

MARINE  
CHEMICALS

# Fuel Oil Treatment Doctor



At sea or in port, we understand the many challenges you and your vessel face. That's why we've developed this easy to use guide to assist you in diagnosing possible fuel oil problems. With the WSS Fuel Oil Treatment Doctor, common causes and remedies for most fuel problems are just a flip away. Use this guide to find the correct Unitor Fuel Oil Treatment for each challenge.

## QUESTION

**Problem:** Do you have sediment formation in your fuel tanks?

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**Cause:** Incompatible fuel or high water content.



HEAVY  
FUEL OIL

# ANSWER

*Stabilise the fuel with **FuelPower Conditioner**.*

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*Demulsify the water in fuel with **FuelPower Demulsifier**.*

## QUESTION

**Problem:** Does your separator have a short time between cleaning cycles and does it remove large amounts of sludge?

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**Cause:** Incompatible fuel or high asphaltenes fuels.



HEAVY  
FUEL OIL

# ANSWER

*Stabilise, break up and disperse fuel with **FuelPower Conditioner**.*

## QUESTION

**Problem:** Do you have excessive filter cleaning where the residue on the filters is a black/greyish sludge material?

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**Cause:** Incompatible fuel and the brownish/greyish color indicates water contamination.



HEAVY  
FUEL OIL

# ANSWER

*Stabilise and disperse fuel with **FuelPower Conditioner**.*

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*Demulsify water with **FuelPower Demulsifier**.*

## QUESTION

**Problem:** Do you see fuel injector fouling?

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**Cause:** An unstable fuel can start coaking on the injectors causing fouling.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower Catalyst contains a fuel conditioning component as well as a catalyst to help stabilise the fuel and to improve combustion of the fuel.*

## QUESTION

**Problem:** Do you experience thermal stress or high wear on the cylinder liners?

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**Cause:** If combustion is irregular, it can cause flame impingement.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower Catalyst contains a fuel conditioning component as well as a catalyst to help stabilise the fuel and to improve combustion of the fuel.*

## QUESTION

**Problem:** Do you experience premature piston ring failure (e.g. loss of tension, seizure, breakage etc) or high cylinder liner wear?

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**Cause:** A poor combustion can lead to increase of deposit ingress to ring grooves.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower SlowSteaming* contains two powerful catalysts improving combustion and helps reduce deposits and the late burning of the oil film.

## QUESTION

**Problem:** Can you see wear of fuel oil pumps, injectors, pistons, piston rings and cylinder liners from catalytic (cat) fines?

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**Cause:** Catalytic fine particles in the fuel from refining.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower Conditioner* can help improve separation if asphaltenes are combined with cat fines.

## QUESTION

**Problem:** Do you experience corrosion of the high temperature areas in the engine and exhaust system?

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**Cause:** Vanadium and Sodium form corrosive deposits with low melting points.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower AshFree contains components that will help increase the melting point of the deposit.*

## QUESTION

**Problem:** Do you experience corrosion in the low temperature zones of the engine and exhaust system?

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**Cause:** Oxidised sulphur reacts with moisture to form corrosive acid.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower AshFree contains components that will react with sulfur to reduce risk of acid formation.*

## QUESTION

**Problem:** Do you see deposit formation on the exhaust valves, turbo charger and turbo charger nozzle?

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**Cause:** Ash components in the fuel are prone to build low melting point deposits.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower AshFree contains components that will reduce the deposit formation and increase the melting point of the deposit.*

## QUESTION

**Problem:** Are you slow steaming and see deterioration of power output over time?

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**Cause:** Soot build-up negatively impact the efficiency of the engine.



HEAVY  
FUEL OIL

# ANSWER

***FuelPower SlowSteaming** contains a combustion improver that will reduce the carbon build-up, keeping the engine cleaner and efficient for longer.*

## QUESTION

**Problem:** Are you slow steaming and see soot build-up in the exhaust gas economiser?

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**Cause:** Unburned carbon forms deposits reducing the heat transfer efficiency.



