

Report On
General Motors Stochastic Pre-Ignition Test
For dexos®
Form 1

Version

Conducted For

| | |
|--|---|
| | 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 |

| Test Number | | | | | | | |
|------------------------|--|-----------|--|----------------|--|------------|--|
| Stand | | Stand Run | | Engine | | Engine Run | |
| Formulation Stand Code | | | | | | | |
| Date Started | | | | Time Started | | | |
| Date Completed | | | | Time Completed | | | |
| Test Length | | | | Total Downtime | | | |

| |
|--|
| <p>In my opinion this test _____ been conducted in a valid manner in accordance with test procedure GMSPI and appropriate amendments. The remarks included in the report describe the anomalies associated with this test.</p> |
|--|

Submitted By: _____
Testing Laboratory

Signature

Typed Name

Title

General Motors dexos® Stochastic Pre-Ignition Test

Form 2

Table of Contents

| | | |
|-----|---|---------|
| 1. | Title / Validity Declaration Page | Form 1 |
| 2. | Table of Contents | Form 2 |
| 3. | Test Results Summary | Form 3 |
| 4. | Operational Summary – Oil Conditioning Stage | Form 4 |
| 5. | Operational Summary – Engine Conditioning Stage | Form 5 |
| 6. | Operational Summary – Low Load Stages | Form 6 |
| 7. | Operational Summary – High Load Stages | Form 7 |
| 8. | Combustion Chamber Analysis - Cycle 1-1 | Form 8 |
| 9. | Combustion Chamber Analysis - Cycle 1-2 | Form 9 |
| 10. | Combustion Chamber Analysis - Cycle 1-3 | Form 10 |
| 11. | Combustion Chamber Analysis - Cycle 2-1 | Form 11 |
| 12. | Combustion Chamber Analysis - Cycle 2-2 | Form 12 |
| 13. | Combustion Chamber Analysis - Cycle 2-3 | Form 13 |
| 14. | Combustion Chamber Analysis - Cycle 3-1 | Form 14 |
| 15. | Combustion Chamber Analysis - Cycle 3-2 | Form 15 |
| 16. | Combustion Chamber Analysis - Cycle 3-3 | Form 16 |
| 17. | Firing Engine Health Check | Form 17 |
| 18. | Motoring Engine Health Check | Form 18 |
| 19. | Downtime Record | Form 19 |
| 20. | Comment Record | Form 20 |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 3
Test Results Summary**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Parameters | Units | Stages* | | | | | | | | |
|---------------------------------------|-------|---------|------|------|------|------|------|------|------|------|
| | | 0.1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Duration | sec | 1800 | 600 | 300 | 900 | 300 | 900 | 300 | 900 | 300 |
| Engine Speed | r/min | 2000 | 3900 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Torque | Nm | 100 | 200 | 32 | 350 | 32 | 350 | 32 | 350 | 32 |
| Coolant Out Temperature | °C | | | | 95 | | 95 | | 95 | |
| Oil Sump Temperature | °C | | | | 100 | | 100 | | 100 | |
| Intake Manifold Post-Intercooler Temp | °C | | | | 32 | | 32 | | 32 | |
| Exhaust Back Pressure | kPa | | | | 5.0 | | 5.0 | | 5.0 | |
| Humidity Dew Point | °C | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| Equivalence Ratio | λ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

* Stages 1 - 8 are repeated two times for a total of three cycles

| | |
|--|--|
| Total (Peak Pressure) PI Events | |
| Total (MBF02%) PI Events | |
| Total (Peak Pressure) + (MBF02%) PI Events | |

| | |
|--|--|
| Cycle 1 Total PI Events (Peak Pressure) | |
| Cycle 1 Total PI Events (MBF02%) | |
| Cycle 1 Total (Peak Pressure) + (MBF02%) PI Events | |

| | |
|--|--|
| Cycle 2 Total PI Events (Peak Pressure) | |
| Cycle 2 Total PI Events (MBF02%) | |
| Cycle 2 Total (Peak Pressure) + (MBF02%) PI Events | |

