## Bench Oxidation of Engine Oils by ROBO Apparatus

> Version ROBO VERSION 20110614 BETA
> Conducted For
> TSTSPON1
> TSTSPON2

| LABVALID | $\mathbf{V}$ = Valid |
| :--- | :--- |
|  | $\mathbf{I}$ = Invalid |

> | TSTOIL | NR $=$ Non-Reference Test Oil |
| :--- | :--- |
|  |  |

Test Number
Instrument ID: INSTRUID
Test Run Number: RUNNUM

| Date Completed: DTCOMP |  |  |  |
| :--- | :--- | :--- | :--- |
| Time Completed: EOTTIME |  |  |  |
| Oil Code: OILCODE | ALTCODE2 | ALTCODE3 |  |
| Alternate Oil Codes: | ALTCODE1 |  |  |

In my opinion this test OPVALID been conducted in a manner in accordance with the Test Method D7528. The remarks included in this report describe the anomalies associated with this test.

| Submitted By: | SUBLAB |  |
| :--- | :--- | ---: |
|  |  | Testing Laboratory |
|  | SUBSIGIM |  |
|  | SUBNAME | Signature |
|  |  | Typed Name |
|  |  |  |

## Bench Oxidation of Engine Oils by ROBO Apparatus

Form 2
Oil Code: OILCODE
Lab Sample Code: LABOCODE

| Testing Laboratory: LAB | TMC Oil Code: |
| :--- | :--- |
| Date Completed: $\quad$ DTCOMP | Time Completed: EOTTIME $\quad$ |


| Instrument ID: INSTRUID |  |  | Run Number of Last TMC Calibration: RNLSTCAL |
| :--- | :--- | :---: | :---: |
| Test Run Number: RUNNUM | TMC Calibration Expiration Date: DTCALEXP |  |  |
| Date of Last TMC Calibration: DTLSTCAL |  |  |  |


| Operational Parameters |  |
| :---: | :---: |
| Test Method-Version | METHVER |
| Vacuum Pump Serial Number | VACPMPID |
| Vacuum Pump Serial Number at Last TMC Calibration | VPMPLST |
| Reactor Vessel ID | RVID |
| Reactor Vessel ID at Last TMC Calibration | RVIDLST |
| Reactor Vessel Heater Voltage, volts | RVHV |
| Reactor Vessel Heater Voltage at Last TMC Calibration, volts | RVHVLST |
| Vacuum Control Valve Total Number of Turns from Full Open to Full Close, no. $360^{\circ}$ revolutions to the nearest quarter turn | VCVTOT |
| Vacuum Control Valve Set Point at Time of Last TMC Calibration (number of turns from full open), no. $360^{\circ}$ revolutions to the nearest quarter turn | VCVATCAL |
| Vacuum Control Valve Set Point for This Test (number of turns from full open), no. $360^{\circ}$ revolutions to the nearest quarter turn | VCVSET |
| SAE J300 Engine Oil Viscosity Classification | SAEVISC |
| Net Volatiles Collected at End of Test, g | VOLEOTG |
| Volatiles at End of Test, mass \% | VOLEOT |
| Vacuum Pressure Check On Closed System at Start of Test, kPa | VPCSOT |
| Vacuum Pressure Check On Closed System at End of Test, kPa | VPCEOT |


| Test Results |  |
| :--- | :---: |
| New Oil D445 Kinematic Viscosity @ $40^{\circ} \mathrm{C}, \mathrm{mm}^{2} / \mathrm{s}$ | KV40NEW |
| Aged Oil D445 Kinematic Viscosity @ $40^{\circ} \mathrm{C}, \mathrm{mm}^{2} / \mathrm{s}$ | KV40EOT |
| Percent Increase Kinematic Viscosity @ $40^{\circ} \mathrm{C}$ After Aging, $\%$ | KV40PVIS |
| D5293 Cold Crank Simulator Test Temperature, ${ }^{\circ} \mathrm{C}$ | CCSTEMP |
| Aged Oil D5293 Cold Crank Simulator Apparent Viscosity, mPa-s | CCSVEOT |
| D4684 Mini-Rotary Viscometer Test Temperature, ${ }^{\circ} \mathrm{C}$ | MRVTEMP |
| Aged Oil D4684 Mini-Rotary Viscometer Apparent Viscosity, mPa-s | MRVVEOT |
| Aged Oil D4684 Yield Stress, Pa | MRVYSEOT |

Test Method D7528
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Form 3
Oil Code: OILCODE
Lab Sample Code: LABOCODE

| Testing Laboratory: LAB | TMC Oil Code: |
| :--- | :--- |
| Date Completed: DTCOMP | Time Completed: EOTTIME IND |


| Instrument ID: INSTRUID |  |
| :--- | :--- |
| Test Run Number: RUNNUM |  |
| Date of Last TMC Calibration: DTLSTCAL | TMC Calibration Expiration Date: DTCALEXP |

Out-of-Limit Data and Time, Test Modifications and Comments

| Number of Comment Lines | TOTCOM |
| :--- | :--- |
| OCOMR001 |  |
| OCOMR002 |  |
| OCOMR003 |  |
| OCOMR004 |  |
| OCOMR005 |  |
| OCOMR006 |  |
| OCOMR007 |  |
| OCOMR008 |  |
| OCOMR009 |  |
| OCOMR010 |  |
| OCOMR011 |  |
| OCOMR012 |  |
| OCOMR013 |  |
| OCOMR014 |  |
| OCOMR015 |  |

Comment Summary

