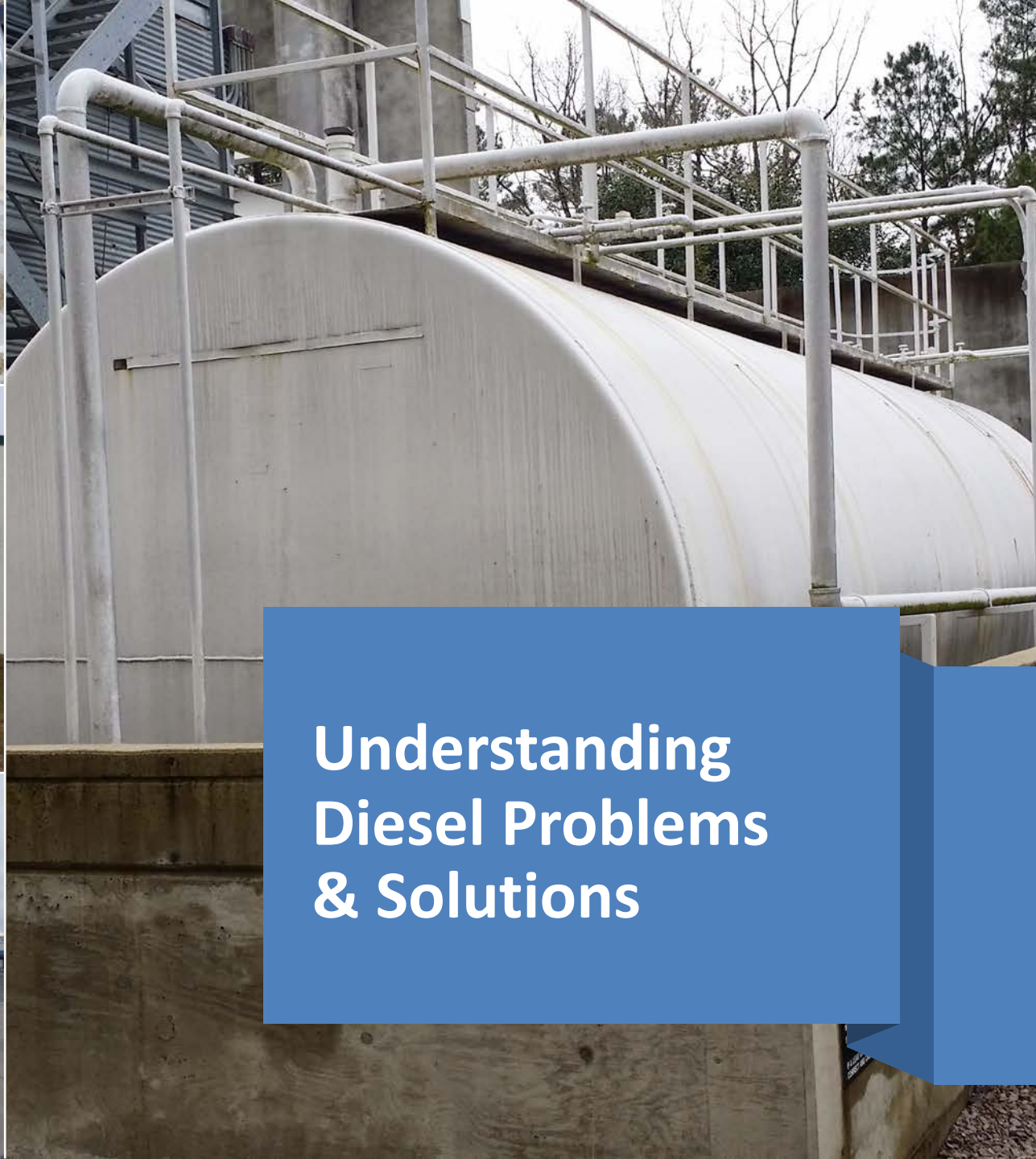