| | |
|--|--|
| Cycle 3 Total PI Events (Peak Pressure) | |
| Cycle 3 Total PI Events (MBF02%) | |
| Cycle 3 Total (Peak Pressure) + (MBF02%) PI Events | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 4
Operational Summary – Oil Conditioning Stage**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | | Engine Data | | | | | QI | | |
|------------------------------|-------------------------------------|-------------|--------------|---------|---------|-----|-----|----|---------|
| | | Units | Target Value | Average | Std Dev | Min | Max | QI | Samples |
| Parameter | | | | | | | | | |
| Controlled Parameters | Engine Speed | r/min | 2000 | | | | | | |
| | Torque | Nm | 100 | | | | | | |
| | Humidity Dew Point | °C | 7.0 | | | | | | |
| | Equivalence Ratio | λ | 1.00 | | | | | | |
| Non-Controlled | Coolant In Temperature | °C | Report | | | | | | |
| | Coolant Out Temperature | °C | Report | | | | | | |
| | Oil Sump Temperature | °C | Report | | | | | | |
| | Oil Gallery Temperature | °C | Report | | | | | | |
| | Intake Manifold Post-IC Temperature | °C | Report | | | | | | |
| | Fuel Temperature | °C | Report | | | | | | |
| | Exhaust Back Pressure | kPa | Report | | | | | | |
| | Coolant Pressure | kPa | Report | | | | | | |
| | Fuel Pressure | kPa | Report | | | | | | |
| | Pre-Turbo Inlet Air Temperature | °C | Report | | | | | | |
| | Exhaust Temperature | °C | Report | | | | | | |
| | Pre-Turbo Inlet Air Pressure | kPa | Report | | | | | | |
| | Post-Turbo Air Pressure | kPa | Report | | | | | | |
| | Intake Manifold Pressure | kPaA | Report | | | | | | |
| | Barometric Pressure | kPaA | Report | | | | | | |
| | Crankcase Pressure | kPa | Report | | | | | | |
| | Coolant Flow | L/min | Report | | | | | | |
| Fuel Flow | kg/hr | Report | | | | | | | |
| Power | kW | Report | | | | | | | |

General Motors dexos® Stochastic Pre-Ignition Test

Form 5

Operational Summary – Engine Conditioning Stage: average of 3 stages

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | | Engine Data | | | | | QI | | | |
|-----------------------|-------------------------------------|--------------------|--------------|---------|---------|-----|-----|----|---------|-----|
| | | Units | Target Value | Average | Std Dev | Min | Max | QI | Samples | BQD |
| Controlled Parameters | Parameter | | | | | | | | | |
| | | Engine Speed | r/min | 3900 | | | | | | |
| | | Torque | Nm | 200 | | | | | | |
| | | Humidity Dew Point | °C | 7.0 | | | | | | |
| | Equivalence Ratio | λ | 1.00 | | | | | | | |
| Non-Controlled | Coolant Out Temperature | °C | Report | | | | | | | |
| | Coolant Out Temperature | °C | Report | | | | | | | |
| | Oil Sump Temperature | °C | Report | | | | | | | |
| | Oil Gallery Temperature | °C | Report | | | | | | | |
| | Intake Manifold Post-IC Temperature | °C | Report | | | | | | | |
| | Fuel Temperature | °C | Report | | | | | | | |
| | Exhaust Back Pressure | kPa | Report | | | | | | | |
| | Coolant Pressure | kPa | Report | | | | | | | |
| | Fuel Pressure | kPa | Report | | | | | | | |
| | Pre-Turbo Inlet Air Temperature | °C | Report | | | | | | | |
| | Exhaust Temperature | °C | Report | | | | | | | |
| | Pre-Turbo Inlet Air Pressure | kPa | Report | | | | | | | |
| | Post-Turbo Air Pressure | kPa | Report | | | | | | | |
| | Intake Manifold Pressure | kPaA | Report | | | | | | | |
| | Barometric Pressure | kPaA | Report | | | | | | | |
| | Crankcase Pressure | kPa | Report | | | | | | | |
| | Coolant Flow | L/min | Report | | | | | | | |
| Fuel Flow | kg/hr | Report | | | | | | | | |
| Power | kW | Report | | | | | | | | |

