MARINE – VESSELS INDUSTRY

PROFILE

The potential users in Marine industry is as broad and attractive as any other market. It has the big advantage that users of fuel in this market know very well the potential damage that water and sea environment can cause on engines, fuel tanks and injection systems when fuel is not treated accordingly.

The adverse conditions under which marine engines operate have a great deal to do with their longevity. Engines and the fuel are constantly exposed to the marine air (water and salt) creating a very unfriendly condition for the fuel to operate. In addition, ships and boats are constantly required to deal with water corrosion, algae, and salt that damage the injection system, filters, storage tanks, and engines. In addition, marine diesel contains minerals that may damage the injection system, as well as its filters.

USERS

Ships	Boats (people carriers, tour, fishing, etc)	Towboats	Straddle carriers
Deck winches	Loaders	Bow thrusters	Dock cranes
Dredging	Jet skis		

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.

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-MR: Multi-functional fuel enhancer for marine fuels which reduces the negative effects that the ocean may have on marine engines and injections systems. It does not contain any aromatics or naphtha and is 100% biodegradable and does not contain alcohol.

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- Prevents corrosion and damages to the injection system
- Cleans and maintains clean the fuel injectors
- Disperses the existing water in the fuel
- Reduces the corrosion problems generated during and after combustion
- Reduces fuel consumption
- Is an effective biocide
- Has a detergent and antioxidant effect
- Reduces the maintenance costs prolongs the lifetime of the equipment
- Increases the fuel's lubricity for fuels low (LSD) and ultra-low (ULSD) in sulfur
- Stabilizes light and heavy oils
- Greatly reduces fumes and emissions

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-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

Xp3G: Multi-functional fuel enhancer for gasoline
- Improves combustion and increases engine power
- Reduces fuel consumption
- Reduces levels of toxic emissions
- Cleans carburetors and fuel injectors
- Has a detergent and antioxidant effect
- Reduces corrosion and increases the life of your engine

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- Totally disperses water in fuel
- Improves the engine starting and avoids pre-ignition
- Works with all classes of gasoline
- Safe for the catalytic converters

Xp3CD-LP: Multi-purpose Cleaner Degreaser

- Ultra-Low interfacial tension reduction
- High performance over a broad temperature range
- Rapidly liberates oil from substrates
- Terpene micro-emulsifier
- Highly effective in removing lithium grease
- Works over a wide pH range
- Performs well at high dilution rates
- Easy to handle
- Well suited to high active concentrates
- 100% biodegradable

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