

In the Field with Donaldson Clean Fuel & Lubricant Solutions



THE SITUATION

A leading producer of ready-mixed concrete in the southcentral United States supplies contractors throughout its 900-square-mile major-metropolitan trade area. The company delivers its concrete — a combination of crushed rock or gravel aggregate, sand, cement and water — to construction sites using a fleet of mixer trucks.

Because ready-mixed concrete begins to harden shortly after mixing, and because the company's clients depend on timely delivery to keep their projects on schedule, efficient delivery is critical.

Each of the company's more than 20 sites has a 15,000-gallon diesel tank to fuel the production equipment that produces the concrete, as well as a total of 250 mixer trucks across its sites that deliver it. Each site uses 10,000 gallons of diesel fuel per week.

THE CHALLENGE

In the fall of 2017, the company experienced increased fuel-related downtime with its newer production equipment and mixer trucks, not altogether surprising given the dusty environment of concrete mixing operations. The company identified premature fuel-filter plugging and fuel-injector wear as the culprit, and suspected the source of contamination was diesel fuel that met the D975 fuel-delivery standards but not the strict cleanliness requirements for its production equipment with Tier 4 engines and its mixer trucks with post-2010 engines.

Fuel injector failures across the fleet were costing the company about \$280,000 in parts and labor annually while additional fuel-related issues added another \$64,000 in unplanned service costs.

Diesel engines have changed drastically to meet EPA emissions requirements, as has diesel fuel itself. However, fuel standards haven't been updated since the 1970s. The precision fuel-injection systems on later-model Tier 3 and 4 / EPA 2010+ engines operate at pressures up to 40,000+ psi, and cannot tolerate even the slightest amount of contamination from diesel fuel.

THE CLEAN SOLUTION

Testing put the diesel fuel from the company's bulk tanks at 21/18/15 per International Standards Organization (ISO) 4406 standard. The numbers correspond to specific ranges for particles 4 microns and larger, 6 microns and larger, and 14 microns and larger per milliliter, respectively.

Donaldson Company Clean Solutions specialists worked to ensure only diesel fuel meeting a minimum ISO cleanliness code of 16/14/12, more than 60 times cleaner than before Donaldson filtration, would be pumped into production equipment and mixer trucks.



Their solution was to install Donaldson high-capacity Clean Diesel Kits with 4-micron filters upstream of the dispensing nozzles at each tank to clean fuel before it enters the equipment and mixer trucks. In addition, a Donaldson T.R.A.P.[™] breather was installed on every bulk tank to strip moisture from intake air and protect the fuel inside from contamination.





THE RESULTS

Fuel cleanliness codes 15/13/10 +/- 1 are consistently achieved at all sites, protecting the fuel injectors from excessive wear and prolonging the life of the fuel filters in the equipment and vehicles themselves.

Since installing the Donaldson system, the company has not had to replace a single fuel injector outside of the normal preventative maintenance schedule of once every four years.

According to Jim Doyle, Donaldson **Clean Solutions Specialist**, "This solution has virtually eliminated all contaminated-fuel-related downtime, and has saved even more money by increasing the operational hours before preventive maintenance has to be performed. The customer now keeps its equipment and mixer trucks up and running to provide on-time delivery of its quality concrete to its customers."

FILTRATION VALUE BY THE NUMBERS

CONCLUSION

Like all equipment operators, especially those operating in extreme dusty conditions like ready-mixed concrete production, this company was in a position to benefit from highly efficient filtration installed on its bulk fuel storage tanks. Clean diesel fuel is critical for production equipment with Tier 4 engines, and for on-road trucks built after 2010.

Donaldson recommends that equipment operators clean fuel as it goes into the bulk storage tank, protect it in the tank with a T.R.A.P. breather, and polish the fuel again as it leaves the tank to ensure that contaminantfree fuel enters equipment. While every situation is different, your local **Donaldson Clean Solutions specialist** can help you identify the solutions that best meet your needs, protect your equipment, and keep your operation up and running smoothly.



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Need a Clean Solution?

As a global organization, we have offices throughout the world. Please direct your inquiry to clean.solutions@donaldson.com. This will enable us to address your inquiry in the shortest possible time

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