General Motors dexos® Stochastic Pre-Ignition Test
Form 6
Operational Summary – Low Load Stages average of 11 stages

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | | Engine Data | | | | | | QI | | | |
|-----------------------|-------------------------------------|--------------------|--------------|---------|---------|-----|-----|----|---------|-----|--|
| | | Units | Target Value | Average | Std Dev | Min | Max | QI | Samples | BQD | |
| Controlled Parameters | Parameter | | | | | | | | | | |
| | | Engine Speed | r/min | 2000 | | | | | | | |
| | | Torque | Nm | 32 | | | | | | | |
| | | Humidity Dew Point | °C | 7.0 | | | | | | | |
| | Equivalence Ratio | λ | 1.00 | | | | | | | | |
| Non-Controlled | Coolant In Temperature | °C | Report | | | | | | | | |
| | Coolant Out Temperature | °C | Report | | | | | | | | |
| | Oil Sump Temperature | °C | Report | | | | | | | | |
| | Oil Gallery Temperature | °C | Report | | | | | | | | |
| | Intake Manifold Post-IC Temperature | °C | Report | | | | | | | | |
| | Fuel Temperature | °C | Report | | | | | | | | |
| | Exhaust Back Pressure | kPa | Report | | | | | | | | |
| | Coolant Pressure | kPa | Report | | | | | | | | |
| | Fuel Pressure | kPa | Report | | | | | | | | |
| | Pre-Turbo Inlet Air Temperature | °C | Report | | | | | | | | |
| | Exhaust Temperature | °C | Report | | | | | | | | |
| | Pre-Turbo Inlet Air Pressure | kPa | Report | | | | | | | | |
| | Post-Turbo Air Pressure | kPa | Report | | | | | | | | |
| | Intake Manifold Pressure | kPaA | Report | | | | | | | | |
| | Barometric Pressure | kPaA | Report | | | | | | | | |
| | Crankcase Pressure | kPa | Report | | | | | | | | |
| | Coolant Flow | L/min | Report | | | | | | | | |
| | Fuel Flow | kg/hr | Report | | | | | | | | |
| Power | kW | Report | | | | | | | | | |

General Motors dexos® Stochastic Pre-Ignition Test
Form 7
Operational Summary – High Load Stages average of 9 stages

