Treating & Preventing Stored Fuel Microbe Problems For Hospitals & Health Care Facilities

TECHNICAL BULLETIN

THE SERIOUSNESS OF THE PROBLEM FOR HOSPITALS & HEALTH CARE

Fuel microbes have been around for about as long as fuel's been in use. Over the years, the field-level people who work with fuel on a daily basis will talk about "fuel algae" or "fuel fungus". Neither of these is entirely correct - in reality, we're talking about microbial contamination in stored fuel, a complicated situation that can involves hundreds of different kinds of microbes, working together to destroy fuel quality, damage storage tanks, and stunt essential equipment operation.

WHY MICROBE PREVENTION IS IMPORTANT FOR HOSPITALS & HEALTH CARE FACILITIES

These consequences speak both to the seriousness of microbe problems for hospitals and health care facilities, and the importance of knowing how to solve them when they occur. And they certainly speak to the importance of knowing the best practices for preventing these critical problems from manifesting themselves in the first place.

For the health care sector, solving these problems is of an even more critical nature than for other people. Their patients rely on the emergency backup generator systems employed by the hospital to ensure 100% service at all time and in all situations. And that means they rely on the stored emergency fuel remaining microbe-free and problem-free. Failure to succeed in this area can bring the weight of liability and government regulation crashing down.

RECOMMENDATIONS FOR PREVENTING FUEL MICROBES

Prevention is always the best medicine, and preventing microbe problems centers two things:
Monitoring levels of moisture in the storage tank and tracking microbial contamination in the fuel and tank.

Check tanks for water levels at regular intervals. Microbes need free water to live and thrive, and water buildup is one of those inevitable things that's virtually impossible to completely eliminate from a storage tank.

Health care facilities should ensure that monitoring water levels in their fuel storage tanks is part of their routine housekeeping protocols. Use water paste and a tank stick or sounding tape to detect the depth of water phase in the tank. It's easy, quick, and can be done by just about anyone.

Once a detectable amount of water phase shows up during monitoring, remove as much as it as you can. Microbes don't need much water at all to multiply to problematic levels within a short period of time. It is not uncommon to see microbe problems develop within just 3 months after a storage tank has been completely cleaned.

Pay attention to filter life and operational signs. As microbes grow in fuel and storage tanks, they produce acids and biomass that destroy fuel quality and plug filters. Without being able to look in the tank and see the actual fuel, paying attention to how filters and equipment are performing on that fuel can give you a view as to how the fuel quality is. A change in filter change intervals or downgrade in engine performance can be a sign that something microbial is going on with the fuel.

Microbial monitoring is key. Microbial presence and fuel health is something that should be monitored on an ongoing basis, not just when you think a problem is arising. Better yet, regular monitoring of microbe levels in stored fuel can help health care fuel managers predict when a problem is getting ready to happen. Which means they can take quick action in real time.

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TREATING MICROBE PROBLEMS IN STORED HOSPITAL FUEL

There are best practice solutions available today that make solving microbe problems in hospital or health care stored fuels a much easier proposition than in the past. They're not difficult, they just have to be implemented.

Remove the water. Checking for water was an essential first step. Now, it has to be removed. Most tanks have the ability to drain off water without unduly disturbing the stored fuel phase. If yours does not, contract with a fuel service provider to pump off as much of the water as possible. The best providers will also utilize water scavenging chemical treatments to effectively get what they cannot drain off mechanically. It's important to get as much of the water out of the tank as possible. And if the tank contains a fuel-water emulsion, they'll need to use a demulsifier to break that and allow the water to separate.

Use biocides to kill the microbes. There is no way to get rid of a microbe problem without using a biocide to kill the microbes. Some water treatments imply they can solve microbe problems by removing water, but this is short-sighted and dishonest. Living microbes can only be eliminated by killing them through administration of a biocide to the fuel.

Use biomass dispersants in conjunction with biocides. Many times, the living microbes in the storage tank will have produced significant amounts of biomass (biological secretions) that, not only will plug filters, but that will also shield microbes from biocide action and prevent a complete microbe kill. If there is evidence of substantial biomass presence in the fuel or sticking to the surfaces of the tank, a health care facility fuel manager should administer a biomass dispersant treatment alongside the biocide. This will break up and disperse the biomass and allow for a more full and effective microbial kill by the biocide.

Test…test…test for microbes. Both before and after. It's not enough to simply apply biocide and hope for the best. Given what's riding on the health of their fuel, hospitals and health care facilities should do simple microbial testing, both before and after treatment, to ensure the problem is resolved.

A second generation ATP test is a simple in-field test that's cost-effective and gives a specific microbe count for the fuel sample tested. ATP testing should be conducted on both a fuel sample (taken about 18 inches from the tank bottom) and a water bottom sample from the stored fuel tank. These should be done before and after treatment. If the after test shows a significant microbe presence still remaining, that can usually be fixed by a second application of biocide.

Remember, microbial presence in a stored fuel tank environment for a hospital/health care facility is a complex biome, almost an ecosystem of microbes. One size treatment does not always fit all. Use ATP microbial testing to confirm the problem is eradicated, for peace of mind.

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These are the best practice recommendations for hospitals and health care stored fuel, for the greatest chance of problem-free operation over the long term.

If you don't feel confident handling these steps yourself, consider partnering with a professional like Bell Fuel & Tank Services.

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