Sequence IX
Form 1

Version

IX VERSION 20170922 Beta

Conducted For

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

C	V = Valid
	I = Invalid
	N = Results cannot be interpreted as representative of oil performance (Non-reference oil) and shall not be used for multiple test acceptance

CC	NR = Non-reference oil
	RO = Reference oil

Test Number							
Stand	CCCCC	Stand Run	CCCC	Engine	CCCCCCCCCCCCCCCCCC	Engine Run	CCCCC
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC						
Hours on Engine	CCCC		Hours on Cylinder Head	CCCC			
Formulation Stand Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC						
Alternate Codes	CCCCCCCCCCCCCC		CCCCCCCCCCCCCC		CCCCCCCCCCCCCC		
Date Started	YYYYMMDD		Time Started		HH:MM		
Date Completed	YYYYMMDD		Time Completed		HH:MM		
Test Length	S1234		Total Downtime		HHH:MM		
Ref Oil Code[A]:	CCCCCCCCCCCCCC						
SAE Viscosity	CCCCCCC						

[A] Reference Tests Only

In my opinion this test CCCCCCCC been conducted in a valid manner in accordance with test Method DXXXX and appropriate amendments. The remarks included in the report describe the anomalies associated with this test.

Submitted By: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

Testing Laboratory

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

Signature

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Typed Name

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Title

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Sequence IX
Form 3
Summary of Test Method

The Pre-ignition test is a fired engine dynamometer lubricant test which evaluates the ability of a test lubricant to reduce pre-ignition events. The test method is a cyclic test.

The Pre-ignition test uses a Ford water cooled, 4 cycle, in-line cylinder, 2.0 liter eoctec engine as the test apparatus. The engine incorporates a dual overhead cam, four valves per cylinder (2 intake; 2 exhaust), and direct acting mechanical bucket lifter valve train design. The engine is monitored for pre-ignition events and total number of pre-ignition events. Results are tabulated at the end of test.

The test sequence is repeated for 4 test iterations. Each iteration is outlined in the table below:

		Iteration			
Parameters	**Units**	**A**	**B**	**C**	**D**
Duration	cycles	175000	175000	175000	175000
Engine Speed	r/min	1750	1750	1750	1750
Torque	Nm	269	269	269	269
Equivalence Ratio	λ	1.00	1.00	1.00	1.00
Coolant Out Temperature	°C	95	95	95	95
Coolant Flow	L/min	55	55	55	55
Oil Gallery Temperature	°C	95	95	95	95
Inlet Air Temperature	°C	30	30	30	30
Air Charge Temperature	°C	43	43	43	43
Fuel Temperature	°C	30	30	30	30
Inlet Air Pressure	kPa	0.05	0.05	0.05	0.05
Exhaust Back Pressure	kPaA	104	104	104	104

Sequence IX
Form 4
Test Results Summary

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code	CCCCCCCCCCCCCCCCCCCC		
Formulation Stand Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Summary of Valid Iterations	
Iteration	**Number of Events***
A	S1234
B	S1234
C	S1234
D	S1234
Total Number of Pre-ignitions, Valid Iterations	S1234
Average of Valid Iterations	S123.12
Transformed Average of Valid Iterations	S12.1234
Industry Correction Factor	S12.1234
Corrected Transformed Average Pre-ignitions	S12.1234
Severity Adjustment	S12.1234
Final Transformed Result	S12.1234
Final Original Unit Result	S123.12

Summary of Pre-Ignition Events

Iteration	Number of Events*	Number of Cycles	Number of Invalid Cycles (per cylinder)				Iteration Validity
			1	2	3	4	
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC
S123	S123	S123456	S12345	S12345	S12345	S12345	CC

*Events are defined as the total number of pre-ignition events from all four cylinders during each iteration.

Sequence IX
Form 5
Operational Summary – Iteration A

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000	S12.123	1750	S1234.1	S12.1	S123456	S12345
	Torque	Nm	0.000	S12.123	269	S123.12	S12.12	S123456	S12345
	Coolant Out	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Oil Gallery	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Inlet Air	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Air Charge	°C	0.000	S12.123	43	S12.1	S12.1	S123456	S12345
	Fuel	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Inlet Air	kPaA	0.000	S12.123	0.05	S1.123	S1.123	S123456	S12345
	Exhaust Back	kPaA	0.000	S12.123	104	S123.1	S123.1	S123456	S12345
	Coolant	kPaG	0.000	S12.123	70	S123.1	S123.1	S12345	S12345
	Humidity	g/kg	0.000	S12.123	11.4	S12.1	S12.1	S12345	S12345
	Coolant Flow	L/min	0.000	S12.123	55	S12.1	S12.1	S123456	S12345

