# APPENDIX M

## 1990 TOYOTA CELICA
## VEHICLE EMISSION RESULTS

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS - AS RECD BASELINE
PROJECT 08-1815-001

TEST NO. C-OE-01 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 4/19/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-995-F
ODOMETER 145. KM( 90. MILES)

BAROMETER 743.46 MM HG(29.27 IN HG)
RELATIVE HUMIDITY 58. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 10.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 774.7 (30.5) | 787.4 (31.0) | 787.4 (31.0) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 774.7 (30.5) | 787.4 (31.0) | 787.4 (31.0) | 774.7 (30.5) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 41.7 (107.0) | 40.0 (104.0) | 41.7 (107.0) |
| BLOWER REVOLUTIONS | 11284. | 29220. | 69276. | 40314. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 742.) | 54.5 ( 1923.) | 129.5 ( 4573.) | 75.3 ( 2658.) |
| THC SAMPLE METER/RANGE/PPM | 9.7/ 3/ 97. | 11.7/ 2/ 12. | 11.4/ 2/ 11. | 11.5/ 2/ 11. |
| THC BCKGRD METER/RANGE/PPM | 1.2/ 3/ 12. | 11.1/ 2/ 11. | 11.0/ 2/ 11. | 10.5/ 2/ 10. |
| CO SAMPLE METER/RANGE/PPM | 71.8/ 14/ 340. | 1.0/ 12/ 1. | 2.6/ 12/ 2. | 2.6/ 12/ 2. |
| CO BCKGRD METER/RANGE/PPM | .0/ 14/ 0. | .9/ 12/ 1. | .5/ 12/ 0. | .4/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 89.4/ 14/ .8528 | 97.6/ 14/1.0751 | 77.9/ 14/ .6220 | 89.3/ 14/ .8504 |
| CO2 BCKGRD METER/RANGE/PCT | 12.9/ 14/ .0434 | 12.9/ 14/ .0434 | 12.8/ 14/ .0430 | 12.7/ 14/ .0426 |
| NOX SAMPLE METER/RANGE/PPM | 59.7/ 1/ 15.0 | 12.8/ 1/ 3.3 | 2.4/ 1/ .6 | 5.0/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 1/ .1 | .2/ 1/ .1 | .0/ 1/ .0 | .3/ 1/ .1 |
| DILUTION FACTOR | 14.97 | 12.45 | 21.50 | 15.73 |
| THC CONCENTRATION PPM | 86. | 1. | 1. | 2. |
| CO CONCENTRATION PPM | 328. | 0. | 2. | 2. |
| CO2 CONCENTRATION PCT | .8123 | 1.0352 | .5810 | .8105 |
| NOX CONCENTRATION PPM | 14.9 | 3.3 | .6 | 1.2 |
| THC MASS GRAMS | 1.04 | .05 | .07 | .07 |
| CO MASS GRAMS | 8.01 | .01 | .30 | .18 |
| CO2 MASS GRAMS | 312.4 | 1032.1 | 1377.6 | 1116.9 |
| NOX MASS GRAMS | .60 | .34 | .16 | .18 |
| THC GRAMS/MI | 1.55 | .02 | .02 | .02 |
| CO GRAMS/MI | 12.01 | .00 | .08 | .05 |
| CO2 GRAMS/MI | 468.3 | 356.9 | 360.3 | 317.7 |
| NOX GRAMS/MI | .89 | .12 | .04 | .05 |
| FUEL ECONOMY IN MPG | 18.02 23.19 | 24.84 | 24.60 26.08 | 27.90 |
| RUN TIME SECONDS | 141. | 365. | 866. | 504. |
| MEASURED DISTANCE MI | .67 3.56 | 2.89 | 3.82 7.34 | 3.52 |
| SCF, DRY | .973 .972 | .971 | .975 .975 | .973 |
| DFC, WET (DRY) | .923( .906) | | .947( .929) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.5/ .00 | | 204.8/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-OE-01 |
| BAROMETER | MM HG | 743.5 |
| HUMIDITY | G/KG | 10.7 |
| TEMPERATURE | DEG C | 23.3 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 352.3 |
| FUEL ECONOMY | MPG | 25.14 |
| HYDROCARBONS (THC) | G/MI | .08 |
| CARBON MONOXIDE | G/MI | .52 |
| OXIDES OF NITROGEN | G/MI | .09 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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PROJECT 08-1815-001