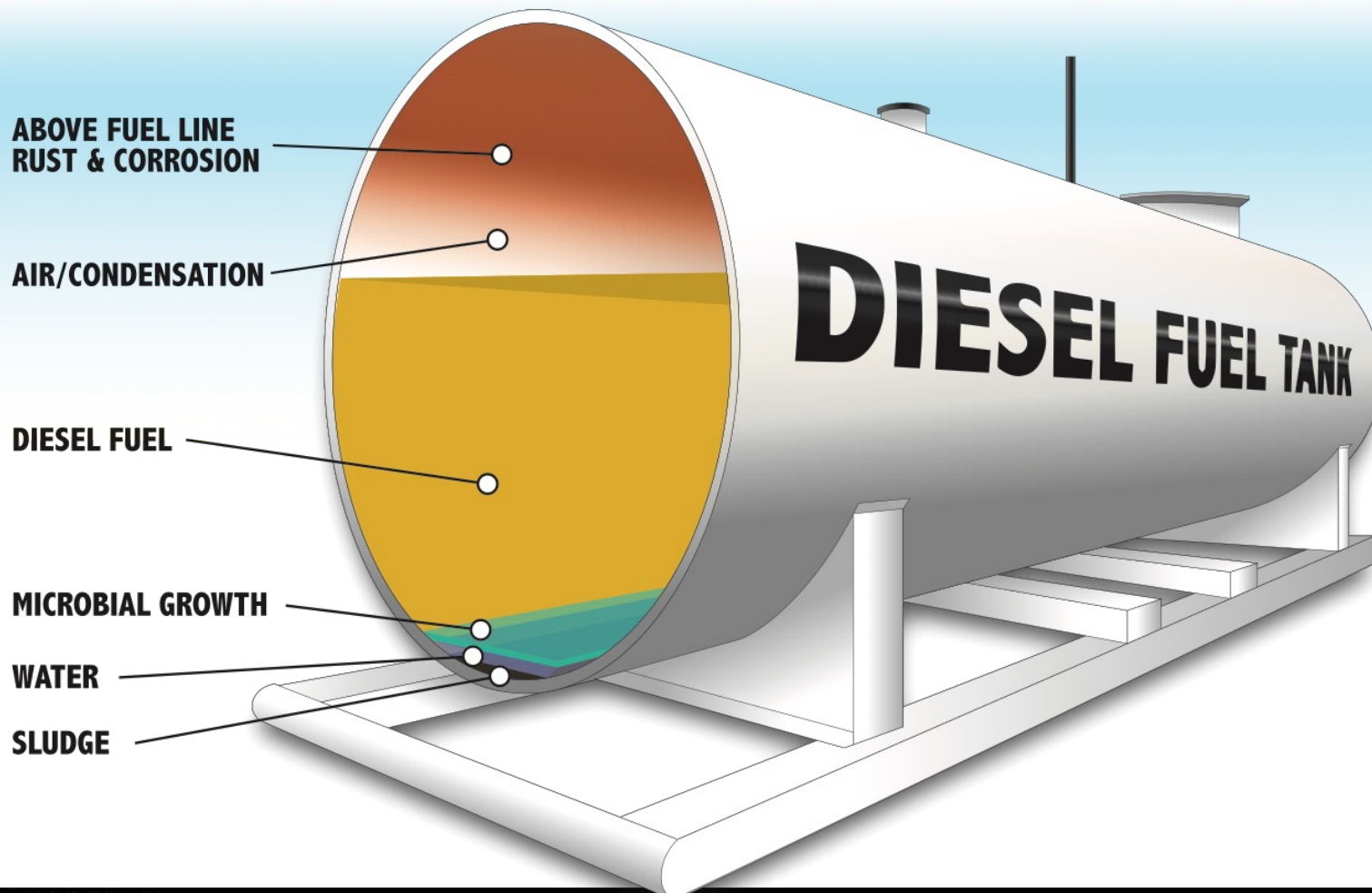




