



# ChemKleen Environmental Solutions

## FUEL CLEANSER:

# WATER ERADICATOR

All fuel can become contaminated by Water,  
While being transferred from the refinery by Tanker Truck,  
Pipeline, Ship or Rail or from condensation when it's being stored.  
Water collects inside the storage system and then gravitates to the bottom.

This water can cause major problems, as it provides the ideal conditions for fungi and bacteria to grow. Water needs to be removed from storage tanks and storage systems as soon as possible, before micro-organisms like diesel bugs have a chance to spread and your fuel quality seriously deteriorates. Water left untreated can lead to interior rusting, pitting, cracks, or fissures on the bottom plate and shell which can result in leaks and breaches.

Traditionally, you may have had to look at solutions to physically drain off this water. But now, ChemKleen has a new and unique product, which is a more intelligent and effective way to solve water and sludge contamination problems.

**Introducing ChemKleen Diesel cleanser, a new technology that:**

- Permanently dissolves water in fuel, no draining required.
- Reduces harmful emissions by up to 70%, with greater fuel efficiency.
- Improves fuel performance, saving up to 10% on fuel consumption.
- Treats and prevents diesel bug and bacterial fungus.
- Reduces maintenance costs by preventing rusting and corrosion.

# DIESEL FUEL CLEANSER: WATER ERADICATOR

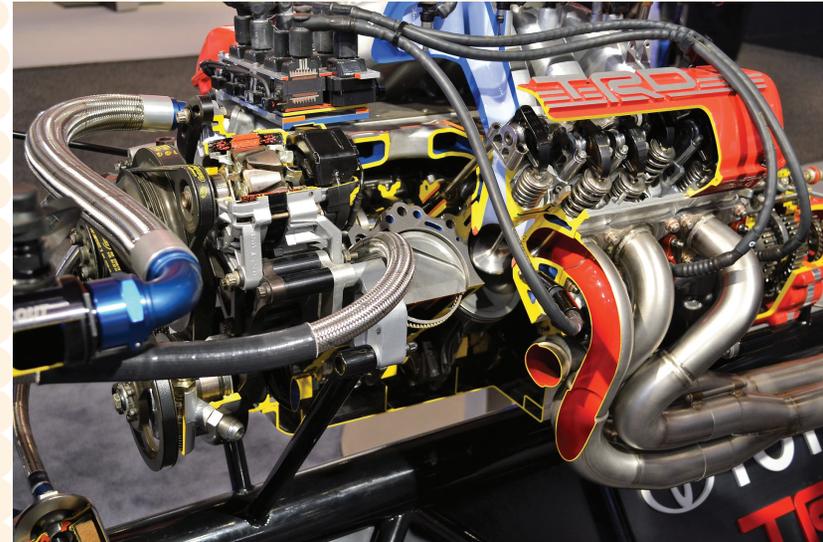


## PURPOSE

Diesel Fuel Cleanser – Water Eradicator is a unique fuel treatment that dissolves water in fuel permanently. Thus eradicating the water, while continuing to target any further water added to the treated fuel. Once water is eliminated, the life of the engines, equipment or fuel oil storage tanks is increased as well as minimize the maintenance cost.

## COMPOSITION

Diesel Fuel Cleanser – Water Eradicator is a proprietary biostatic surfactant formulated for diesel fuel that is impacted by water. The formulation is designed to effect a lasting break-down of water molecules in diesel fuel, machinery, and equipment. As opposed to the destructive properties of fully constituted water that are harmful and incompatible with diesel fuel. Diesel Fuel Cleanser - Water Eradicator reduces the freezing point of diesel fuel to -4 degrees fahrenheit. (-20 degrees celsius)





## WATER – NUMBER ONE CONTAMINANT OF FUEL OIL SYSTEM

Water is the most prevalent contaminant in fuel oil systems, being responsible for a broad array of problems. Water can enter the fuel or fuel system anywhere from the refining process, ship ballast water, precipitation (rain and snow), as condensation in storage tanks and equipment, or from structural deficiencies in the fuel system (i.e. cracks, holes, dents, leaking fill caps, tank venting). Thus, through the diesel fuel supply chain there are a multitude of means in which an ever increasingly greater amount of water can develop within the diesel fuel system prior to combustion.