HEAVY  
FUEL OIL

# ANSWER

*FuelPower Soot Remover Liquid is injected into the flue gas. It will burn excess soot and dry out the remaining ash reducing deposits and keeping the exhaust gas economiser efficient for a longer time.*

## QUESTION

**Problem:** Do you see wear on your fuel injector and in-line pumps?

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**Cause:** Low sulphur or hydroprocessed fuel.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower Lubricity contains proven components that will help you overcome lubricity issues with your fuel.*

## QUESTION

**Problem:** Do you experience gum formation in the fuel system?

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**Cause:** Oxidation of the fuel can start a gum formation.



**DISTILLATE  
FUEL OIL**

# ANSWER

***DieselPower Enhancer** contains antioxidants that will effectively stop any oxidation of the fuel, keeping it stable and free of gum formation.*

## QUESTION

**Problem:** Do you see sediment formation in your fuel system?

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**Cause:** Aging reactions of the fuel tend to cause sedimentation.



**DISTILLATE  
FUEL OIL**

# ANSWER

***DieselPower Enhancer** will keep the sedimentation reactions under control ensuring no sediment is formed from fuel instability.*

## QUESTION

**Problem:** Can you see a slow colour change with your fuel?

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**Cause:** This can happen through deterioration via UV light, air or temperature.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower Enhancer* contains the components needed to keep the fuel from deteriorating and changing colour.

## QUESTION

**Problem:** Do you see problems with fuel injector cleanliness?

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**Cause:** Fuel decomposition causes formation of deposits on the fuel injectors.



**DISTILLATE  
FUEL OIL**

# ANSWER

***DieselPower Enhancer** contains components that prevent formation and a powerful detergent that cleans the fuel injector from existing deposits.*

## QUESTION

**Problem:** Have you experienced fuel filter plugging?

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**Cause:** Distillate fuel instability can cause an increase in the fuel filter plugging.



**DISTILLATE  
FUEL OIL**

# ANSWER

***DieselPower Enhancer** contains components that prevent formation and a powerful detergent that cleans the filter from existing deposits.*

## QUESTION

**Problem:** Do you see corrosion in fuel tanks or parts of your fuel system?

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**Cause:** Water can cause corrosion in fuel tanks, salt water can be especially severe.



**DISTILLATE  
FUEL OIL**

# ANSWER

***DieselPower Enhancer** contains a corrosion inhibitor that will help to protect the system from corrosion from water contamination.*

## QUESTION

**Problem:** Can you detect a foul smell from your fuel or fuel filters?

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**Cause:** Rest products from microbial contamination exhibit a foul smell.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower MAR 71 is a biocide that prevents and removes microbial contamination from your fuel.*

## QUESTION

**Problem:** Do you suspect water contamination of your fuel?

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**Cause:** Water is a precursor for microbial growth and as little as 0,0001% (100 ppm) of water is enough for microbes to grow.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower Mar71 can be used to prevent bacterial growth if water contamination is suspected.*

## QUESTION

**Problem:** Do you experience blocked filters with slimy, grey and foul smelling material?

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**Cause:** When microbes break down the fuel, the rest material is caught in filters.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower MAR 71 is a biocide that prevents and removes microbial contamination from your fuel.*

## QUESTION

**Problem:** Do you suspect biodiesel content in your distillate fuel?

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**Cause:** Biodiesel attracts moisture and increases the risk for microbial growth.



**DISTILLATE  
FUEL OIL**

# ANSWER

*DieselPower MAR 71 is a biocide that prevents and removes microbial contamination from your fuel.*

To explore our full range of marine chemicals, visit us at [wssproducts.wilhelmsen.com](http://wssproducts.wilhelmsen.com), or [www.wilhelmsen.com/shipsservice](http://www.wilhelmsen.com/shipsservice) to learn about our complete products and service solutions.



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