

Fuel Right X



Run Clean. Run Smart.



Fuel Right X

ABOUT US

More than two decades ago we set out to investigate the mystery behind unwanted sludge and contamination in fuels and their link to corrosion. We began exploring alternative chemistries that would eliminate sludge while protecting the system from corrosion even in the presence of water and contamination.

Fuel Right® benefits go beyond the tank; it also improves filter life and engine performance. Fuel resides in a complex ecosystem within the tank; eliminating contamination, water and corrosion in a fuel tank plays a significant role in how well a fuel will perform when it reaches your engine.

Fuel Right ensures that you are delivering ultra clean fuel to your engine improving performance and extending engine life.

Today, Fuel Right has representatives worldwide delivering ultra clean fuel technology to the fuel industry.

OUR EXPERIENCE







Premium Fuel Retail Programs

Commercial Wholesale Fuel Programs

Workboat, Heavy Marine, Ferries, Super Yachts

Mining, Power Generation

Tank Cleaning Services

-  Cleans Tanks, Fuel Strainers, Fuel Lines and Filters
-  Protects Fuel System from Corrosion
-  Eliminates Strainer and Filter Plugging
-  Improves Fuel Lubricity
-  Extends Fuel Pump and Injector Life
-  Improves Lubricating Oil Life
-  Optimize Fuel Economy
-  Reduces Emissions & Carbon Build-up
-  Treats ULSD, MGO, IFO, VLSFO, Un-leaded, Bio-Fuel Blends



VALUE PROPOSITION

Fuel Right starts working immediately inside your tank. It begins by dissolving suspended sludge and pushing water to the bottom of your tank. It then continues to scrub away at the tank walls, fuel lines and filter housing and any other fuel system component.

Fuel Right then deposits a microscopic barrier film that protects the entire fuel system from corrosion related to the presence of sludge and water.

Once the tank is clean and protected from further contamination, Fuel Right continues to ensure clean fuel strainers and filters so your fuel system is not starved due to filter blocking from unwanted sludge contamination.

Fuel Right delivers ultra clean fuel to your engine ensuring clean injectors that operate efficiently with improved lubricity and enhanced fuel atomization. A clean fuel system results in better fuel economy and reduced emissions. Fuel Right also reduces carbon build up in the cylinders.

From tank to engine, Fuel Right's value extends beyond that of conventional additives and biocides.

Clean, Clear Fuel
Exceed ISO 4406
18/16/13
No water
No corrosion

Clean Filters
Improve Fuel Flow
Reduce Filter Demand

Optimize Injector Performance
Improve Injector Life
Optimize Fuel Economy
Reduce Emissions
Reduce Carbon Build-up



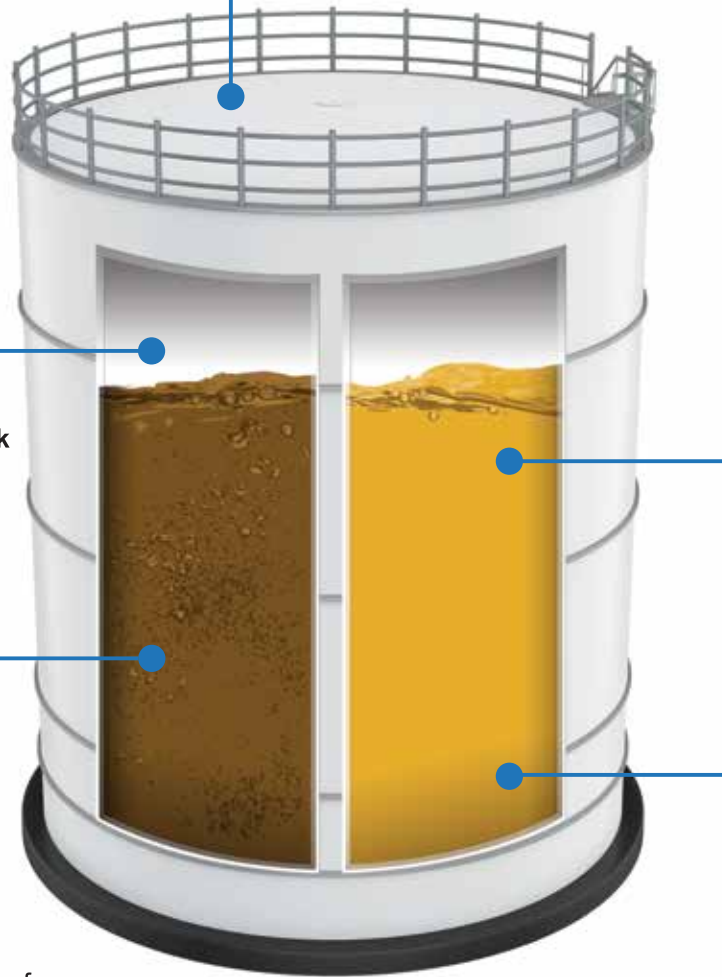
Oxidative Stability
Enhanced Long-Term
Storage