Understanding Diesel Problems & Solutions

Water Is In Every Tank!

ANY AMOUNT OF WATER IN YOUR TANK IS BAD!!



**WHERE DOES
WATER COME
FROM?**

- ◆ Condensation through fuel system vents
- ◆ External leaks in the tank
- ◆ Heating and cooling from temperature variations
- ◆ Inherent to ULSD

Douglas Haugh, President of Mansfield

Fuel Marketer News – Article



**AT 500 PPM EVERY TANKER LOAD MAY CONTAIN
UP TO 5-7 GALLONS OF WATER!**

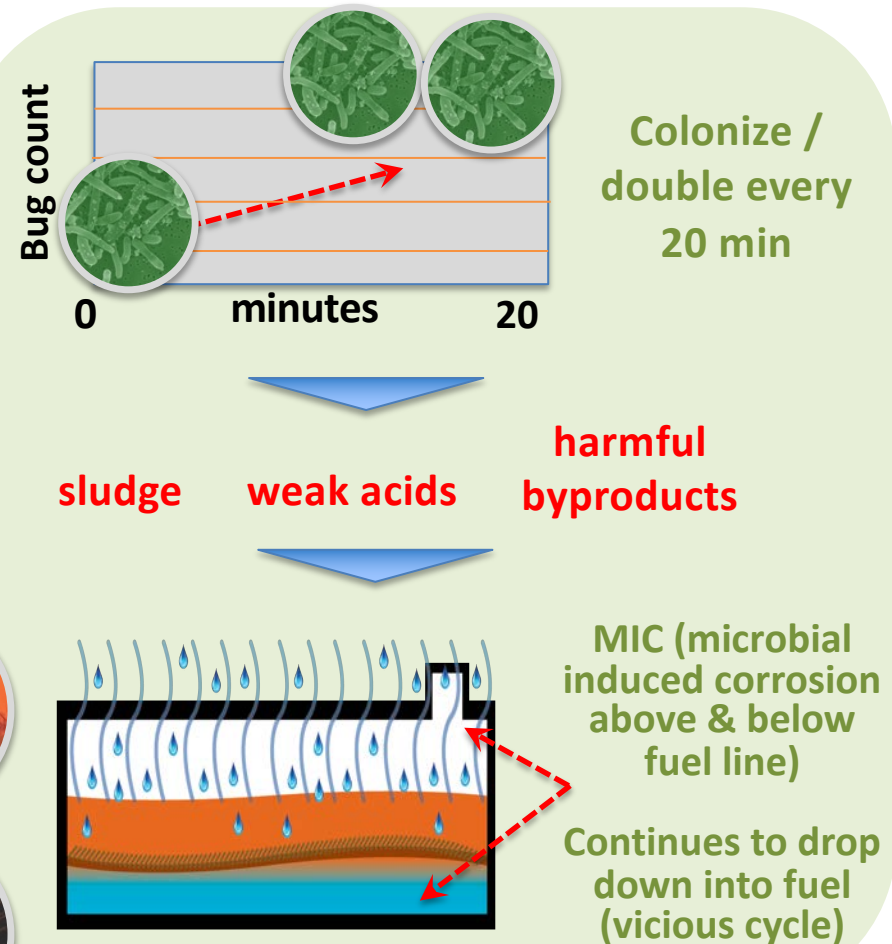
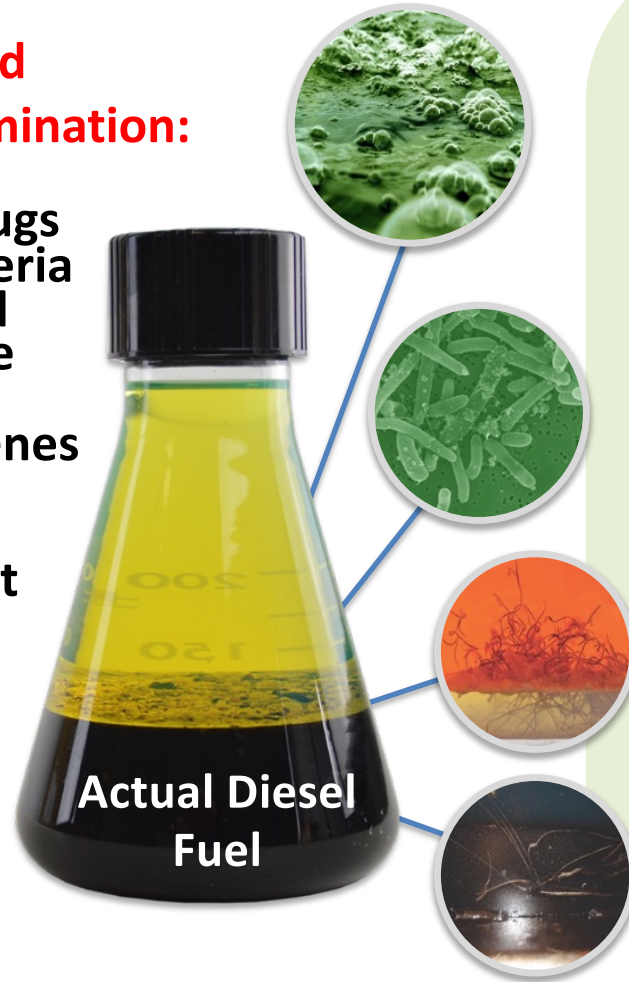


Diesel Fuel's Quality Problem, Fuel Marketer News, December 2016 (Douglas Haugh, President and Chief Strategy Officer of Mansfield Energy)