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Coolant In	°C	S123.1	S123.1	S123456	S12345
	Oil Sump (optional)	°C	S123.1	S123.1	S123456	S12345
	Exhaust	°C	S1234.12	S123.12	S123456	S12345
	Boost Pressure	kPaA	S123.12	S123.12	S123456	S12345
	Intake Manifold	kPaA	S123.1	S123.1	S123456	S12345
	Barometric	kPaA	S1234.1	S1234.1	S123456	S12345
	Crankcase	kPaG	S123.1	S123.1	S123456	S12345
	Fuel	kPaG	S123.1	S123.1	S123456	S12345
	Fuel Flow	L/min	S12.1	S12.1	S123456	S12345
	Power	kW	S123.1	S123.1	S123456	S12345
	Equivalence Ratio	ʎ	S1.12	S1.12	S123456	S12345

Sequence IX
Form 6
Operational Summary – Iteration B

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000	S12.123	1750	S1234.1	S12.1	S123456	S12345
	Torque	Nm	0.000	S12.123	269	S123.12	S12.12	S123456	S12345
	Coolant Out	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Oil Gallery	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Inlet Air	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Air Charge	°C	0.000	S12.123	43	S12.1	S12.1	S123456	S12345
	Fuel	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Inlet Air	kPaA	0.000	S12.123	0.05	S1.123	S1.123	S123456	S12345
	Exhaust Back	kPaA	0.000	S12.123	104	S123.1	S123.1	S123456	S12345
	Coolant	kPaG	0.000	S12.123	70	S123.1	S123.1	S12345	S12345
	Humidity	g/kg	0.000	S12.123	11.4	S12.1	S12.1	S12345	S12345
	Coolant Flow	L/min	0.000	S12.123	55	S12.1	S12.1	S123456	S12345

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Coolant In	°C	S123.1	S123.1	S123456	S12345
	Oil Sump (optional)	°C	S123.1	S123.1	S123456	S12345
	Exhaust	°C	S1234.12	S123.12	S123456	S12345
	Boost Pressure	kPaA	S123.12	S123.12	S123456	S12345
	Intake Manifold	kPaA	S123.1	S123.1	S123456	S12345
	Barometric	kPaA	S1234.1	S1234.1	S123456	S12345
	Crankcase	kPaG	S123.1	S123.1	S123456	S12345
	Fuel	kPaG	S123.1	S123.1	S123456	S12345
	Fuel Flow	L/min	S12.1	S12.1	S123456	S12345
	Power	kW	S123.1	S123.1	S123456	S12345
	Equivalence Ratio	ʎ	S1.12	S1.12	S123456	S12345

Sequence IX
Form 7
Operational Summary – Iteration C

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000	S12.123	1750	S1234.1	S12.1	S123456	S12345
	Torque	Nm	0.000	S12.123	269	S123.12	S12.12	S123456	S12345
	Coolant Out	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Oil Gallery	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Inlet Air	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Air Charge	°C	0.000	S12.123	43	S12.1	S12.1	S123456	S12345
	Fuel	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Inlet Air	kPaA	0.000	S12.123	0.05	S1.123	S1.123	S123456	S12345
	Exhaust Back	kPaA	0.000	S12.123	104	S123.1	S123.1	S123456	S12345
	Coolant	kPaG	0.000	S12.123	70	S123.1	S123.1	S12345	S12345
	Humidity	g/kg	0.000	S12.123	11.4	S12.1	S12.1	S12345	S12345
	Coolant Flow	L/min	0.000	S12.123	55	S12.1	S12.1	S123456	S12345

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Coolant In	°C	S123.1	S123.1	S123456	S12345
	Oil Sump (optional)	°C	S123.1	S123.1	S123456	S12345
	Exhaust	°C	S1234.12	S123.12	S123456	S12345
	Boost Pressure	kPaA	S123.12	S123.12	S123456	S12345
	Intake Manifold	kPaA	S123.1	S123.1	S123456	S12345
	Barometric	kPaA	S1234.1	S1234.1	S123456	S12345
	Crankcase	kPaG	S123.1	S123.1	S123456	S12345
	Fuel	kPaG	S123.1	S123.1	S123456	S12345
	Fuel Flow	L/min	S12.1	S12.1	S123456	S12345
	Power	kW	S123.1	S123.1	S123456	S12345
	Equivalence Ratio	ʎ	S1.12	S1.12	S123456	S12345