Clean Fuel
Water content < 150 ppm
Exceeds ISO 4406 (18/16/13)
WWFC Cleanliness Standard

Clean Tank
Walls and
Tank Floor

Dissolution of
Sludge and Sloughing

Corrosion Control
Microscopic Barrier Film



“To stay competitive with the major refined suppliers of diesel fuel it was imperative that we source a diesel fuel additive to blend with conventional diesel to establish a premium diesel program. After extensive research on numerous fuel additives Hensall Co-op’s preferred choice was Fuel Right.”

HENSALL CO-OPERATIVE

CLEAN FUEL TANK & FILTERS

Fuel efficiency and performance begins with hygiene. Unless faced with catastrophic contamination issues, many operators do not pay attention to what is lurking in their fuel tanks.

Water and contaminants in your fuel;

- 🌿 Decrease the effectiveness of corrosion inhibitors
- 🌿 Decrease fuel oxidative stability
- 🌿 Raises the fuel's total acid number
- 🌿 Reduce fuel lubricity
- 🌿 Suspend higher levels of particulates, increasing engine wear and reducing injector life
- 🌿 Reduce filter life
- 🌿 Disperse a higher concentration of water, resulting in fuel pump and injector failure

Contaminated Diesel Fuel



Oxidized Biodiesel (B7)



CORROSION PROTECTION

MIC (microbially influenced corrosion) refers to the role that micro-organisms play in the corrosion process. The presence of biofilms adhered to the surface of any fuel system impacts localized chemistry and assists in the development of anodic corrosion sites.

Fuel Right not only removes sludge, it deposits a microscopic barrier film that acts as a protective corrosion coating even in the presence of water and contaminants.

“Coffee Grounds” evidence of MIC



HOW IT WORKS



The samples above were contaminated with sludge and then the right sample was treated with a few drops of Fuel Right. The process of dissolving the suspended sludge is immediate. Within the first few days, the fuel is clarified and Fuel Right continues to dissolve any remaining sludge until the fuel is clear and bright.

RESULTS. (Before / after 1 year of continuous use of Fuel Right)