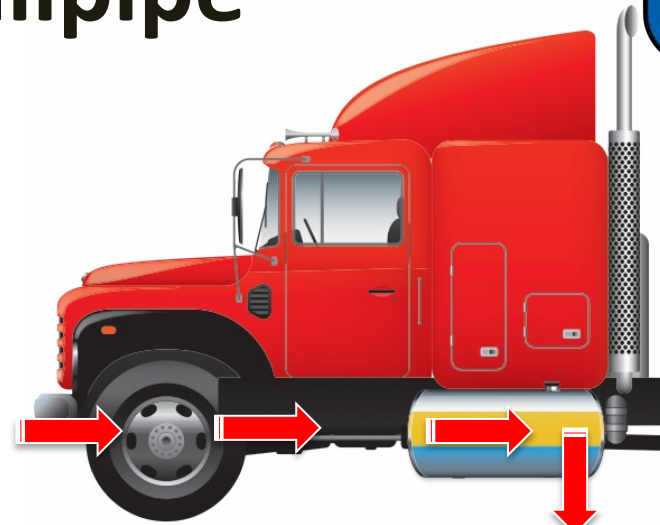
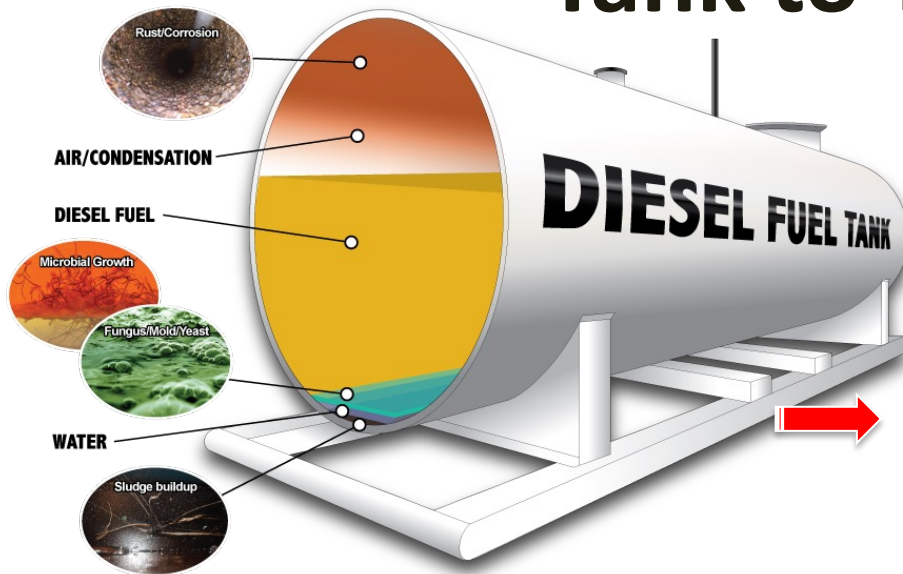
What's Happening To Your Fuel?

Water Induced Diesel Contamination:

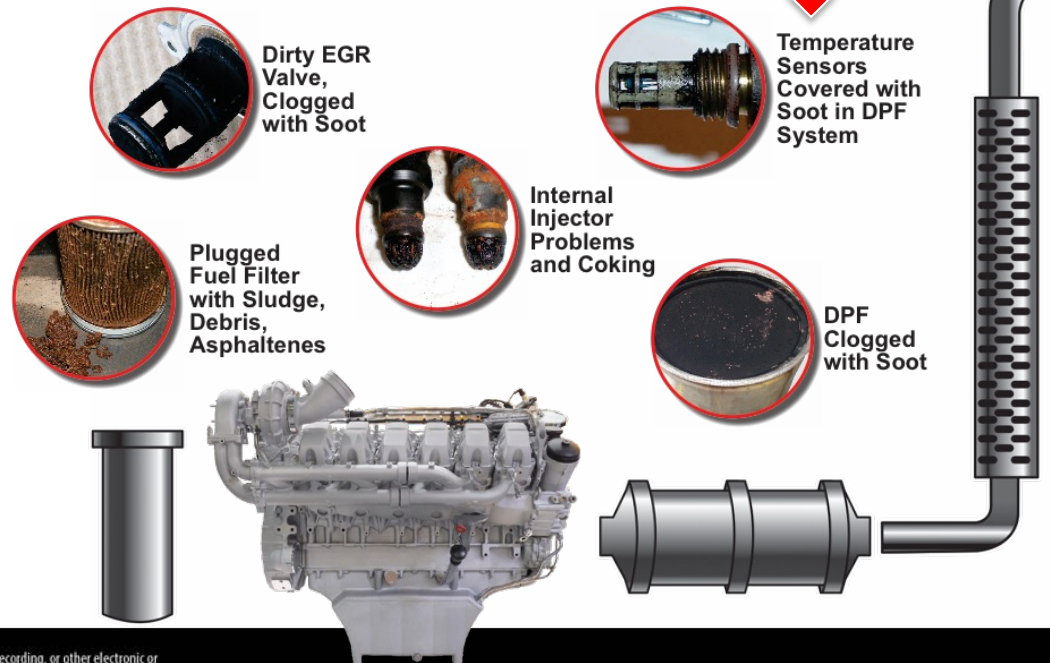
- Diesel Bugs
 - Bacteria
 - Mold
 - Algae
- Biofilms
- Asphaltenes
- Rust & Sediment
- Sludge
- Acids



