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The Most Serious Issues Businesses Face From Fuel Water Problems (And How You Can Help)

Anyone who stores fuels knows that water buildup is a fact of life. Sometimes the connection between water and the costly problems it causes aren't apparent to your customers. They're losing millions of dollars across the nation to these problems, and they very likely could end up blaming you for the problems ailing them. Many times, fuel users don't know what's causing a given problem, so their first inclination is to look to their supplier as the cause or distributor of the problem, even if said supplier really has nothing to do with it.

This is where your position as the expert plays to your greatest advantage. As a fuels professional, knowing the causes and the solutions of the most serious fuel problems plaguing the businesses who are your customers puts you in the position of becoming their problem-solving expert. And this is great for your current and future business.

How water gets into fuel

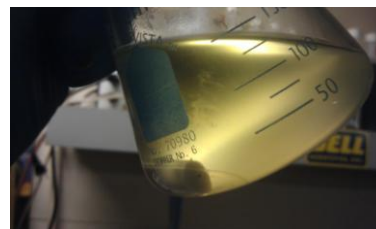
Water in fuel storage is a universal problem, so there must be universal methodologies to explain how and why it collects. For above-ground tanks and tanks vented to the outside, simple condensation is the easiest explanation. Relatively small changes in outside temperature (i.e. less than 10 degrees) are enough to allow moisture from the outside to condense on the inside of the tank. And because this is a universal phenomenon, it is able to happen at any point in the fuel distribution system leading up to yourself and/or the customer. If the handling professionals in the supply chain don't take steps to prevent the water from being passed on, it may end up at the customer level. But you know that good fuel handling professionals like yourself don't tend to pass this along. Which means water buildup in storage is mostly the customer's fault.

The serious problems fuel water causes

Water in fuel is the primary cause or a primary contributor to a handful of problems, all serious enough to cause your clients real pain in their wallet.

Causes phase separation in ethanol blends

Water buildup in ethanol fuel is an immediate problem if they're storing the fuel for any length of time. Depending on the ratio of the ethanol to the gasoline, as little as 0.5% volume of water will cause the ethanol to separate from the gasoline and destroy the quality of the blend (which includes a decrease in the octane rating of the fuel). Not to mention possible serious engine damage if the engine draws up any of the separated ethanol instead of mixed fuel.



Breeds microbes



This is the big problem and it can happen no matter what the fuel being stored - #2 diesel, biodiesel blends, even ethanol. Microbes need a water phase to establish themselves in a storage tank. Once there, they multiply very quickly and give off telltale signs of filter plugging and poor vehicle performance. Moreover, whatever the infected fuel is being distributed into now runs the risk of having its own infestation develop, especially if there is any water present in the new tank.

Microbe problems are likely the biggest issue your customers face, even if they don't know it. They can't typically look down into a fuel tank to see if there are any microbial mats of growth floating on top. And microbial test kits aren't the first thing on their mind to have on hand. So they initially have to pay attention to outside signs that a problem might be or has developed.

Your customers might also underestimate the severity of a microbial growth problem in their fuel. They could reason that plugged filters are a necessary evil and not worth getting bent out of shape over. But that view is short-sighted, because plugged filters would be the least of their worries. Once microbial growth is established, it's impossible to get rid of, short of using a fuel biocide. And if they leave the problem, they're soon going to find themselves dealing with.....

Causes expensive tank corrosion

Tank and system corrosion are extremely expensive to fix. A 1995 study found that fuel storage tank corrosion cost business \$70 billion a year, and that was almost twenty years ago. At the time, that was just under 5% of the nation's gross domestic product. How much do you think it's costing your customers?

Microbes and water both are primary contributors to tank corrosion. Water's contribution is obvious. But microbes produce acidic compounds while growing and thriving in the storage tank, and these acidic compounds systematically eat away and damage the storage tank and distribution components.

Corrosion is an effect that happens slowly but surely over time. But these acidic byproducts also cause a more immediate (and immediately expensive) problem.....

Contributes to fuel instability

The acidic byproducts of microbial growth attack the balanced composition of all types of fuel. Over time, the acidified fuel breaks apart, giving the characteristic appearance of darkening and stratifying which signals that the fuel is degrading and becoming unstable. Your customers notice this because the burning of unstable fuel in their vehicles and machinery causes engines to run poorly, their fuel mileage to drop significantly, and injector deposits to form. These effects are ones that your clients are very likely to notice, and just as likely to shift blame for.



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Recommendations for Your Customers

It's important that you can help your customers navigate any variations of these water-caused fuel problems. The first step is being able to help them recognize the cause of the problem. The second step is being an advisor to give them solutions that will work.

Recognizing Water and Microbe Problems

Determining if there is enough water in a storage tank to expect problems to develop from is a good first step. Testing for the presence of water is a pretty simple procedure, involving dipping the tank with a stick lined with water-finding paste (like Kolor Kut). The change in color along the length of the stick gives an estimation of the depth of the water phase. If the water phase exceeds half an inch, the potential for ensuing problems goes up. The exceptions to this are biodiesel greater than 20% and ethanol fuels, as they both have a greater ability to absorb standing water and hide a separate water phase. Of course, if the ethanol has undergone phase separation, then the bottom layer in the tank is going to ethanol + water, not just water alone.

If the customer is experiencing any of the symptoms listed above for microbial growth (more plugged filters, poor engine performance), the next step would be to confirm microbial presence. The least expensive way is through use of test strips. A fuel sample is taken from the bottom of the tank (by a sampling device) where the water-fuel interface is (the sample should be from here because that's where the bulk of the microbial growth originates from). A test strip can be incubated for three days after dipping the fuel, and it gives a pretty clear indication of whether microbial colonies are present or not.

Being The Expert To Fix The Problem

Your clients will most certainly appreciate your professional input guiding them to an accurate determination of what's causing their problem. But you need to complete the task by being able to offer them the right solutions. Solutions are what will solve your client's pain, not just causes.

Some of these problems can be fixed retroactively and some of them are only able to be prevented. Microbial growth should be killed with a biocide addition to the fuel. Water buildup should be controlled with the addition of concentrated water-absorbing treatments that will help prevent phenomena like phase separation. It's important to note that phase separation of ethanol and general fuel instability itself do not lend themselves to being reversed after the fact, only prevented. There are no additions to the fuel that will put back together separated diesel or ethanol. So the use of good preventive treatments are doubly essential.

For more information on any of these, Bell Performance is always at your service. Call 407-831-5021 or get more great information on these and other fuel topics at www.WeFixFuel.com.