

AMPOL DIESEL HD

How a simple fuel change reduced PM2.5 emissions by 40%



When efficiency and environment are both important, there's technology available to clean up heavy-duty diesel-powered equipment vital to mining and industry.

The quality of diesel makes all the difference to engine efficiency and performance. A recent independent trial proved the fuel cleaning capabilities of Ampol Amplify Diesel HD, plus its benefits in fuel consumption and emission reductions.

The Mission

Heavy industry faces two challenges: keeping equipment running while meeting emissions requirements. Ampol understands that maintaining a cleaner injector and fuel system helps our customers meet operational challenges.

Performance under pressure

Cleaner fuel systems improve combustion efficiency and extend maintenance intervals. This means improved fuel consumption and less emissions, like smoke and particulates.

A third-generation fuel tested to Australian conditions

Ampol developed Amplify Diesel HD right here in Australia to help keep heavy-duty engines running in the cleanest way possible. The third-gen formulation has been thoroughly tested under the harshest working conditions.

But we put it to the test once more, to confirm its fuel efficiency and emission-reducing qualities. At an independent testing facility in Brisbane, we trialled Amplify Diesel HD using a heavy-duty mining equipment powertrain.



The Action

We wanted to compare Amplify Diesel HD performance diesel to regular diesel fuel. So we used a 45-litre V12 mining excavator engine, switching between Amplify Diesel HD and regular fuel.

The Trial

We put a customer's heavy-duty Cummins QSK45-C excavator engine to the test. It had 17,346 engine hours and no known prior mechanical problems.

Using an industry-standard steady-state test cycle, the engine was linked to a dynamometer and portable emissions measurement system (PEMS) equipment.

The Result

The Amplify Diesel HD test results confirmed improved fuel efficiency and reduced hydrocarbons (HC) and particulate matter (PM2.5) emissions. How? A cleaner fuel system has improved combustion, thanks to Amplify Diesel HD's cleaning properties (see *Appendix 1*).

Ampol Amplify Diesel HD delivered:



Fuel efficiency improvement of up to **3.9%**



Reductions of up to **4.1%** in CO₂ and up to **22%** reduction in total hydrocarbon emissions



Up to **40%** reduction in particulate matter (PM2.5) emissions



The Bottom Line

Amplify Diesel HD has the proven power to help clean heavy-duty diesel engines, maximising performance and powering the mining industry.

- Fuel efficiency improvements from an improved combustion process once Amplify Diesel HD cleans the fuel system.
- Reduction in particulate matter (PM2.5) means less emissions harmful to health and the environment.

Amplify Diesel HD also contains:

- Corrosion inhibitors to protect the engine from abrasive rust particles forming
- Foam inhibitors for faster, cleaner refuelling.

Appendix

1. Results Table

	BSFC	SOOT	NO _x	CO ₂	THC
QSK45 Regular Diesel	252	0.082	14.6	790	0.610
QSK45 Amplified Diesel HD	242	0.050	15.0	758	0.476
% Change	-3.9%	-39.6%	2.8%	-4.1%	-22%

BSFC (g/kWh)	PM (g/kWh)	NO ₃ (g/kWh)	CO ₂ (g/kWh)	THC (g/kWh)
BSFC	Exhaust Emissions			

* Ampol engaged an independent engineering consultant to perform a fuel trial at a testing facility in Queensland. The test engine was coupled to a dynamometer, and the results of fuel consumption and emissions reduction were compared against regular (unadditised) Diesel.

Fuel consumption was measured using a high precision Coriolis mass flow meter with an accuracy of ±0.1% for liquids (and repeatability of ±0.05%). Emissions were measured using PEMS, providing repeatability of 1% or better and complying with US EPA, ECE and ISO regulations.

Trial results were at a 95% confidence level and represent weighted-average change, based on industry-standard ISO 8178-4 C1 test cycle for off-road vehicles and diesel-powered off-road industrial equipment.

Note that results may vary depending on the engine, environmental conditions and other factors such as variability in engine load factor and driver behaviour.



Cleaner fuel, cleaner engines
and a cleaner environment.

**Ask us about Amplify Diesel HD
for your fleet**

Australia's Own

