities around the world.

The adverse conditions under which boilers and generators operate have a great deal to do with their longevity. Depending the fuel, boilers require an almost perfect balance of air inflow, which has to be as low as possible to provide a good and efficient combustion, but not as low as to create contamination and high deposits of carbons. On the other hand, excess of air will produce a low generation of heat, making the boilers inefficient and uneconomical. They may require much more fuel to generate the correct heat needed by the boiler to operate. The mineral that are part of the fuel used in this kind of machines require to be treated so to avoid corrosion at high and/or low temperature.

Problems

Fuel contamination and deterioration:

A diesel engine basically needs just two things: clean fuel and air. If it's missing either, it's dead. Dirty fuel, fuel contaminated with dirt or sludge, is the cause of about 90 percent of all diesel-engine problems.

Algae and bacteria formation:

Most diesel engine failures originate in the fuel tank. Free water at the bottom of fuel tanks is the bases for the growth of microbial colonies of bacteria and fungus incorrectly referred to as algae.

Filter plugging:

There are different reasons as to why filters plug/clog. One of the reason is the bacteria and fungus we mentioned before, another reason is the wax produced by oxidization of the fuel. Today's fuels are quite instable, resulting in speedier deterioration of the fuel. Key fuel components such as paraffin and asphaltenes begin to oxidize and re-polymerize, resulting in dark coloration, clogged filters and tank sludge. Many people call this algae, but in reality this substance is actually wax and asphalt.

Water in the fuel - Loss of power, and/or low efficiency:

Water contamination of diesel fuel is the biggest threat to diesel engines. All fuels contain some water in suspension, but unlike gasoline, diesel fuel and now biodiesels hold a much larger amount. This water can cause severe problems in water separators (filters), fuel injector tips, and sudden cooling in the engine which may result in shortened engine life and reduced performance, amongst other problems.

Newly refined fuel is clean and has none or very little moister. The water is added to the fuel when transported, while in storage or used. There are various reasons that a diesel fuel may contain dissolved water. Among them are condensation of water in a fuel tank, components in the diesel fuel which help to retain the water in solution, and fuel temperature.

Diesel fuel can contain two types of water; Water in the Solution or Free Water. The first one is low levels of water that may be dissolved in the fuel. Free Water is water which is not in the diesel fuel as a dissolved component, it is the water that drops to the bottom of the tank and has no effect on the combustion.
When burning the fuel, if bigger molecules of water in solution exist, the amount of energy available will be reduced and will cause a lower horsepower output.

Damage to pumps and injectors:

Damage to pumps and injectors can be caused by the low lubricity of the fuel. Lubricity is a measure of the fuel's ability to lubricate and protect the various parts of the engine's fuel injection system from wear. When the fuel contains a lot of water, it wears off the lubricants from the fuel injectors.

Emissions:

Carbon monoxide emissions in underground mining is not only a problem, it represents life or death situation on the people working in closed underground spaces.

Corrosion at low and high temperature:

Minerals like sulfur, vanadium, and others are elements present in heavy fuels. Those minerals will undergo a chemical reaction and become sulfuric acid (low temperature) or vanadium pentoxide (high temperature), both highly corrosive.

XP3 PRODUCTS TO BE OFFERED TO THIS MARKET

Xp3D: Multi-functional fuel enhancer for diesel and fuel oils

- Reduces fuel consumption
- Increases the fuel's lubricity for fuels low (LSD) and ultra-low (ULSD) in sulfur
- Cleans and maintains clean the fuel injectors
- Stabilizes light and heavy oils
- Disperses the existing water in the fuel
- Greatly reduces fumes and emissions
- Has a detergent and antioxidant effect
- Is an effective biocide
- Improves pour point
- Reduces corrosion problems generated during and after combustion
- Reduces maintenance costs and prolongs the life of the machine
- Reduces the consumption of the liquid DEF, used in the new catalyzer (SCR)

Xp3D-W and **Xp3W-XT**: Flow Improver for Diesel Fuels (Regular and Extreme)

- Reduces the fuel Pour Point and Cloud Point (CFPP)
- Improves fuel flow in low temperatures
- Inhibit wax crystals from growing together and block filters at cold temperatures
- Holdup fuel oxidation
- Prevents corrosion
- Improves combustion
- Reduces fuel consumption
- Stabilizes the fuel
- Totally disperses water in fuel
- Keeps fuel injectors clean
- Reduces fumes and emissions
- Reduces maintenance costs and prolongs the life of the machine
- Reduces the consumption of the liquid DEF, used in the new catalyzer (SCR)

Xp3D-MG: Fuel Enhancer for Bunker Fuel Oils formulated to treat heavy oils containing high quantities of Sulfur and Vanadium

- Reduces the low and high temperature corrosion problems generated during and after combustion.
- Treats vanadium acidity, and avoids the formation of Vanadium Pentoxide
- Improves heath transfer
- Reduces maintenance and increases the life of the equipment
- Largely reduces fumes and emissions

Xp3D-BIO: Multi-functional fuel enhancer with biocide

- Stops the growth and destroys bacteria and fungi in diesel
- Prevents the clogging of filters
- Reduces fuel consumption
- Stabilizes light and heavy oils
- Disperses the existing water in fuel
- Greatly reduces fumes and emissions
- Has a detergent and antioxidant effect
- Improves the pour point
- Reduces the corrosion problems generated during and after combustion
- Reduces maintenance costs and prolongs the life of the machine

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