TEST NO. C-AH-02 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 5/18/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-995-F
ODOMETER 179. KM( 111. MILES)

BAROMETER 739.14 MM HG(29.10 IN HG)
RELATIVE HUMIDITY 59. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 11.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 764.5 (30.1) | 767.1 (30.2) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 764.5 (30.1) | 774.7 (30.5) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.8 (109.0) | 41.1 (106.0) | 40.6 (105.0) |
| BLOWER REVOLUTIONS | 11190. | 29232. | 69509. | 40442. |
| TOT FLOW STD. CU. METRES(SCF) | 20.7 ( 732.) | 54.2 ( 1914.) | 129.3 ( 4564.) | 75.2 ( 2654.) |
| THC SAMPLE METER/RANGE/PPM | 42.4/ 2/ 42. | 14.0/ 2/ 14. | 13.4/ 2/ 13. | 13.9/ 2/ 14. |
| THC BCKGRD METER/RANGE/PPM | 13.7/ 2/ 14. | 13.5/ 2/ 13. | 13.5/ 2/ 13. | 12.9/ 2/ 13. |
| CO SAMPLE METER/RANGE/PPM | 80.5/ 12/ 80. | 1.9/ 12/ 2. | 1.9/ 12/ 2. | 1.7/ 12/ 2. |
| CO BCKGRD METER/RANGE/PPM | 1.6/ 12/ 2. | 1.3/ 12/ 1. | 1.0/ 12/ 1. | 1.0/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 92.1/ 14/ .9193 | 61.4/ 1/1.1280 | 79.7/ 14/ .6535 | 90.1/ 14/ .8695 |
| CO2 BCKGRD METER/RANGE/PCT | 12.8/ 14/ .0430 | 2.4/ 1/ .0423 | 12.6/ 14/ .0422 | 12.6/ 14/ .0422 |
| NOX SAMPLE METER/RANGE/PPM | 43.8/ 2/ 43.8 | 17.2/ 1/ 4.4 | 2.0/ 1/ .5 | 8.6/ 1/ 2.2 |
| NOX BCKGRD METER/RANGE/PPM | .5/ 2/ .5 | .5/ 1/ .1 | .0/ 1/ .0 | .2/ 1/ .1 |
| DILUTION FACTOR | 14.39 | 11.86 | 20.46 | 15.38 |
| THC CONCENTRATION PPM | 29. | 2. | 1. | 2. |
| CO CONCENTRATION PPM | 76. | 1. | 1. | 1. |
| CO2 CONCENTRATION PCT | .8793 | 1.0892 | .6133 | .8300 |
| NOX CONCENTRATION PPM | 43.3 | 4.3 | .5 | 2.2 |
| THC MASS GRAMS | .35 | .05 | .04 | .08 |
| CO MASS GRAMS | 1.83 | .04 | .13 | .06 |
| CO2 MASS GRAMS | 333.8 | 1081.1 | 1451.4 | 1142.3 |
| NOX MASS GRAMS | 1.78 | .46 | .13 | .32 |
| THC GRAMS/MI | .53 | .02 | .01 | .02 |
| CO GRAMS/MI | 2.78 | .01 | .03 | .02 |
| CO2 GRAMS/MI | 505.2 | 376.9 | 381.9 | 322.9 |
| NOX GRAMS/MI | 2.69 | .16 | .04 | .09 |
| FUEL ECONOMY IN MPG | 17.35 22.05 | 23.52 | 23.21 25.08 | 27.46 |
| RUN TIME SECONDS | 140. | 365. | 869. | 506. |
| MEASURED DISTANCE MI | .66 3.53 | 2.87 | 3.80 7.34 | 3.54 |
| SCF, DRY | .972 .971 | .970 | .975 .974 | .973 |
| DFC, WET (DRY) | .920( .902) | | .945( .927) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.9/ .00 | | 204.4/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-02 |
| BAROMETER | MM HG | 739.1 |
| HUMIDITY | G/KG | 11.7 |
| TEMPERATURE | DEG C | 24.4 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 369.6 |
| FUEL ECONOMY | MPG | 24.03 |
| HYDROCARBONS (THC) | G/MI | .04 |
| CARBON MONOXIDE | G/MI | .13 |
| OXIDES OF NITROGEN | G/MI | .17 |