ISO 4406 WORLDWIDE FUEL CHARTER

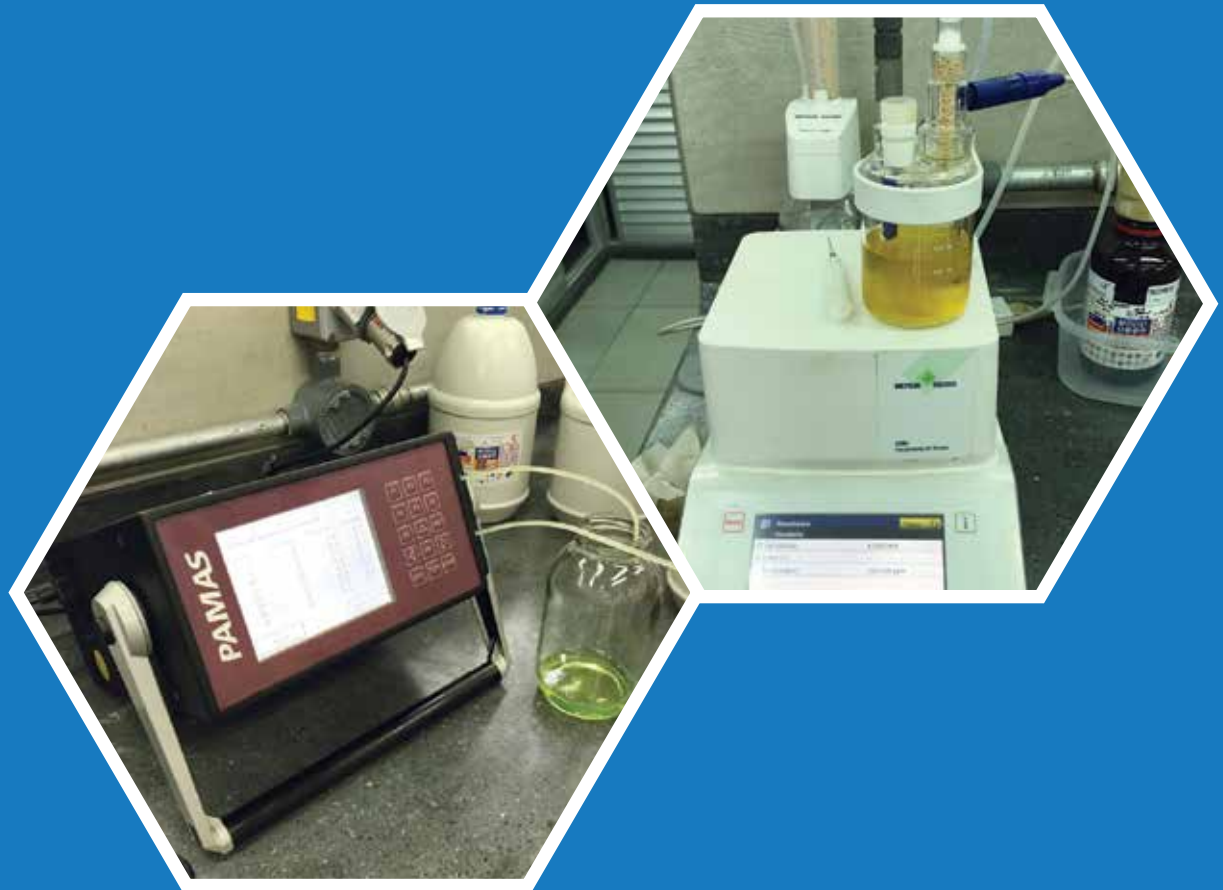
The WORLDWIDE FUEL CHARTER is the collaborative effort of global engine manufactures and is designed to provide guidelines to fuel industry on stringent fuel quality standards required to meet the needs of modern engine technology. While the charter covers many aspects of fuel specifications, one key aspect is cleanliness.

Particulate contamination and the presence of metal salts play a significant role in engine component wear and performance. ISO 4406 18/16/13 sets maximum allowable particulate count of up to 2500 particles/ml of fuel ranging from 4 μ , 6 μ and 14 μ . Maximum allowable water content is 200 ppm. This current standard is already outdated with new high pressure common rail engine technology and more stringent guidelines are predicted.

Fuel Right helps to clean fuel by breaking down particulate and pushing water out of the fuel. Our field testing has shown fuel cleaner by a factor of 8x better than the ISO 4406 standard and water content as low as 95 ppm. This equates to reducing particulate count from 2500 particles per ml of fuel to 320 particles. This improved cleanliness increases engine component life significantly.

Why is this important? Modern high pressure common rail injectors operate under stricter tolerances than conventional injector designs. Reducing particle count plays a significant role in reducing injector failures and improving injector long term performance.

Fuel Right has proven to be effective in multiple types of fuels including ULSD, unleaded fuels, bio-blends and heavy fuel oil.



ISO FIELD RESULTS

We have monitored many field tanks to determine how effective Fuel Right is at cleaning and maintaining fuel cleanliness based on the Worldwide Fuel Charter.

Using laser particle counters and sending field samples out to independent laboratories for testing, we have consistently validated that Fuel Right plays a significant role in achieving and maintaining a fuel cleanliness

standard many times cleaner than the current Worldwide Fuel Charter.