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | | Engine Data | | | | | | QI | | | |
|-----------------------|---------------------------------|-------------------------------------|--------------|---------|---------|-----|-----|----|---------|-----|--|
| | | Units | Target Value | Average | Std Dev | Min | Max | OI | Samples | BOD | |
| Controlled Parameters | Parameter | | | | | | | | | | |
| | | Engine Speed | r/min | 2000 | | | | | | | |
| | | Torque | Nm | 350 | | | | | | | |
| | | Humidity Dew Point | °C | 7.0 | | | | | | | |
| | | Equivalence Ratio | λ | 1.00 | | | | | | | |
| | | Coolant Out Temperature | °C | 95 | | | | | | | |
| | | Oil Sump Temperature | °C | 100 | | | | | | | |
| | | Intake Manifold Post-IC Temperature | °C | 32 | | | | | | | |
| | Exhaust Back Pressure | kPa | 5 | | | | | | | | |
| Non-Controlled | Oil Gallery Temperature | °C | Report | | | | | | | | |
| | Coolant In Temperature | °C | Report | | | | | | | | |
| | Fuel Temperature | °C | Report | | | | | | | | |
| | Coolant Pressure | kPa | Report | | | | | | | | |
| | Fuel Pressure | kPa | Report | | | | | | | | |
| | Pre-Turbo Inlet Air Temperature | °C | Report | | | | | | | | |
| | Exhaust Temperature | °C | Report | | | | | | | | |
| | Pre-Turbo Inlet Air Pressure | kPa | Report | | | | | | | | |
| | Post-Turbo Air Pressure | kPa | Report | | | | | | | | |
| | Intake Manifold Pressure | kPaA | Report | | | | | | | | |
| | Barometric Pressure | kPaA | Report | | | | | | | | |
| | Crankcase Pressure | kPa | Report | | | | | | | | |
| | Coolant Flow | L/min | Report | | | | | | | | |
| | Fuel Flow | kg/hr | Report | | | | | | | | |
| Power | kW | Report | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 8
Combustion Chamber Analysis - Cycle 1-1**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Cycle 1-1 | | | | | | | | | | | | |
|--------------------|------------|-------|---------|------------|-------|---------|------------|-------|---------|------------|-------|---------|
| | Cylinder 1 | | | Cylinder 2 | | | Cylinder 3 | | | Cylinder 4 | | |
| | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | |
| Average | | | | | | | | | | | | |
| PI Threshold | | | | | | | | | | | | |
| # of Events | | | | | | | | | | | | |
| | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # |
| 1st Event | | | | | | | | | | | | |
| 2nd Event | | | | | | | | | | | | |
| 3rd Event | | | | | | | | | | | | |
| 4th Event | | | | | | | | | | | | |
| 5th Event | | | | | | | | | | | | |
| 6th Event | | | | | | | | | | | | |
| 7th Event | | | | | | | | | | | | |
| 8th Event | | | | | | | | | | | | |
| 9th Event | | | | | | | | | | | | |
| 10th Event | | | | | | | | | | | | |
| 11th Event | | | | | | | | | | | | |
| 12th Event | | | | | | | | | | | | |
| 13th Event | | | | | | | | | | | | |
| 14th Event | | | | | | | | | | | | |
| 15th Event | | | | | | | | | | | | |
| Total (Peak Press) | | | | | | | | | | | | |
| Total (MBF02%) | | | | | | | | | | | | |
| Total (Combined) | | | | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 9
Combustion Chamber Analysis - Cycle 1-2**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Cycle 1-2 | | | | | | | | | | | | |
|--------------------|------------|-------|---------|------------|-------|---------|------------|-------|---------|------------|-------|---------|
| | Cylinder 1 | | | Cylinder 2 | | | Cylinder 3 | | | Cylinder 4 | | |
| | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | |
| Average | | | | | | | | | | | | |
| PI Threshold | | | | | | | | | | | | |
| # of Events | | | | | | | | | | | | |
| | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # |
| 1st Event | | | | | | | | | | | | |
| 2nd Event | | | | | | | | | | | | |
| 3rd Event | | | | | | | | | | | | |
| 4th Event | | | | | | | | | | | | |
| 5th Event | | | | | | | | | | | | |
| 6th Event | | | | | | | | | | | | |
| 7th Event | | | | | | | | | | | | |