Sequence IX
Form 8
Operational Summary – Iteration D

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000	S12.123	1750	S1234.1	S12.1	S123456	S12345
	Torque	Nm	0.000	S12.123	269	S123.12	S12.12	S123456	S12345
	Coolant Out	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Oil Gallery	°C	0.000	S12.123	95	S123.1	S12.1	S123456	S12345
	Inlet Air	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Air Charge	°C	0.000	S12.123	43	S12.1	S12.1	S123456	S12345
	Fuel	°C	0.000	S12.123	30	S12.1	S12.1	S123456	S12345
	Inlet Air	kPaA	0.000	S12.123	0.05	S1.123	S1.123	S123456	S12345
	Exhaust Back	kPaA	0.000	S12.123	104	S123.1	S123.1	S123456	S12345
	Coolant	kPaG	0.000	S12.123	70	S123.1	S123.1	S12345	S12345
	Humidity	g/kg	0.000	S12.123	11.4	S12.1	S12.1	S12345	S12345
	Coolant Flow	L/min	0.000	S12.123	55	S12.1	S12.1	S123456	S12345

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Coolant In	°C	S123.1	S123.1	S123456	S12345
	Oil Sump (optional)	°C	S123.1	S123.1	S123456	S12345
	Exhaust	°C	S1234.12	S123.12	S123456	S12345
	Boost Pressure	kPaA	S123.12	S123.12	S123456	S12345
	Intake Manifold	kPaA	S123.1	S123.1	S123456	S12345
	Barometric	kPaA	S1234.1	S1234.1	S123456	S12345
	Crankcase	kPaG	S123.1	S123.1	S123456	S12345
	Fuel	kPaG	S123.1	S123.1	S123456	S12345
	Fuel Flow	L/min	S12.1	S12.1	S123456	S12345
	Power	kW	S123.1	S123.1	S123456	S12345
	Equivalence Ratio	ʎ	S1.12	S1.12	S123456	S12345

Sequence IX
Form 9
Operational Summary – CAN BUS, Iterations A and B

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Iteration A	Units	Average	Standard Deviation	Number of Samples	Number of BQD
PCM CAN BUS Channels	Ignition Timing Advance for #1 Cylinder	º	S12.1	S12.1	S123456	S12345
	Absolute Throttle Position	%	S12.12	S12.12	S123456	S12345
	Engine Coolant Temperature	ºC	S12.1	S12.1	S123456	S12345
	Intake Air Temperature	ºC	S12.1	S12.1	S123456	S12345
	Equivalence Ratio (Lambda)	ʎ	S1.123	S1.123	S123456	S12345
	Absolute Load Value	%	S123.12	S123.12	S123456	S12345
	Intake Manifold Absolute Pressure	kPaA	S12.1	S12.1	S123456	S12345
	Fuel Rail Pressure	kPaA	S1234.1	S1234.1	S123456	S12345
	Boost Absolute Pressure - Raw Value	kPaA	S123.12	S123.12	S123456	S12345
	Turbocharger/Supercharger Wastegate	%	S12.12	S12.12	S123456	S12345
	Actual Intake (A) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Actual Exhaust (B) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Intake (A) Camshaft Position Actuator Duty	%	S12.12	S12.12	S123456	S12345
	Exhaust (B) Camshaft Position Actuator Duty	%	S12.12	S12.12	S123456	S12345
	Charge Air Cooler Temperature	ºC	S12.12	S12.12	S123456	S12345

	Iteration B	Units	Average	Standard Deviation	Number of Samples	Number of BQD
PCM CAN BUS Channels	Ignition Timing Advance for #1 Cylinder	º	S12.1	S12.1	S123456	S12345
	Absolute Throttle Position	%	S12.12	S12.12	S123456	S12345
	Engine Coolant Temperature	ºC	S12.1	S12.1	S123456	S12345
	Intake Air Temperature	ºC	S12.1	S12.1	S123456	S12345
	Equivalence Ratio (Lambda)	ʎ	S1.123	S1.123	S123456	S12345
	Absolute Load Value	%	S123.12	S123.12	S123456	S12345
	Intake Manifold Absolute Pressure	kPaA	S12.1	S12.1	S123456	S12345
	Fuel Rail Pressure	kPaA	S1234.1	S1234.1	S123456	S12345
	Boost Absolute Pressure - Raw Value	kPaA	S123.12	S123.12	S123456	S12345
	Turbocharger/Supercharger Wastegate	%	S12.12	S12.12	S123456	S12345
	Actual Intake (A) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Actual Exhaust (B) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Intake (A) Camshaft Position Actuator Cycle	%	S12.12	S12.12	S123456	S12345
	Exhaust (B) Camshaft Position Actuator Duty	%	S12.12	S12.12	S123456	S12345
	Charge Air Cooler Temperature	ºC	S12.12	S12.12	S123456	S12345