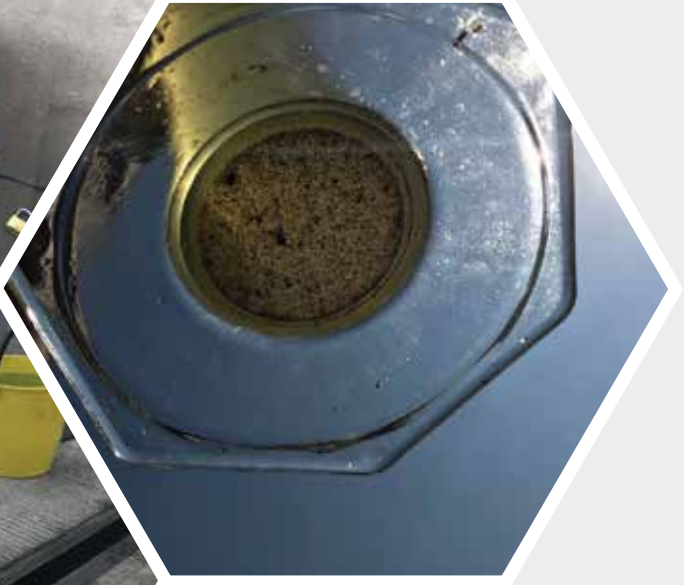
Below is a sample of results achieved in underground tanks storing ULSD. It is important to note that these tanks were not cleaned prior to the introduction of a Fuel Right program.

Tank No.	Volume (liters)	4 μ	ISO	6 μ	ISO	14 μ	ISO	Water (ppm)
ISO 4406 18/16/13**		1300-2500*	18	320-640	16	40-80*	13	200
1	10,000	73*	13	14*	11	1*	7	120
2	50,000	110*	14	10*	11	2*	8	86
3	75,000	42*	13	4*	9	1*	7	120
4	50,000	106*	14	11*	11	1*	7	88
5	75,000	88*	14	13*	11	3*	9	85
6	50,000	60*	13	8*	10	1*	7	90

* This number represents the actual number of particles per mL of fuel

** This specification is used as the allowable limit of particle contamination as per the Worldwide Fuel Charter

All testing was performed inside the fuel tank approximately 25mm (1 inch) from the tank bottom



Customers who have adopted Fuel Right's ultra clean fuel program have seen dramatic improvement in filter life, reduction in tank cleaning (up to 90% reduction) and have reduced overall operating costs related to tank storage management.

HOW LONG DOES THE PROCESS TAKE?

Fuel Right is designed to take a conservative approach to cleaning tanks however, dose rates higher than shock dose can be used to accelerate the process.

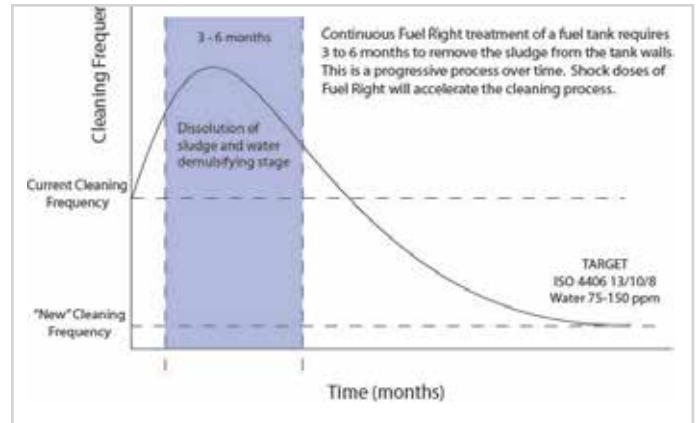
There are several stages in the cleaning process.

The first step to clearing up the fuel is to dissolve the suspended sloughing of sludge which will release water and particulate into the fuel.

The second phase includes the dispersion of the existing sludge usually residing at the bottom of the tank. Fuel Right slowly releases the contamination from the tank walls and replaces it with a hydrophobic corrosion barrier film.