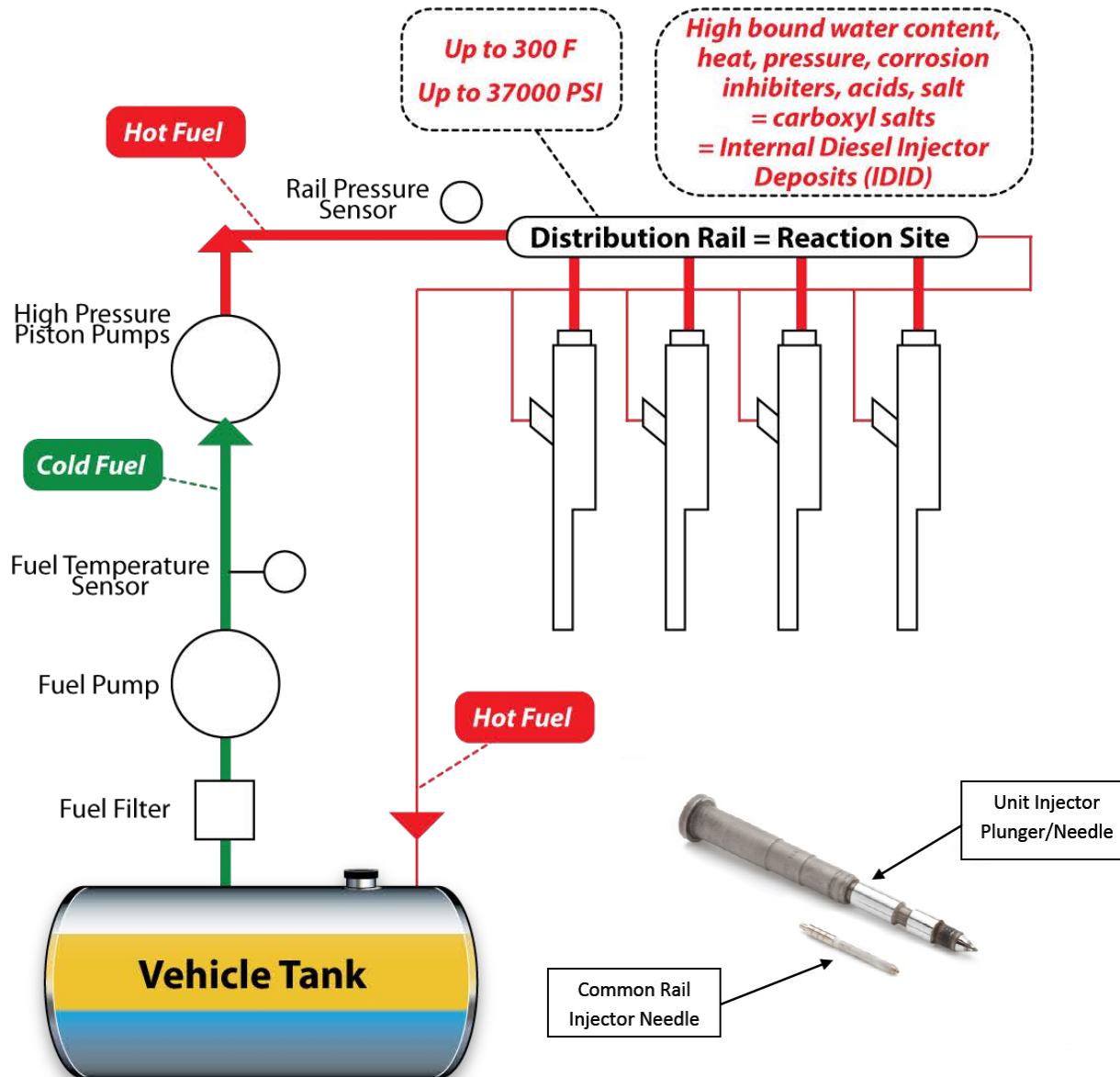
Tank to Tailpipe



- 💧 WATER is the root cause of the issues.
- 💧 CONTAMINATION starts in the feeder tank and continues downstream.
- 💧 NO AMOUNT of WATER is acceptable



How Does This Affect Your Fleet?



- Frequent diesel particulate filter (DPF) burns
- Clogged and slimy filters
- Dark, hazy fuel
- Sludge build up in tanks
- Loss of power and rpm
- Excess smoke
- Corroded, pitted injectors
- Turbo trouble
- Injector pump failure
- Asphaltenes

Internal Diesel Injector Deposits (IDID)



PROBLEM: WAX BUILDUP IN INJECTOR FROM SODIUM SOAPS OR CARBOXYL SALTS ON INJECTORS

- Reduces fuel economy and power
- Slows response
- Causes sticking
- Loss of control of injection event timing and/or the amount of fuel delivered
- Poor operability
- Increased emissions
- Failure to start
- Possible engine failure



Typical “waxy” and lacquer appearance

Contaminated Fuel = Expensive Repairs

ULSD = Year Round Maintenance



Fuel Filter on the left
clogged in only 10,000
miles

Clogged Diesel Particulate Filter



If not attended to the DPF will need to be
removed and cleaned **EXPENSIVE PROCESS!**

Clogged and Blocked Injectors



EGR purpose is to reduce nitrogen
oxide (NOx) emissions



“Dirty” exhaust prevents
EGR from operating
properly

EGR can be stuck in any
position, affecting
efficiency of fuel burn

What Can You Do?

