

HOW WIDESPREAD IS CORROSION IN USTs AND HOW CAN IT BE PREVENTED?

EPA research has shown moderate or severe corrosion in the majority of USTs studied.

DIESEL UST CORROSION STUDY

Corrosion in Underground Storage Tanks (USTs) is an insidious issue which can often go unnoticed. A recent report from the U.S. Environmental Protection Agency (EPA), Office of Underground Storage Tanks (July 2016) found that corrosion in USTs is much more common than previously expected:

Observations from the EPA's 2016 research, which examined 42 operational UST systems storing diesel fuel across the country, show a significant prevalence of corrosion of metal components inside those tanks. The preliminary results categorized 35 of 42 – or 83 percent – of the examined diesel fuel tanks exhibiting moderate or severe metal corrosion. Less than 25 percent of UST owners involved in the research reported corrosion prior to the internal inspection.

KEY FINDINGS

- Corrosion of metal components in UST systems storing diesel appears to be common.
- Many owners are likely not aware of corrosion in their diesel UST systems.
- The corrosion affects UST systems with steel tanks and with fiberglass tanks, and poses a risk to most internal metal components.
- Ethanol was present in 90 percent of 42 samples, suggesting that cross-contamination of diesel fuel with ethanol is likely the norm, not the exception.
- The quality of the diesel fuel stored in USTs was mixed; high quality and low quality fuel were equally likely to cause corrosion.
- Particulates and water content in the fuel were closest to being statistically significant predictive factors for metal corrosion, but causation cannot be discerned.
- EPA recommends owners visually inspect USTs storing diesel as part of routine monitoring.
- Microbial Influenced Corrosion (MIC) could be involved as hypothesized by previous research.

OPTIONS TO COMBAT CORROSION

Franklin Fueling Systems designed their new FE PETRO® Advanced Protection pump specifically to combat the effects of accelerated corrosion in-tank and in-sump caused by the acetic byproduct of MIC activity.

While not mentioned in the EPA report, Ultra Low Sulfur Diesel (ULSD) and high ethanol fuel are more prone to microbial activity, which produces an acetic by-product when the feedstock is ethanol, as found in 90% of the studied USTs. Building on the internal Alcohol-Gasoline (AG) construction for biofuel compatibility, the Advanced Protection option combats accelerated corrosion with powder-coated and e-coated finishes to protect the exterior cast surfaces, as well as stainless steel fasteners, riser, coupler, and variable length column pipe assembly.

Intake Filter Screens (IFS) can provide an added defense against in-tank debris that can be associated with accelerated corrosion issues. The IFS prevents debris as small as a grain of sand (0.009" openings) from entering the pumping system, without reducing the output performance of the submersible. Adding just one inch to the length of the pump motor assembly, the IFS can be factory installed as our 'K' option or easily field retrofitted onto FE PETRO® or competitive four-inch pump motor assemblies.

Resources:

Investigation of Corrosion-Influencing Factors in Underground Storage Tanks with Diesel Service, U.S. Environmental Protection Agency, Office of Underground Storage Tanks (July 2016) EPA 510-R-16-001



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In my 20+ years with Franklin I've had roles in Engineering, Technical Support, and Product Management of Dispensing Systems and Submersible Pumping Systems. In my current role as Pumping Systems Product Manager, I've been focused on supporting and growing the FE Petro™ branded products, as well as introducing new products to the pumping systems offering for petroleum and diesel exhaust fluid.



Do you have a question for a Product Manager?

If you have a question for one of our product managers, please submit your question to info@franklinfueling.com.