The tank should be monitored for excessive water and insoluble particulates and this should be removed either through vacuuming the tank bottom or a fuel polishing process.

Once the contamination is completely removed and the corrosion barrier film is in place, continuous use of Fuel Right will maintain a clean tank and slowly improve the fuel cleanliness over time. Typically, the most dramatic improvement happens within the first few months of the program and then continues improve over time.



Some of our programs have achieved results better than ISO 4406 13/10/8 and maintained exceptionally clean fuel systems.

Customers who have adopted Fuel Right's ultra clean fuel program have seen dramatic improvement in filter life, reduction in tank cleaning (up to 90% reduction) and have reduced overall operating costs related to tank storage management.

PROTECTING YOUR COMPLETE FUEL DELIVERY SYSTEM

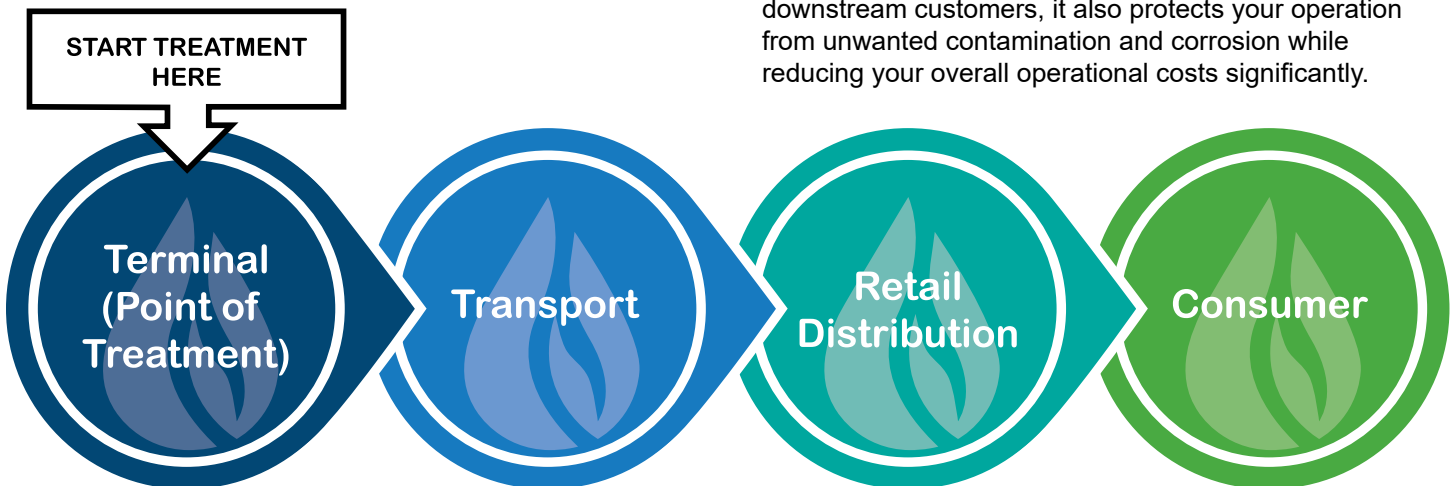
We are frequently asked where in a fuel system to start treatment.

Fuel Right can be used at the main tank supplying the final source of fuel to your operation, or it can be used further upstream thus offering the benefits throughout your fuel delivery system. The further upstream you

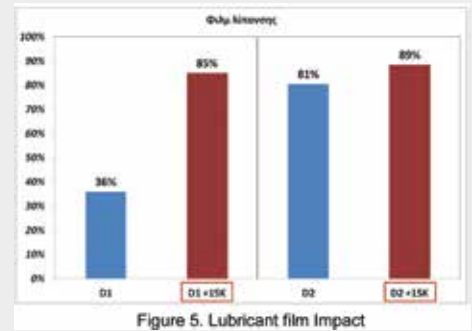
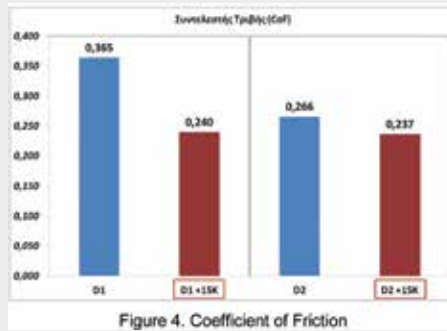
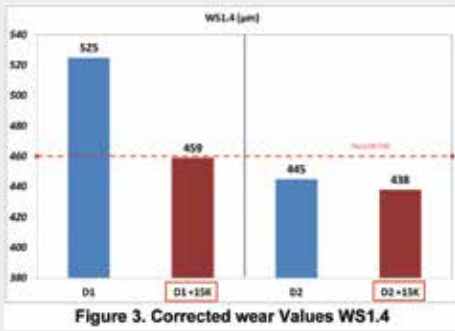
treat, the better the results.