- Check tank openings for evidence
- Swab your tank or acquire bottom samples
- Check filters
- Polish tank and fuel if needed
- Maintain your tanks
 - Keep them dry (microbial activity can not occur)
- Preserve your fuel



Diesel Solutions

B³C

TEST For Bad Diesel



Fuel Oxidation Water Contamination
Rust / Scale Sludge / Asphaltenes

FIX Bad Diesel



EMPTY WATER ABSORBER



FULL WATER ABSORBER



PREVENT Diesel Problems



TEST Quick Test for Bad Diesel Fuel



FUEL & TANK TEST CHART

- Step 1:** Attach swab to extendable probe.
Step 2: Submerge swab into fuel tank until touches lowest point at bottom of tank. Brush tank bottom several times with swab.
Step 3: Compare to diesel fuel & tank test charts.

DIESEL FUEL OXIDATION TEST CHART



FUEL TANK CONTAMINATION CHART



4-IN-1 FUEL CONTAMINATION TEST SWABS

BAD FUEL (FUEL OXIDATION)

WATER CONTAMINATION

RUST & SCALE

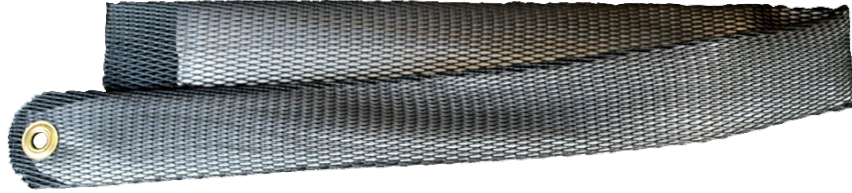
SLUDGE & ASPHALTENES

AVOID DAMAGE & REPAIRS

FIX Bad Diesel Fuel

B³C

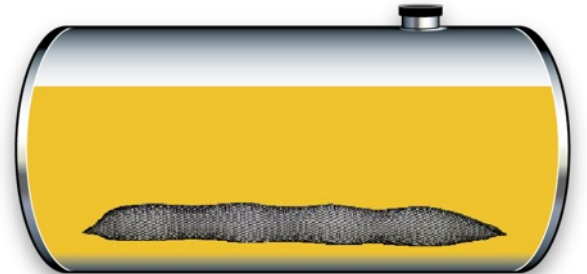
DIESEL FUEL TANK WATER ABSORBER



- PROTECTS DIESEL FUEL TANK BY CONTINUOUSLY REMOVING WATER TO PREVENT SLUDGE, BACTERIA & FUNGUS
- HIGH STRENGTH NEODYMIUM MAGNETS REMOVE RUST
- EASY INSTALL & REMOVE BY HIGH STRENGTH TETHER LINE



EMPTY WATER ABSORBER



FULL WATER ABSORBER



10X REUSABLE
CUSTOM SIZES

CONTINUOUS WATER REMOVAL! 365-24 / 7



Product

Features & Applications

1 INSTANT TANK SNAKE WATER ABSORBER

FAST WATER REMOVAL: UNDER 30 MINUTES

This is a low cost method to quickly remove water from the tank bottoms of mobile, or small diesel equipment

PATENTED & PATENT
PENDING TECHNOLOGY

REMOVES WATER IN: **30 MINUTES**
KEEP IN TANK: **UP TO 1 HOUR**

- FASTEST WATER REMOVAL
 - WATER, SALT WATER, DEF, ANTI-FREEZE
- EASY INSTALL / REMOVE BY TETHER
- DISPOSABLE
- MOBILE / WHEELED
- TANKS NEEDING IMMEDIATE WATER REMOVAL
- CONSTRUCTION EQUIPMENT
- GENERATORS
- ANY VEHICLE (WITHOUT ANTI-SIPHON)
- EMERGENCY WATER REMOVAL



2 DIESEL TANK SNAKE WATER ABSORBER

SLOW, CONTINUOUS WATER REMOVAL: 2+ DAYS

This is a low cost method to remove water from the tank bottom

PATENTED & PATENT
PENDING TECHNOLOGY

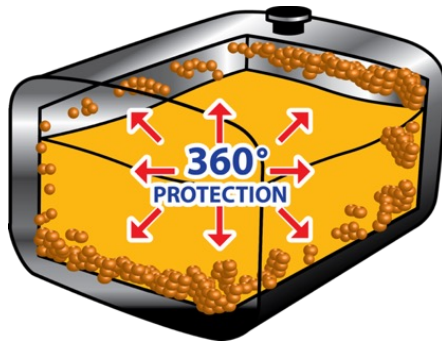
REMOVES WATER IN: **2+ DAYS**
KEEP IN TANK: **24/7/365**