## WATER'S NEGATIVE IMPACT ON DIESEL FUEL & FUEL SYSTEM

Water in fuel and the fuel engine/storage system can lead to corrosion and rust, increased metal wear, ice during cold weather, plugged filters and screens, increased degradation of fuel, premature deterioration and failure of connectors, seals and pistons, loss of lubricating properties (interfering with oil film production), partial hydrolysis of biodiesel (diesel blends with biofuel) and microbiological growth. Water also is a solvent carrier for inorganic salts, which can contain dissolved acids or other contaminants that can harm the engine. Free water in storage, or vehicle tanks can accumulate salts and polar compounds over time and severely impact fuel injection and engine operation.





## FUEL SYSTEM CORROSION

The continued presence of water in diesel fuel and the operative fuel systems and storage tanks, combined with microbial acids and biosurfactants, precipitates increasingly aggressive corrosive activity in the fuel distribution systems. With carbon steel being predominant in the system's storage and delivery of diesel fuel, iron oxides and iron oxyhydroxides (types of iron rust) form on metal surfaces upon contact with water and/or water containing dissolved oxygen. The shift from Low Sulfur Fuel to Ultra Low Sulfur has increased fuel systems' susceptibility to corrosive attacks, as has the increased use of biodiesel blends (given their propensity to hydrate (or add water molecules to) the fatty acid methyl ester (FAME) molecules in biodiesel) with their heightened affinity for water, higher susceptibility to microbial activity, and increased solvency effect on pre-existing deposits. By using ChemKleens Diesel Cleanser Water Eradicator you can increase the life of Fuel Storage/Transport tanks as well as potentially increase the API inspection periods.

## WATER BREEDS MICROBIAL ORGANISMS THAT ATTACK ALL FUEL KINDS

Water is a pervasive breeder of microorganisms (bacteria and fungi), with microbes being the second leading source of contamination in fuel systems. All microbes require the presence of water to survive and replicate, with such microbial organisms not requiring a large amount of water to breed. The more abundant organic acids, although less aggressive than inorganic acids, react with inorganic anions such as chloride, sulfate, and nitrate to produce strong inorganic acids (hydrochloric, sulfuric and nitric, respectively). These strong inorganic acids can cause corrosion and degrade fuel quality. Meanwhile biosurfactants (detergent-like microbes that gestate in the water in the bowels of a fuel tank) generate an inverted emulsion of water in the fuel, distributing water into the fueling phase and increasing the microbial attack on the diesel fuel.



## SCOPE OF ASSOCIATIVE BENEFITS

In addition to eliminating water's presence from diesel fuel, Diesel Cleanser – Water Eradicator has a range of immediate and long-term associative benefits including:

- Reducing fuel consumption
- Cutting harmful emissions
- Disperses 'Diesel Bug' (microbial contamination)
- Improving engine performance
- Flushing of filters and injectors
- Eliminating moisture
- Assisting in sludge break-down/removal.

## ENVIRONMENTAL IMPACT

Proper application of Fuel Cleanser – Water Eradicator represents an Eco-friendly and pro-green approach to utilizing diesel or fuel, given that fuel usage is not being replaced by alternative energy sources any time soon. As such, the cleaner, more efficient burn realized through the application of Diesel Cleanser – Water Eradicator represents a veritable Eco-friendly and pro-green solution in a world still reliant upon internal combustion engines, compression ignition engines and power generators. Unfortunately, where any of our products are improperly handled, by way of spillage, leaking or otherwise, there is the potential that should our products come into contact with other liquids, soils or other materials, through damage, accident or otherwise, that could have an adverse effect on the environment.



# DIESEL FUEL CLEANSER: WATER ERADICATOR

## PRODUCT APPLICATION



Diesel Fuel Cleanser – Water Eradicator is specifically formulated for use in engines, fuel storage tanks that utilize or store diesel fuel. With standard product application ratios for functional engines of 1 litre of Fuel Cleanser for every 1,000 litres of diesel or fuel being added to the vehicle or operational unit and a ratio of 1 litre of Diesel Cleanser for every 1,000 litres of diesel fuel for presently stored in storage tanks, refineries, and project facilities. Diesel Fuel Cleanser - Water Eradicator should be added to the fuel tank prior to the addition of the fuel to ensure optimal mixing. The temperature of the fuel should be above 0 °F (-17.78 °C).

### Specifications

Specification	Diesel Cleanser – Water Eradicator
Appearance	Clear
Specific Gravity @ 60°F (15.5°C)	0.945
Flash Point	Greater than 130°F (54.4°C)
Pour Point	-10°F (-23.3°C)
Sulfur (ppm) at Recommended Treatment	Less than 1 ppm

Specifications subject to change without notice.