As Fuel Right cleans the main terminal storage and protects it from sludge contamination and corrosion, the fuel delivered downstream will provide the same benefits throughout the fuel system.

Fuel Right not only delivers exceptional benefits to your downstream customers, it also protects your operation from unwanted contamination and corrosion while reducing your overall operational costs significantly.



FUEL LUBRICITY



Lubricity affects injector life. Improved lubricity helps with injector cooling and longer injector life. Fuel Right is more than a lubricity improver; Fuel Right reduces the co-efficient of friction (see figure 4) and provides a protective lubricating layer (see figure 5). The result is longer life of fuel system components.

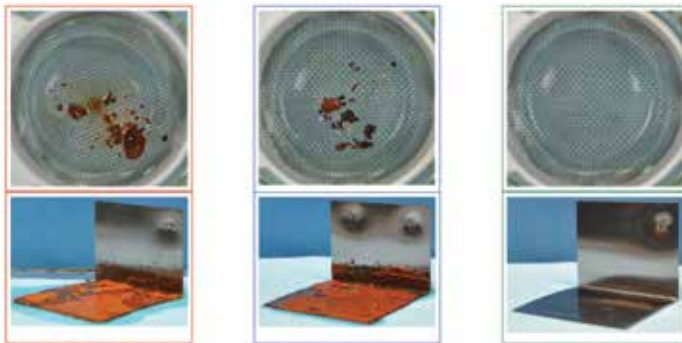
Note: Testing performed by the National Technical University of Athens (NTUA) accredited lab.

FUEL RIGHT VS BIOCIDES & CONVENTIONAL ADDITIVES

When we started developing Fuel Right technology, we needed a test to determine if our chemistries worked. We developed a test that allowed us to compare Fuel Right to competitive technologies to determine two key objectives: Does Fuel Right work? and How do we stack up against competitive technologies? We have performed this test on hundreds of competitive additives that make similar claims.

Jar Test Results – Series XXIV (18 Months ending 9/13)

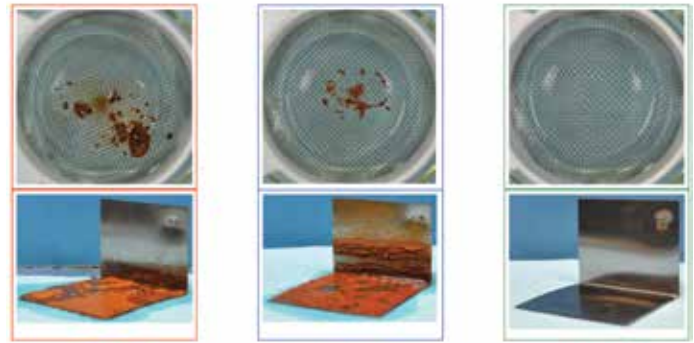
Biocide vs. Fuel Right 15K



SCORES:	Coupon	Strainer	Corrosion	TOTAL
Control	2	2	2	6
Biocide	2	4	2	8
Fuel Right	10	10	10	30

Jar Test Results – Series XXIV (18 Months ending 9/13)