- FIXES ISSUES BY REMOVING EXISTING WATER
 - WATER, SALT WATER FROM STORAGE TANKS
- SIZES FOR ALL TANKS
- EASY INSTALL / REMOVE BY TETHER
- NEODYMIUM MAGNETS REMOVE RUST
- REUSABLE
- STORAGE TANKS
- DAY TANKS
- TRANSFER TANKS



PREVENT Bad Diesel Fuel

B³C



NO ALCOHOL

ALL IN ONE DIESEL ADDITIVE

VIRTUALLY ELIMINATES RE-GEN BURNS

CLEANS INJECTORS & PUMPS

REPLACES LOST LUBRICATION

DISPERSES WATER / REMOVES SLUDGE

DIESEL FUEL STABILIZER

BIODIESEL PROTECTION

REDUCTION IN DEF FLUID CONSUMPTION

Third Party Testing



B³C

Oxidation Stability (Storage) (ASTM TEST D2274)

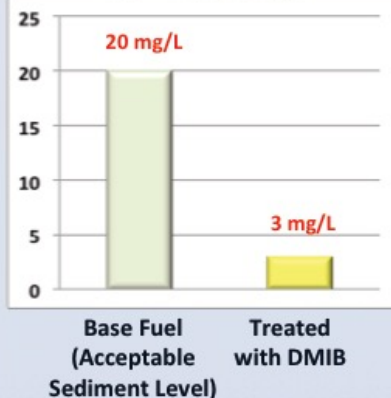
Expected life of diesel fuel is indicated by oxidation stability test ASTM D2274.

This test measures how much gum and sediment will be deposited after keeping the fuel at 95°C in the presence of oxygen for 16 hours (*corresponds to approx. 1 Year Storage at 25°C*).

A result of less than 20 mg/L of sediment and gum after the test is considered acceptable to normal diesel.

RESULT: Treating with DMIB resulted in 85% less gum and sediment after 1 year of storage.

Sediment and Gum Left After 1 Year Storage



Cetane Number (ASTM TEST D976)

Cetane Number (CN) is a measurement of the combustion quality of diesel fuel during compression ignition.

The higher the CN, the more easily fuel will combust in a compression setting (such as a diesel engine). The characteristic diesel "knock" occurs when the first portion of fuel that has been injected into the cylinder suddenly ignites after an initial delay. Minimizing this delay results in less unburned fuel in the cylinder at the beginning and less intense knock. Therefore higher-cetane fuel usually causes an engine to run more smoothly and quietly.

RESULT: Cetane improved nearly 2 points by adding DMIB.

Cetane Improvement



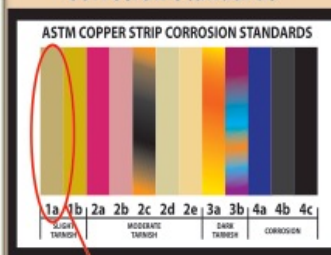
Corrosion Protection (ASTM TEST D130)

Evaluates the degree to which a lubricant will **corrode** copper-containing materials (i.e. bronze, brass)

- Rates oils by immersing a prepared copper strip in the lubricant at 2 temperatures in typical range of operation.
- Ratings range from "1a" with slight discoloration, but barely noticeable (*similar to a freshly polished strip*), to "4c" or severely corroded, blackened and pitted.

RESULT: Diesel Mechanic In A Bottle received the highest rating of "1a".

ASTM Copper Strip Corrosion Standards



Diesel Mechanic In A Bottle received a "1a" rating in the ASTM D130 test.

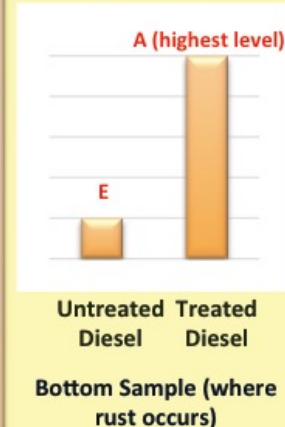
Corrosion Rating (NACE Standards) TEST for ferrous metals

Shows the rating from E (poor: 75 – 100% coated with rust) to A (excellent: 0% rust) of the ability to resist corrosion, per NACE standards.

NACE International is the world's leading professional organization for the corrosion control industry.

RESULT: DMIB has the highest rating for corrosion resistance, vastly improving fuel's corrosion resistance beyond those without DMIB.

Untreated Fuel vs Treated Fuel



Pour Point (ASTM TEST D6371)

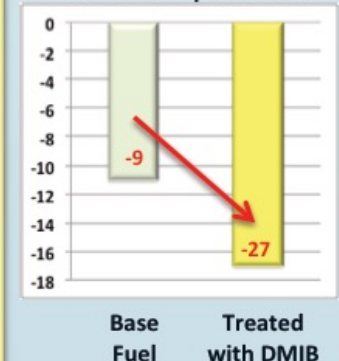
Diesel engine power loss during winter is often traced back to Paraffin crystal formation restricting flow through fuel filters.