| 8th Event | | | | | | | | | | | | |
| 9th Event | | | | | | | | | | | | |
| 10th Event | | | | | | | | | | | | |
| 11th Event | | | | | | | | | | | | |
| 12th Event | | | | | | | | | | | | |
| 13th Event | | | | | | | | | | | | |
| 14th Event | | | | | | | | | | | | |
| 15th Event | | | | | | | | | | | | |
| Total (Peak Press) | | | | | | | | | | | | |
| Total (MBF02%) | | | | | | | | | | | | |
| Total (Combined) | | | | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 10
Combustion Chamber Analysis - Cycle 1-3**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Cycle 1-3 | | | | | | | | | | | | |
|--------------------|------------|-------|---------|------------|-------|---------|------------|-------|---------|------------|-------|---------|
| | Cylinder 1 | | | Cylinder 2 | | | Cylinder 3 | | | Cylinder 4 | | |
| | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | |
| Average | | | | | | | | | | | | |
| PI Threshold | | | | | | | | | | | | |
| # of Events | | | | | | | | | | | | |
| | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # |
| 1st Event | | | | | | | | | | | | |
| 2nd Event | | | | | | | | | | | | |
| 3rd Event | | | | | | | | | | | | |
| 4th Event | | | | | | | | | | | | |
| 5th Event | | | | | | | | | | | | |
| 6th Event | | | | | | | | | | | | |
| 7th Event | | | | | | | | | | | | |
| 8th Event | | | | | | | | | | | | |
| 9th Event | | | | | | | | | | | | |
| 10th Event | | | | | | | | | | | | |
| 11th Event | | | | | | | | | | | | |
| 12th Event | | | | | | | | | | | | |
| 13th Event | | | | | | | | | | | | |
| 14th Event | | | | | | | | | | | | |
| 15th Event | | | | | | | | | | | | |
| Total (Peak Press) | | | | | | | | | | | | |
| Total (MBF02%) | | | | | | | | | | | | |
| Total (Combined) | | | | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 11
Combustion Chamber Analysis - Cycle 2-1**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Cycle 2-1 | | | | | | | | | | | | |
|--------------------|------------|-------|---------|------------|-------|---------|------------|-------|---------|------------|-------|---------|
| | Cylinder 1 | | | Cylinder 2 | | | Cylinder 3 | | | Cylinder 4 | | |
| | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | |
| Average | | | | | | | | | | | | |
| PI Threshold | | | | | | | | | | | | |
| # of Events | | | | | | | | | | | | |
| | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # |
| 1st Event | | | | | | | | | | | | |
| 2nd Event | | | | | | | | | | | | |
| 3rd Event | | | | | | | | | | | | |
| 4th Event | | | | | | | | | | | | |
| 5th Event | | | | | | | | | | | | |
| 6th Event | | | | | | | | | | | | |
| 7th Event | | | | | | | | | | | | |
| 8th Event | | | | | | | | | | | | |
| 9th Event | | | | | | | | | | | | |
| 10th Event | | | | | | | | | | | | |
| 11th Event | | | | | | | | | | | | |
| 12th Event | | | | | | | | | | | | |
| 13th Event | | | | | | | | | | | | |
| 14th Event | | | | | | | | | | | | |
| 15th Event | | | | | | | | | | | | |
| Total (Peak Press) | | | | | | | | | | | | |
| Total (MBF02%) | | | | | | | | | | | | |
| Total (Combined) | | | | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 12
Combustion Chamber Analysis - Cycle 2-2**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Cycle 2-2 | | | | | | | | | | | | |
|--------------------|------------|-------|---------|------------|-------|---------|------------|-------|---------|------------|-------|---------|
| | Cylinder 1 | | | Cylinder 2 | | | Cylinder 3 | | | Cylinder 4 | | |
| | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | | Peak | MBF2% | |
| Average | | | | | | | | | | | | |
| PI Threshold | | | | | | | | | | | | |
| # of Events | | | | | | | | | | | | |
| | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # | kPa | deg | Cycle # |
| 1st Event | | | | | | | | | | | | |
| 2nd Event | | | | | | | | | | | | |
| 3rd Event | | | | | | | | | | | | |
| 4th Event | | | | | | | | | | | | |