Sequence IX
Form 10
Operational Summary – CAN BUS, Iterations C and D

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Iteration C	Units	Average	Standard Deviation	Number of Samples	Number of BQD
PCM CAN BUS Channels	Ignition Timing Advance for #1 Cylinder	º	S12.1	S12.1	S123456	S12345
	Absolute Throttle Position	%	S12.12	S12.12	S123456	S12345
	Engine Coolant Temperature	ºC	S12.1	S12.1	S123456	S12345
	Intake Air Temperature	ºC	S12.1	S12.1	S123456	S12345
	Equivalence Ratio (Lambda)	ʎ	S1.123	S1.123	S123456	S12345
	Absolute Load Value	%	S123.12	S123.12	S123456	S12345
	Intake Manifold Absolute Pressure	kPaA	S12.1	S12.1	S123456	S12345
	Fuel Rail Pressure	kPaA	S1234.1	S1234.1	S123456	S12345
	Boost Absolute Pressure - Raw Value	kPaA	S123.12	S123.12	S123456	S12345
	Turbocharger/Supercharger Wastegate	%	S12.12	S12.12	S123456	S12345
	Actual Intake (A) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Actual Exhaust (B) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Intake (A) Camshaft Position Actuator Duty	%	S12.12	S12.12	S123456	S12345
	Exhaust (B) Camshaft Position Actuator	%	S12.12	S12.12	S123456	S12345
	Charge Air Cooler Temperature	ºC	S12.12	S12.12	S123456	S12345

	Iteration D	Units	Average	Standard Deviation	Number of Samples	Number of BQD
PCM CAN BUS Channels	Ignition Timing Advance for #1 Cylinder	º	S12.1	S12.1	S123456	S12345
	Absolute Throttle Position	%	S12.12	S12.12	S123456	S12345
	Engine Coolant Temperature	ºC	S12.1	S12.1	S123456	S12345
	Intake Air Temperature	ºC	S12.1	S12.1	S123456	S12345
	Equivalence Ratio (Lambda)	ʎ	S1.123	S1.123	S123456	S12345
	Absolute Load Value	%	S123.12	S123.12	S123456	S12345
	Intake Manifold Absolute Pressure	kPaA	S12.1	S12.1	S123456	S12345
	Fuel Rail Pressure	kPaA	S1234.1	S1234.1	S123456	S12345
	Boost Absolute Pressure - Raw Value	kPaA	S123.12	S123.12	S123456	S12345
	Turbocharger/Supercharger Wastegate	%	S12.12	S12.12	S123456	S12345
	Actual Intake (A) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Actual Exhaust (B) Camshaft Position	º	S12.12	S12.12	S123456	S12345
	Intake (A) Camshaft Position Actuator Cycle	%	S12.12	S12.12	S123456	S12345
	Exhaust (B) Camshaft Position Actuator	%	S12.12	S12.12	S123456	S12345
	Charge Air Cooler Temperature	ºC	S12.12	S12.12	S123456	S12345

Sequence IX
Form 11
Cycle Count and Type Summary

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

	Iteration A			Iteration B			Iteration C			Iteration D		
Cylinder	**PP Only**	**MFB2 Only**	**PP and MFB2**	**PP Only**	**MFB2 Only**	**PP and MFB2**	**PP Only**	**MFB2 Only**	**PP and MFB2**	**PP Only**	**MFB2 Only**	**PP and MFB2**
1	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
2	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
3	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
4	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
All	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123

Evaluation Criteria

	Iteration A				Iteration B				Iteration C				Iteration D			
Parameter	**Cyl 1**	**Cyl 2**	**Cyl 3**	**Cyl 4**	**Cyl 1**	**Cyl 2**	**Cyl 3**	**Cyl 4**	**Cyl 1**	**Cyl 2**	**Cyl 3**	**Cyl 4**	**Cyl 1**	**Cyl 2**	**Cyl 3**	**Cyl 4**
PP Mean	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
PP Std Dev	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
PP F Value	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
PP Thresh	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
MFB2 Mean	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
MFB2 Std Dev	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
MFB2 F Value	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12
MFB2 Thresh	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12	S123.12

Legend:

