

INTERTEK AUTOMOTIVE RESEARCH SAN ANTONIO, TEXAS



SAN ANTONIO - AUTOMOTIVE RESEARCH OVERVIEW

- 70 years of independent testing
- Fuels and Lubricants Industry
- Engine/Vehicle OEM and Tiered Suppliers
- 4 stand alone laboratories in San Antonio, Texas
- 30+ Engineers, ~300 employees
- 24/7/365 operation
- Over 120 Engine Dynamometer Test Cells
- Vehicle level Development and Durability Testing
- Fuel System Testing
- Evaporative Emission (SHED) Testing
- Automatic Transmission Fluid Testing
- Axle efficiency Testing
- Analytical Testing
- Quality: ISO 17025







ANALYTICAL SERVICES (CHEM. LAB)

- Services the F&L Industry & Engine OEMs
- 400+ Analytical Procedures Performed
 - ASTM, CEC, ISO, DIN, JPI and OEM Methods
- 40,000 Tests Conducted Each Month
- Examples of Tests Conducted:

XRF, ICP, TGA, CHNO, Combustion/UV S, Distillation, SIMDIST, GCMS, TBN/TAN, UV-Vis Spec, seal compatibility, pour and Cloud point, HFRR, 4-ball, Iron Rust, Density/gravity, ash, flash point, Brookfield Viscosity, Kinematic viscosity, CCS, MRV, miscibility, ball rust, Noack, ROBO, TEOST, foam, filterability, oxidation, etc

 Generally, if it has to do with an automotive fluid – we can likely test it, except for Octane & Cetane which other Intertek labs conduct.





WIDE RANGE OF FLUID TESTING CAPABILITIES





Crankcase Lubes

- ASTM/API
- Diesel
 - PC-11 Standard
- Gasoline
 - GF-6 Standard
- Research/Special Projects



Fuels

- Diesel
- Gasoline
 - IVD
 - LSPI
 - Combustion Chamber Deposits (CCD)
 - Vehicle Work



Driveline

- Gear
- Efficiency
- ASTM
 - L37, L42,
- OEM



Transmission

- 21 Test Types
- GM, Ford, Chrysler
- FZG
- JASO

OIL TESTING DETAILS





Light Duty/PCMO



GM dexo	S [™]
GMOD	
GMTC	
GMSPI, GMPSI3	
GMAER	

Fuels		
FORD IVD		
GMIVD		
GMGDI		



Heavy Duty



OEM

CUMMINS COP	
(CNG TEST)	



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ENGINE FUELS TEST TYPES



FORD IVD, ASTM D6201

Objective – The test method was developed to evaluate a fuel's tendency to form intake valve deposits. The EPA, CARB, and Top Tier[™] have adopted the method for fuel additive certification purposes.

Engine – 1994 Ford 2.3L in-line four cylinder.

Operating Conditions – The test consists of two stages. During stage 1, the engine runs at 2000 rpm/30.6 kPa MAP for four minutes then transitions to stage 2 at 2800 rpm/71.8 kPa MAP for eight minutes. This cycle is repeated for a total of 100 hours (approximately 462 cycles).



	Operating Conditions		
	Units	Stage 1	Stage 2
Duration	min	4	8
Engine Speed	RPM	2000	2800
Oil Inlet Temperature	°C	101	101
Coolant Out Temperature	°C	90	90
Intake Air Temperature	°C	32	32
MAP	kPa	30.6	71.8



(in)

GM IVD TEST

Objective – The test method was developed to evaluate a fuel's tendency to form intake valve deposits in a newer architecture engine (vs Ford 2.3L or the ASTM D5500 BMW test).

Engine – GM LE9 2.4L in-line four cylinder.

Operating Conditions – The test consists of two stages. During stage 1, the engine runs at 2000 rpm/29 kPa MAP for four minutes then transitions to stage 2 at 2000 rpm/80 kPa MAP for eight minutes. This cycle is repeated for a total of 50 hours (approximately 231 cycles).



	Operating Conditions		
	Units	Stage 1	Stage 2
Duration	min	4	8
Engine Speed	RPM	2000	2000
Oil Gallery Temperature	°C	101	101
Coolant Out Temperature	°C	90	90
Intake Air Temperature	°C	32	32
MAP	kPa	29.0	80.0

GM FUEL INJECTOR DEPOSIT TEST

Objective – The test method was developed to evaluate a fuel's tendency to form fuel injector deposits in a gasoline direct injection engine.

Engine – GM LHU 2.0L in-line four cylinder.

Operating Conditions – The test operates in a steady state mode at 2000 rpm/100 NM of torque. Test length is per customer request (typically 60 hours).



	Operating Conditions	
	Units Stage 1	
Duration	min	4
Engine Speed	RPM	2000
Oil Gallery Temperature	°C	87
Coolant Out Temperature	°C	80
Intake Air Temperature	°C	32
Torque	NM	100