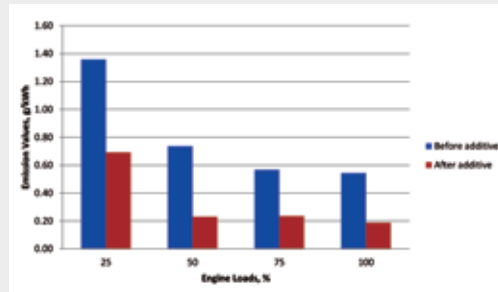
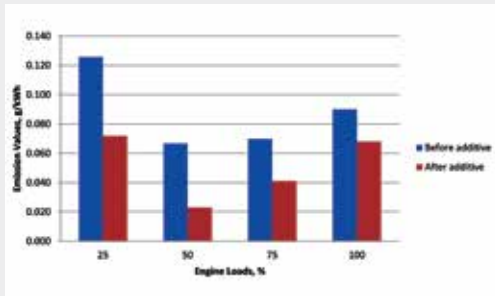
Conventional Additive vs Fuel Right 15K



SCORES:	Coupon	Strainer	Corrosion	TOTAL
Control	2	2	2	6
Competitor	2	5	2	9
Fuel Right	10	10	10	30

We have performed this test on hundreds of competitive additives and biocides that make similar claims. Let the results speak for themselves.

REDUCED EMISSIONS



More stringent emission regulations are challenging the marine sector. Fuel Right plays a significant role in reducing emissions. Improved combustion equates to reduced fuel consumption and reduced carbon build up in engine cylinders. A study carried out on a ferry with a four stroke medium speed diesel engine running on ULSD and tested in accordance with MARPOL Annex VI NOx technical code showed a reduction in NOx, SOx, CO, HC and PM.

Fuel Right reduced particulate emissions by 38%

FUEL RIGHT PRODUCTS

15K

Blended at a treatment ratio of 1:15,000, 15K is a blend of proprietary chemistries designed to dissolve sludge, clean fuel tanks, filters and strainers. It deposits a microscopic corrosion barrier film to help protect the fuel tank walls, lines and any other ferrous metal components immersed in fuel from corrosion. 15K also includes an anti-freeze ingredient to help eliminate fuel line freezing in colder climates. 15K is suitable for use in diesel fuel, home heating oils and unleaded fuel.

ProActive™

Blended at a treatment ratio of 1:10,000, ProActive™ is a blend of proprietary chemistries designed to eliminate sludge, clean fuel tanks, filters and strainers. It deposits a microscopic corrosion barrier film to help protect the fuel tank walls, lines and any other ferrous components immersed in fuel from corrosion. ProActive contains additional lubricity improver and is suitable for use in diesel fuel, marine gas oil and unleaded fuels.



30K

Blended at a treatment ratio of 1:30,000, 30K is a concentrated blend of Fuel Right proprietary chemistry designed to dissolve sludge, clean fuel tanks, filters and strainers. It deposits a microscopic corrosion barrier film to help protect the fuel tanks walls, fuel lines and any other ferrous components immersed in fuel from corrosion. 30K is a versatile product widely used in premium fuel programs as well as in heavy marine applications to treat diesel fuel, marine gas oil and intermediate fuel oils (IFO 180, IFO 380, VLSFO).

Winterizing Products

Fuel Right manufactures a variety of winterizing additives that include Fuel Right's proprietary chemistry.



It PAYS to FUEL RIGHT!

It PAYS to FUEL RIGHT!

Fuel Right is engineered to provide **CLEAN, CLEAR FUEL** in the tank ensuring **OPTIMAL FUEL QUALITY** free of sludge contamination, and reduced particulates and water. The fuel tank is **PROTECTED** by a microscopic barrier film even in the presence of contamination and water. Fuel Right removes contamination

throughout the fuel system resulting in **EXTENDED FILTER LIFE** and unrestricted fuel flow. Fuel Right's unique technology optimizes engine **PERFORMANCE** ensuring **CLEAN INJECTORS, REDUCED EXHAUST EMISSIONS** and **IMPROVED FUEL ECONOMY**.

DOWNLOAD THE APP



The Fuel Right Dose Calculator is designed to help users determine the proper mixture ratios for treating fuels with Fuel Right additive technology. This simple calculator allows you to select preferred units of measure making it easy for the end-user to determine the proper mixture quantities based on the volume of fuel being treated.



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