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 32 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 32 test cells, seven are dedicated to fuel and lubricants testing to CEC requirements and are 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.

CEC
TESTING CAPABILITIES
ISO 17025

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.

Our testing solutions

CEC F-05-A-93: Mercedes-Benz M102E Intake Valve Cleanliness Test

The purpose of this test is to evaluate the intake valve cleanliness performance of gasoline and / or detergent additive formulations.

Utilising a Mercedes-Benz M102E four cylinder, four stroke, 2.3 litre fuel injected spark ignition engine, the test was developed to simulate urban driving conditions and is of 60 hour duration, consisting of 800 cycles of four stages. The end of test analysis consists of intake valve deposit weights coupled with visual ratings of the valve tulips.

Approximate fuel requirement: 300 litres

CEC F-20-98 Deposit Forming Tendency on Intake Vales

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.

FUEL, ADDITIVES AND LUBRICANTS TESTING

intertek
Total Quality. Assured.

Test results are presented as a weight of the inlet valve deposits.

Approximate fuel requirement: 400 litres

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

The DW10 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 detergent fuel additives to prevent or control these deposits.

The objective of the test is to differentiate between fuels that differ in their ability to produce injector deposits in direct injection diesel engines. The objective of this test is to be able to discriminate between a fuel that produces no measurable deposits and one which produces deposits that cause the 2% loss in power considered unacceptable by engine manufacturers. The test cycle used consists of 12-stages and lasts one hour.

New injectors are bedded-in for 16 cycles on the non-fouling RF79 fuel. Test fuel is flushed through the engine and the test runs for eight cycles and then stops for four hrs. This is repeated three times and finishes after a further eight cycles. The percentage power loss at Stage 12 over the 32 cycles is the final result of the test.

Approximate fuel requirement: 800 litres

CEC F-110-16: Internal Diesel Injector Deposit Test

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 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. Each main run lasts six hours and consist in a succession of 5 min /1000 rpm / 10-15 N.m and 25 min./3.750 rpm /110 kW phases.

Approximate fuel requirement: 1000 litres

Key features

- CEC Working Group member organisation
- ATC ERC recognised test facility
- Senior experts with more than 30 years' industry experience
- Highly trained component rating team to ASTM and CEC standards
- 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

CEC F-23-A-01: PSA XUD 9 IDI Nozzle Fouling Tests

This test was developed from the original XUD9 nozzle-fouling test mentioned above. 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*

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.
The test procedure consists of a 48h duration cycle (for either Keep-Clean or Dirty-Up Purpose) at 2000 rpm and 48.4 N.m torque, with continuous monitoring of the injection pulse width to maintain stoichiometric Air/Fuel ratio.
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.

LLOYD'S REGISTER · LRQA
ISO 9001

UKAS TESTING

FOR MORE INFORMATION

+44 1908 513000

TT-UKinfo@intertek.com

intertek.com/automotive/lubricants-fuel-systems/