### Ordering Information: Diesel Cleanser – Water Eradicator

Product Number	Size	Packaging Quantity
DC-WE0001	1 US Pint (0.47 L)	24 Unit Cases
DC-WE0002	1 US Gallon (3.79 L)	6 Unit Cases
DC-WE0003	5 US Gallons (18.93 L)	5 US Gallon Bucket
DC-WE0004	55 US Gallons (208.2 L)	55 US Gallon Drum
DC-WE0005	250 US Gallons	250 US Gallon Tote

### Water Eradicator Additive Line

Water Eradicator Products	Availability
Diesel Cleanser – WE	USA & Canada (current); Caribbean & Central America (2019)
Gas Cleanser – WE	USA & Canada (current); Caribbean & Central America (2019)
Crude Cleanser – WE	2019
Biofuel Cleanser – WE	2019
Aviation-Jet Fuel Cleanser - WE	2019/20

Product Code	Size	Application
DC-WE0001	1 US Pint (0.47 L)	125 US Gallons (473 L)
DC-WE0002	1 US Gallon (3.79 L)	1,000 US Gallons (3,785 L)
DC-WE0003	5 US Gallons (18.93 L)	5,000 US Gallons (18,927 L)
DC-WE0004	55 US Gallons (208.2 L)	55,000 US Gallons (208,198 L)
DC-WE0005	250 US Gallons (946 L)	250,000 US Gallons (946,353 L)

Application amounts subject to change and conditional adjustments.

# DIESEL FUEL CLEANSER: **WATER ERADICATOR**

## **FUEL SYSTEM MAINTENANCE**

Maintaining your fuel system should not be limited to the regimented application of Diesel Fuel Cleanser – Water Eradicator, as it should form a part of your overall maintenance program, including regular inspections, servicing and replacement to retain quality performance and structural integrity. Individualized work specific to the fuel system by a qualified mechanic or engineer, which ChemKleen can provide, is essential to the complete maintenance of the specific equipment and optimizing fuel efficiency.

## **ABOUT CHEMKLEEN: CHEMICAL ADDITIVES DIVISION**

With over 20 years of operational experience in industrial tank cleaning and maintenance, utilizing an array of chemical additives and treatments to facilitate our on-site commercial work, we undertook to identify some of the most innovative chemical fuel additives from Europe and Asia that were not readily distributed in Canada and the United States of America. Given their superior operational results, from heightened fuel efficiency to the retention of greater structural integrity, combined with the associated cost-savings, we have sought to take our real world experience to a larger customer base that previously lacked access to these unique chemical fuel additives. As such, with the exclusive license to produce and distribute these particular additives in Canada and the United States of America, we are bringing new fuel efficiencies to all Americans and Canadians.



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## DISCLAIMER

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CRC Report No. 667: Diesel and Fuel Storage and Handling Guide (CRC Project No. DP-06-13), Cleanliness Panel of the Diesel Performance Group of the Performance Committee of the Coordinating Research Council Inc., September 2014. 2. Fuel Contamination on the Large Transport Airplanes, Behbahani-Pour MJ and Radice G, Journal of Aeronautic & Aerospace Engineering 6: 200, 2017. 3. Water Contamination in Fuel: Cause and Effect, Dr. Saru Dawar, American Filtrations and Separations Society, 2016. 4. The Myth of Condensation in Fuel Tanks, David Pascoe, February 21, 2004. 5. Problems with Water in Diesel Fuel Engines, Donaldson Company Inc., 2018. 6. Four Lethal Diesel Engine Oil Contaminants, Jim Fitch, Noria Corporation, Machinery Lubrication, May 2007. 7. Toyota Predicts End of Internal Combustion Engine By 2050, David Kiley, Forbes, November 14, 2017. 8. From Refinery, to Delivery Trucks, to your Storage Tank, Chances for Diesel Fuel Contamination are Ever Present, Equipment World Staff, September 14, 2015.

All statements, technical information and recommendations contained herein are based on tests ChemKleen Environmental Solution Inc. ("ChemKleen"), and its development and testing partner Coval Aquasolve Limited, believe to be reliable, but the accuracy or completeness thereof is not guaranteed. ChemKleen warrants Diesel Cleanser - Water Eradicator will be free from defects when shipped to customer. ChemKleen's obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify ChemKleen of the claimed defect within six months after shipment of product to customer. All freight charges for replacement product shall be paid by customer. ChemKleen shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products. **BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND USER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.** No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of ChemKleen. **THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO CASE SHALL CHEMKLEEN BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**