Fact sheet

Fuel, additives and lubricants testing

Intertek Transportation Technologies

Our dedicated fuels and lubricants test cells offer our customers industry leading test to test repeatability. Our specialist engineers have extensive industry experience and in-depth expertise to support your testing needs.

Our background

Intertek Transportation Technologies is an automotive engineering service company based in Milton Keynes, UK with more than 30 years' experience in dynamometer engine testing. Our facility includes one of the most well-established specialist fuels, fuel additive and lubricants testing facilities commercially available. It's able to perform most testing to meet current and future European fuel test requirements as well as the ability to perform bespoke drivecycle-based testing.

Our expertise in fuels and lubricants testing extends from the test cells to the public roads and beyond. We offer a wide range of fuel and lubricant testing; from CEC standard engine tests, to road based mileage accumulation or PEMS testing to monitor fuel usage, emissions or engine robustness.

Our facilities

Our award-winning 29 cell test laboratory is trusted by the world's leading fuel and lubricant manufacturers to deliver quality data and test cell hours with minimum down-time. Of these 29 test cells, 9 are dedicated to fuels and lubricants testing and one to oil testing, all to CEC requirements and covered by a separate ISO 17025 accreditation. Recent investment has seen fuels and lubricants testing utilising enhanced test cells to improve boundary conditions for improved repeatability.

Our laboratory operates 24/7, allowing engine maintenance, sample changes, instrumentation calibration and servicing to be performed outside of the normal working day, maximising cell availability for our customers.

Our expertise extends to the logistics involved in fuel storage and blending including ethanol and biodiesel. Our Milton Keynes facility has the capability to store fuel, additives and components in any size from a bottle, barrel, IBC to large quantities of bulk fuel (which can be stored in our over or underground tanks (up to 20,000 litres). Our global nework of laboratories can handle fuel and oil sample analysis, from simple RON and MON measurements right up to the more complex speciation of the components of samples or forensic analysis of sample contents.

The intellectual property of customers products or formulations are paramount to Intertek. All samples and fuels are maintained to the highest standards and our facilities are rigorously maintained to ensure no cross contamination of products occur.

Our team is led by expert engineers with more than 30 years' experience in fuel and lubricant testing, allowing us to offer world class customer service and advice on test programmes.

CEC F-20-98 (M111): Deposit Forming Tendency on Intake Valves

This test method is designed to evaluate the propensity of gasoline or gasoline additive formulations to prevent intake valve deposits in fuel injected engines.

Utilising a Mercedes-Benz M111 2.0 litre, electronic fuel injected, 16 valve engine, the test is run for 60h under cyclic conditions. Test results are presented as a weight of the inlet valve deposits.

Approximate fuel requirement: 350 litres

CEC F-98-08 (DW10B): Direct Injection, Common Rail Diesel Engine Nozzle Coking Test

The DW10B Nozzle Fouling test was developed to demonstrate the propensity of some fuels to provoke fuel injector fouling in modern engines, as well as demonstrate the ability of detergentfuel additives to prevent or control these deposits.

The objective of the test is to differentiate between fuels based on their tendency to produce injector deposits in direct injection diesel engines. Specifically, it aims to distinguish between a fuel that produces no measurable deposits and one that results in a 2% power loss — a threshold considered unacceptable by engine manufacturers.

Approximate fuel requirement: 800 litres

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CEC F-110-23 (DW10C): Injector Sticking from internal injector deposits)
The IDID DW10C test was developed to be able to identify a fuel that produces no measurable deposits and one which produces deposits that cause startability issues considered unacceptable by OEMs. The objective of the test is to discriminate between fuels that differ in their ability to produce internal diesel injector deposits (IDID) in direct injection common rail diesel engines. These deposits differ from injector nozzle coking based on the location of the deposits and on their effects on engine performance.

The test procedure consists of alternating sequences of soak periods followed by cold starts preceding main run cycles of engine operation.

Approximate fuel requirement: 1000 litres

CEC F-23-A-01PSA (XUD-9): IDI Nozzle Fouling Tests
The engine is operated under cyclic conditions for a 10-hour test period to provide a method of evaluating injector nozzle fouling in indirect injection diesel engines. The measurement of nozzle fouling is conducted by flowing air through the injector nozzle at different needle lift heights. The end of test results are contrasted with the pre-test flows to produce a flow loss or fouling measurement.

Approximate fuel requirement: 60 litres

CEC TDG-F-113 VW DISI (EA111): Gasoline direct Injector fouling*
This test addresses injector deposits in direct injection spark ignited engines (DISI) and the deposit control ability of gasoline. Injector fouling influences the spray pattern and the injected fuel volume of the injector, directly impacting the driveability, performance and exhaust gas emissions of the vehicle. This test is designed to analyse a fuel that produces no significant injector deposits and one which cannot prevent injector fouling and as such, is not able to keep the injectors clean enough to run the engine in compliance with driveability, performance or emission control requirements.

The test procedure was originally developed by Volkswagen and the engine used for this test method is the twin charger BLG 1.4 litre - EA111 Type.

When occurring, Injector fouling will cause a pulse width increase to maintain the Air/Fuel ratio at the normal set point.

The percentage of pulse width increase after 48 hour run is the key parameter to evaluate the fouling effect of the fuel candidate.

**test in development and not covered by UKAS accreditation.*

Intertek Advantage
Intertek is a leading Total Quality Assurance provider to industries worldwide. Our network of more than 1,000 laboratories and offices in more than 100 countries, delivers innovative and bespoke Assurance, Testing, Inspection and Certification solutions for our customers' operations and supply chains. Intertek Total Quality Assurance expertise, delivered consistently with precision, pace and passion, enabling our customers to power ahead safely.

Key features

- CEC Working Group member organisation
- ATC ERC recognised test facility
- Senior experts with more than 30 years' industry experience
- Industry-leading test-to-test repeatability
- Unparalleled test cell uptime for maximum efficiency
- Base fuel supply, preparation and storage
- Fuel blending and dosing capability
- Multiple test cells and expert team of dedicated engineers & technicians
- Superior speed of response and test parameter control
- Post-test analysis and results supply
- Engine strip and build
- Injector nozzle preparation and supply
- Dedicated rating room and teardown area
- Photographic studio to support post-test analysis

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