| 5th Event | | | | | | | | | | | | |
| 6th Event | | | | | | | | | | | | |
| 7th Event | | | | | | | | | | | | |
| 8th Event | | | | | | | | | | | | |
| 9th Event | | | | | | | | | | | | |
| 10th Event | | | | | | | | | | | | |
| 11th Event | | | | | | | | | | | | |
| 12th Event | | | | | | | | | | | | |
| 13th Event | | | | | | | | | | | | |
| 14th Event | | | | | | | | | | | | |
| 15th Event | | | | | | | | | | | | |
| Total (Peak Press) | | | | | | | | | | | | |
| Total (MBF02%) | | | | | | | | | | | | |
| Total (Combined) | | | | | | | | | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 17
Hardware Info**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | | | |
|------------------------------|--|------------------------|--|
| Fuel Batch | | Fuel Dilution % at EOT | |
| Oil Weight at SOT (kg) | | Oil Weight at EOT (kg) | |
| Engine | | Engine Hours | |
| Cylinder Head ID | | Cylinder Head Hours | |
| Turbocharger ID | | Turbocharger Hours | |
| Pressure Transducer 1 ID | | | |
| Pressure Transducer 2 ID | | | |
| Pressure Transducer 3 ID | | | |
| Pressure Transducer 4 ID | | | |
| Pressure Transducer 1 Cycles | | | |
| Pressure Transducer 2 Cycles | | | |
| Pressure Transducer 3 Cycles | | | |
| Pressure Transducer 4 Cycles | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 18
Engine Health Checks**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| | Parameter | Units | Average | Parameter | Units | Average |
|----------------------------|--|-------|---------|--|-------|---------|
| Firing Parameters | Cell Temperature | °C | | Fuel Flow | kg/hr | |
| | Intake Air Temperature | °C | | Humidity Dew Point | °C | |
| | Intake Manifold Pressure | kPaA | | | | |
| | Cylinder 1 IMEP | kPa | | Cylinder 2 IMEP | kPa | |
| | Cylinder 3 IMEP | kPa | | Cylinder 4 IMEP | kPa | |
| | Cylinder 1 50% Mass Fraction Burned | | | Cylinder 2 50% Mass Fraction Burned | | |
| | Cylinder 3 50% Mass Fraction Burned | | | Cylinder 4 50% Mass Fraction Burned | | |
| | Cylinder 1 Polytropic Compression Constant | | | Cylinder 2 Polytropic Compression Constant | | |
| | Cylinder 3 Polytropic Compression Constant | | | Cylinder 4 Polytropic Compression Constant | | |
| | Cylinder 1 Polytropic Expansion Constant | | | Cylinder 2 Polytropic Expansion Constant | | |
| | Cylinder 3 Polytropic Expansion Constant | | | Cylinder 4 Polytropic Expansion Constant | | |
| Motoring Parameters | Motoring Torque | Nm | | Fuel Flow | kg/hr | |
| | Average Cylinder 1 IMEP | kPa | | Average Cylinder 2 IMEP | kPa | |
| | Average Cylinder 3 IMEP | kPa | | Average Cylinder 4 IMEP | kPa | |
| | Average Cylinder 1 Peak Pressure | kPa | | Average Cylinder 2 Peak Pressure | kPa | |
| | Average Cylinder 3 Peak Pressure | kPa | | Average Cylinder 4 Peak Pressure | kPa | |
| | Crank Angle of Cylinder 1 Peak Pressure | deg | | Crank Angle of Cylinder 2 Peak Pressure | deg | |
| | Crank Angle of Cylinder 3 Peak Pressure | deg | | Crank Angle of Cylinder 4 Peak Pressure | deg | |
| | Cylinder 1 Polytropic Compression Constant | | | Cylinder 2 Polytropic Compression Constant | | |
| | Cylinder 3 Polytropic Compression Constant | | | Cylinder 4 Polytropic Compression Constant | | |
| | Cylinder 1 Polytropic Expansion Constant | | | Cylinder 2 Polytropic Expansion Constant | | |
| | Cylinder 3 Polytropic Expansion Constant | | | Cylinder 4 Polytropic Expansion Constant | | |
| | Engine off torque | Nm | | | | |

**General Motors dexos® Stochastic Pre-Ignition Test
Form 19
Downtime Record**

| | | | |
|-------------|--|------------------------|--|
| Test Number | | Formulation Stand Code | |
|-------------|--|------------------------|--|

| Number of Downtime Occurrences | | | |
|---------------------------------------|-------------|-----------------|-------------------------------|
| Test Hours | Date | Downtime | Reasons |
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| | | | Total Downtime (hours) |