Freezing temperatures can also cause emulsified water to form a fuel / ice slush.

Pour Point is the temperature at which the Paraffin in fuel crystallizes to the point where fuel gels and resists flow.

RESULT: Pour Point improved (reduced) by 18°F when DMIB was added to #2 Diesel.

Pour Point Improvement



DEF REDUCER is Engineered to Reduce Regen Cycles and Clean Fuel Systems

DEF REDUCER is a combustion fuel catalyst that allows the fuel to burn clean and efficiently with minimal soot and contamination. This drastically reduces the need for regenerative burn cycles that lead to downtime and other excessive costs.

- ✓ Reduces Regenerative Burn Cycles Up To 80%
- ✓ Greatly Reduces DEF Usage
- ✓ Extends Particulate Filter Life
- ✓ Reduces Injector Stiction
- ✓ Reduces Labor and Downtime Costs
- ✓ Reduces Costly DPF Replacement
- ✓ Effective in all diesel fuels including ULSD and biodiesel blends containing up to 20% biodiesel (B20)
- ✓ Ultra Low Sulfur Diesel (ULSD) Compliant
- ✓ Ultra-Concentrated Formula
- ✓ Lower Greenhouse Gases





USE DIESEL MECHANIC IN A BOTTLE DEF REDUCER FOR COMPLETE FUEL BURN WITH LESS PARTICULATES & FEWER REGEN BURN CYCLES

- Regen Burn Cycles Use Diesel Fuel and DEF
- Less Regens = Less Diesel Fuel and Less DEF

B³C

UNTREATED
DIESEL FUEL

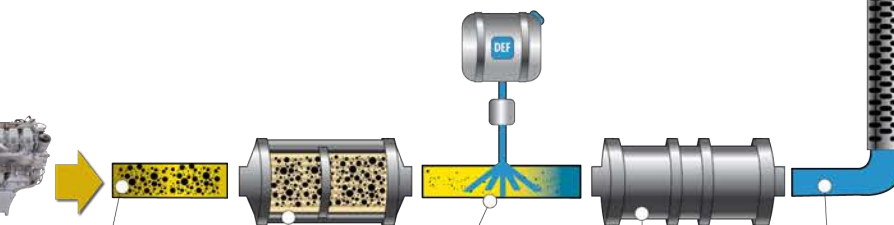
= MORE PARTICULATES = MORE REGENS = MORE

- DIESEL FUEL
- DIESEL EXHAUST FLUID (DEF)
- DOWNTIME
- COSTS
- EMISSIONS

WITHOUT
DIESEL MECHANIC IN A
BOTTLE DEF REDUCER



Untreated fuel leads to exhaust gases with more contaminants & particulates for incomplete fuel burn

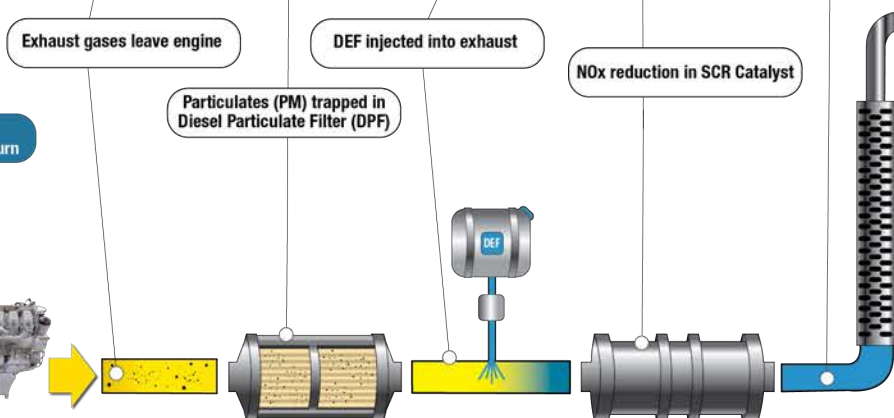


Reduced volume of emissions leave the tailpipe.

WITH
DIESEL MECHANIC IN A
BOTTLE DEF REDUCER



Treated fuel leads to exhaust gases with less contaminants & particulates for complete fuel burn



Exhaust gases leave engine

DEF injected into exhaust

Particulates (PM) trapped in Diesel Particulate Filter (DPF)

NOx reduction in SCR Catalyst



DIESEL FUEL TREATED WITH
DIESEL MECHANIC IN A BOTTLE
DEF REDUCER

= LESS PARTICULATES = LESS REGENS = LESS

- DIESEL FUEL
- DIESEL EXHAUST FLUID (DEF)
- DOWNTIME
- COSTS
- EMISSIONS

AVAILABLE SIZES: **24** OUNCES TREATS **360** GALLONS • **128** OUNCES (1 GALLON) TREATS **1920** GALLONS



www.B3Cfuel.com
843-347-0482