PP	**Peak Pressure Only**
MFB2	**Mass Fraction Burn 2% Only**
PP& MFB2	**Both Peak Pressure and Mass Fraction Burn 2%**

Sequence IX
Form 12
Summary of Pre-ignition Events, Iteration A

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Legend:
PP Peak Pressure Only
MFB2 Mass Fraction Burn @2% Only
PP&MFB2 Both Peak Pressure and Mass Fraction Burn @ 2%

Sequence IX
Form 13
Summary of Pre-ignition Events, Iteration B

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Legend:

PP	**Peak Pressure Only**
MFB2	**Mass Fraction Burn @2% Only**
PP&MFB2	**Both Peak Pressure and Mass Fraction Burn @ 2%**

Sequence IX
Form 14
Summary of Pre-ignition Events, Iteration C

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Legend:
PP Peak Pressure Only
MFB2 Mass Fraction Burn 2% Only
PP&MFB2 Both Peak Pressure and Mass Fraction Burn 2%

Sequence IX
Form 15
Summary of Pre-ignition Events, Iteration D

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Cylinder	Cycle	Peak Pressure	MFB2	Type
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC
S1	S123456	S123.12	S123.12	CCCCCCCC

Legend:
PP Peak Pressure Only
MFB2 Mass Fraction Burn 2% Only
PP&MFB2 Both Peak Pressure and Mass Fraction Burn 2%

Sequence IX
Form 16
Hardware Information

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Oil Weight at SOT (kg)	S12.123		
Short Block ID	CCCCCCCCCCCCCCC	Engine Hours	CCCC
Cylinder Head ID	CCCCCCCCCCCCCCC	Cylinder Head Hours	CCCC
Turbocharger ID	CCCCCCCCCCCCCCC	Turbocharger Hours	CCCCCC
PCM Calibration Identification	CCCCCCCCCCCCCCCCCCCCCCCCCC		

Transducer Replacement History

Cylinder	Iteration							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	S1	S1	S1	S1	S1	S1	S1	S1
2	S1	S1	S1	S1	S1	S1	S1	S1
3	S1	S1	S1	S1	S1	S1	S1	S1
4	S1	S1	S1	S1	S1	S1	S1	S1

Sequence IX
Form 17
Chemical Analyses

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Iteration	mg/kg								Fuel Dilution By GC, Wt.% D3525	Vis, @ 40°C, cSt D445	Vis, @ 100°C, cSt D445
	Ag	Al	Cu	Fe	Na	Pb	Si	Sn			
New Oil											
A	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12345		S123.12	S123.12
B	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12.1	S123.12	S123.12
C	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12.1	S123.12	S123.12
D	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12.1	S123.12	S123.12
	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12345	S12.1	S123.12	S123.12

Sequence IX
Form 18
Downtime Record

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Number of Downtime Occurrences			S12
Test Hours	**Date**	**Downtime**	**Reasons**
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
HHH:MM	YYYYMMDD	HHH:MM	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
		HHH:MM	**Total Downtime (hours)**

Sequence IX
Form 19
Comment Record

Lab	CC	Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Stand	CCCCC	Test No.	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Laboratory Oil Code		CCCCCCCCCCCCCCCCCCCC	
Formulation Stand Code		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Number of Comment Lines	S12
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Sequence IX

Form 20
American Chemistry Council Code of Practice
Test Laboratory Conformance Statement

Test Laboratory	CC				
Test Sponsor	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation / Stand Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Test Number	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Start Date	YYYYMMDD	Start Time	HH:MM	Time Zone	CCC

Declarations

No. 1 All requirements of the ACC Code of Practice for which the test laboratory is responsible were met in the conduct of this test. Yes ___C___ No___C___ *

No. 2 The laboratory ran this test for the full duration following all procedural requirements; and all operational validity requirements of the latest version of the applicable test procedure (ASTM or other), including all updates issued by the organization responsible for the test, were met.
Yes ___C___ No___C___*

If the response to this Declaration is "No", does the test engineer consider the deviations from operational validity requirements that occurred to be beyond the control of the laboratory? Yes ___C___* No___C___

No 3. A deviation occurred for one of the test parameters identified by the organization responsible for the test as being a special case. Yes ___C___* No___C___ (This currently applies only to specific deviations identified in the ASTM Information Letter System)

C	Operational review of this test indicates that the results should be included in the Multiple Test Acceptance Criteria calculations.
C	*Operational review of this test indicates that the results should not be included in the Multiple Test Acceptance Criteria calculations.

Note: Supporting comments are required for all responses identified with an asterisk.

Comments
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