

## Cummins Filtration Provides Total Fleetguard Solution To Major Zambian Copper Mine

A total fuel-filtration solution from Fleetguard has ensured that a haul-truck fleet at a large copper mine in Zambia has achieved utilisation rates of between 85% and 90%, after previously experiencing operational difficulties relating to substandard fuel qualities, which had reduced the fleet's run-time capacity to 65%.

The haul trucks were not achieving the targeted 350-hours service intervals on the fuel filters due to sporadic blockages. Fitted with Cummins QSK50 MCRS engines, onboard filter, injector, and injector-pump failures were occurring.

Cummins Filtration was requested to supply a solution to ensure that the fuel was delivered to the injectors at the correct cleanliness levels, allowing the fleet to achieve its intended service hours, Cummins Filtration Africa Mining Manager **Tinus Naude** explains.

A Fleetguard service team was dispatched to the mine to carry out site surveys to investigate the bulk-fuel storage system and on-board filtration. The bulk fuel was found to be cloudy and muddy, which meant it had not been delivered according to specification. "We found that the fuel contained water and fungus," Naude reveals. Fungus only propagates in fuel in the presence of free water, which therefore increases the likelihood of injector failures occurring.

Cummins Filtration inspected the mine's on-engine filtration system, specifically at the fuel-supplier's maintenance, the results achieved, and the quality of the tests undertaken. The engines themselves were also inspected, including the on-board filtration systems.

"Part of our recommendations were to fix the water contamination situation in the fuel. We contracted clean-fuel solutions provider SupaFuel as an independent party to verify that, in fact, water was present in the fuel, to put the correct maintenance practices in place, and to manage the mine's bulk fuel system. It also implemented the recommendation from Fleetguard in terms of the mine's on-board filtration systems," Naude elaborates.

SupaFuel Owner **Chris Chow**, a qualified mining engineer, adds that it produced a report on the mine's bulk fuel situation highlighting that it contained water. Therefore the water had to be removed in order to maintain the cleanliness standard of the bulk fuel to ensure that the quality of the fuel was sufficient to be used in the engines without any subsequent damage.

Cummins Filtration upgraded the mine's first-stage bulk fuel filtration system to a FH239 Series Industrial Pro® in the first stage of the upgrade – which provides the best contaminant removal efficiency available at 99.9% efficiency or  $\beta_{1000}$  @ 7 micron.

During the second stage, it installed a FF5782 fuel filter with an all-in-one fuel/water separator with NanoNet® media. NanoNet® provides a final-stage filtration solution using the same nanofibre media technology as in the Fleetguard NanoForce® air filters. The nanofibres woven into the media help capture and retain contaminants more efficiently, improving performance by up to 13 times of standard filters.

The advantage of the FH239 Series Industrial Pro® is that it meets, and exceeds, OEM efficiency requirements, while the 67% increased media area ensures greater engine protection, providing for the highest level of fuel/water separation, and reduced flow restriction by up to 9%.

"Since the solution was implemented in June 2017, the mine's downtime was reduced significantly, as injector and fuel-pump failures were substantially less. This has provided for longer service intervals on the haul trucks, increased oil lifespan, and improved equipment availability, which has equated to significant improvement in production volumes at the mine, while generating substantial savings and reducing the total cost of ownership," Naude concludes.

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## **About Cummins**

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service diesel and natural gas engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems.

Headquartered in Columbus, Indiana, (USA) Cummins currently employs approximately 54,600 people worldwide and serves customers in approximately 190 countries and territories through a network of approximately 600 company-owned and independent distributor locations and approximately 7,200 dealer locations. Cummins earned \$1.65 billion on sales of \$19.2 billion in 2014.

Cummins Africa Middle East has regional office in South Africa, Morocco and Dubai, with branches across the territory.

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