



# Diesel Fuel Storage for Emergency Preparedness

Given the uncertain times in which we live, consumers, farmers, emergency responders and commercial businesses are evaluating ways in which they can prepare for the unexpected. Access to power is key to any business continuity or survival plan, and fossil fuels such as diesel are often key for generators, transportation and equipment.

## Fuel Storage Life Expectancy

The storage life of any fuel is dependent on its storage conditions and keeping fuel cool and dry is essential to stability. Under ideal conditions, diesel fuel can only be stored between 6-12 months. Storage beyond 12 months requires treatment with fuel stabilizers and biocides to ensure the fuel is ready to use when you need it most. There are three common problems with long-term storage of diesel fuel that can be overcome with proper planning and action.

### Storage Problem 1: Water Contamination

Storing diesel fuel more than 6 months inevitably leads to water accumulation in storage tanks. It's unavoidable because of the changes in temperature between day and night and resulting condensation, along with temperature changes that occur with seasonality. Controlling the buildup of water in diesel fuel is crucial for minimizing water-related oxidative degradation of the stored fuel over time, and possible injector blowouts. It's also critical to control because the presence of water contributes to microbial growth in stored fuels.

Oxidative degeneration means that water contributes chemically to the chain of chemical reactions that form in diesel fuel and cause its quality to be destroyed over time. Good diesel fuel can gradually turn brown and see its quality degraded by the formation of "sludge" and deposits that form on the bottom of storage tanks (because sludge contains the heavier parts of diesel fuel that break out of the diesel blend and sink due to their weight).

### Storage Problem 2: Microbial Contamination

Given the inevitability of water (even small amounts) forming inside diesel fuel storage tanks, this gives way to a second problem: microbial growth and contamination.

Microbes grow wherever there is water available to sustain their growth. The first signs of microbial contamination in your diesel fuel can often be poor fuel performance and slimy clogged filters. These microbial colonies will ultimately destroy the fuel quality and cause expensive corrosion inside storage tanks due to the acids produced by their biological processes. One of the approaches to treating diesel fuel stores is the use of biocides, given the removal of sulfur from ultra-low sulfur diesel fuels (ULSD). You can't count on your diesel fuel to perform in an emergency situation if it has been compromised by water, or contaminated by microbes.

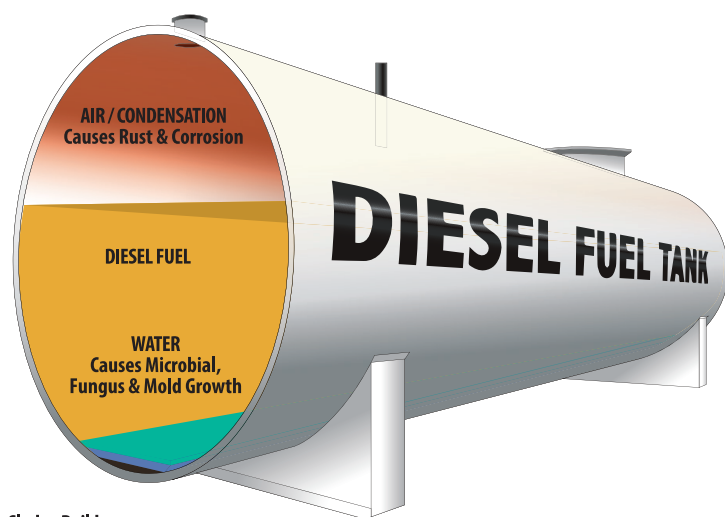




## Storage Problem 3: Rust and Corrosion in the Tank

In addition to the formation of natural condensation, many diesel fuel storage tanks (especially above-ground tanks) deteriorate over time and allow rain water to enter top openings resulting in the formation of rust and corrosion on the inside of the tank. Another reality of storing fuels is oxidation as a result of the fuel being exposed to oxygen and triggering the fuels' reactive components.

One approach to treating this is to use a stability treatment to target oxidations and acid-based reactions by interrupting to prevent them from further reacting with other fuel agents. Antioxidants can also be effective at interrupting the chemical chain reactions, however, this doesn't extract small rust or metal particles that have fallen to the bottom of the fuel tank.



Sludge Buildup

## What You Can Do About it

While it might sound as though you cannot develop an effective long-term diesel fuel storage plan as part of your emergency preparedness strategy, there's actually a new solution on the market that is showing a lot of promise and it comes from an unlikely source. For 45 years, VP Racing Fuels has been a world leader in specialty fuel formulation science as they've powered motorsports on land, sea and air – including diesel powered racing. VP has developed a system called Tank Guardian™ that is comprised of a single additive and a water absorption device that can protect your stored diesel fuel. Diesel Armor™ is a liquid additive that is poured into the diesel fuel to protect exposed portions of the tank from rust and corrosion. A single 32 ounce can will treat up to 8,000 gallons of fuel for months. VP's Tank Snake™ is a long, slender foam-like insert that looks like a swimming pool “noodle” and is designed to continually remove water and rust particles in storage tanks and even diesel truck fuel tanks. You simply replace the Tank Snake™ with a new one to continue to protect the diesel fuel. VP makes it easy to buy these two products as needed, or eliminate the purchase hassle via a subscription delivery program.

For information on the Tank Guardian™ system and other innovative products from VP Racing Fuels, visit their website: [www.vpracingfuels.com](http://www.vpracingfuels.com)



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## About VP Racing Fuels

VP Racing Fuels is best known as the World Leader in Fuel Technology®, fueling champions in virtually every form of motorsport on land, sea, and air since 1975. The company operates internationally with businesses including race fuels and lubricants, consumer small engine fuels and automotive additives, and licensed retail fuel stations. VP is the Official Racing Fuel of more than 60 sponsored series and sanctioning bodies. VP also provides consumer small engine fuels, lubricants, automotive additives, car appearance products, and accessories through national home improvement, automotive parts, and online retailers. The company's branding program allows independent operators of convenience store and gas stations, car wash, quick lube, and marinas to re-image as VP Racing Fuels and resell the company's ethanol-free 2-cycle and 4-cycle small engine fuels, Madditive® performance additives, Hi-Performance lubricants and appearance products.