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TEST NO. C-VAH-03 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 6/26/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 219. KM( 136. MILES)

BAROMETER 738.12 MM HG(29.06 IN HG)
RELATIVE HUMIDITY 59. PCT
BAG RESULTS

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 11.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 42.8 (109.0) | 41.7 (107.0) | 41.7 (107.0) |
| BLOWER REVOLUTIONS | 11244. | 29207. | 69225. | 40531. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 734.) | 54.0 ( 1906.) | 128.2 ( 4527.) | 75.1 ( 2651.) |
| THC SAMPLE METER/RANGE/PPM | 36.0/ 2/ 36. | 18.0/ 2/ 18. | 13.9/ 2/ 14. | 19.3/ 2/ 19. |
| THC BCKGRD METER/RANGE/PPM | 14.1/ 2/ 14. | 14.1/ 2/ 14. | 13.9/ 2/ 14. | 15.0/ 2/ 15. |
| CO SAMPLE METER/RANGE/PPM | 55.5/ 12/ 55. | 74.3/ 12/ 74. | 2.7/ 12/ 3. | 4.9/ 12/ 5. |
| CO BCKGRD METER/RANGE/PPM | 1.4/ 12/ 1. | 1.1/ 12/ 1. | .8/ 12/ 1. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 92.7/ 14/ .9349 | 63.1/ 1/1.1598 | 80.8/ 14/ .6735 | 91.7/ 14/ .9091 |
| CO2 BCKGRD METER/RANGE/PCT | 12.6/ 14/ .0422 | 2.6/ 1/ .0459 | 12.6/ 14/ .0422 | 12.2/ 14/ .0407 |
| NOX SAMPLE METER/RANGE/PPM | 46.9/ 2/ 46.9 | 19.6/ 1/ 5.0 | 1.8/ 1/ .5 | 9.8/ 1/ 2.5 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | 1.1/ 1/ .3 | .7/ 1/ .2 | 1.0/ 1/ .3 |
| DILUTION FACTOR | 14.20 | 11.47 | 19.85 | 14.70 |
| THC CONCENTRATION PPM | 23. | 5. | 1. | 5. |
| CO CONCENTRATION PPM | 52. | 70. | 2. | 5. |
| CO2 CONCENTRATION PCT | .8957 | 1.1179 | .6334 | .8712 |
| NOX CONCENTRATION PPM | 46.6 | 4.7 | .3 | 2.3 |
| THC MASS GRAMS | .27 | .16 | .05 | .23 |
| CO MASS GRAMS | 1.25 | 4.39 | .27 | .39 |
| CO2 MASS GRAMS | 340.8 | 1105.1 | 1486.5 | 1197.4 |
| NOX MASS GRAMS | 1.88 | .50 | .07 | .34 |
| THC GRAMS/MI | .41 | .05 | .01 | .06 |
| CO GRAMS/MI | 1.87 | 1.50 | .07 | .11 |
| CO2 GRAMS/MI | 509.9 | 377.4 | 380.0 | 331.3 |
| NOX GRAMS/MI | 2.82 | .17 | .02 | .09 |
| FUEL ECONOMY IN MPG | 17.25 21.90 | 23.34 | 23.33 24.85 | 26.74 |
| RUN TIME SECONDS | 140. | 365. | 868. | 506. |
| MEASURED DISTANCE MI | .67 3.60 | 2.93 | 3.91 7.53 | 3.61 |
| SCF, DRY | .972 .971 | .970 | .975 .974 | .973 |
| DFC, WET (DRY) | .917( .900) | | .943( .925) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.8/ .00 | | 203.3/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-03 |
| BAROMETER | MM HG | 738.1 |
| HUMIDITY | G/KG | 11.2 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 371.2 |
| FUEL ECONOMY | MPG | 23.89 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .39 |
| OXIDES OF NITROGEN | G/MI | .17 |

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PROJECT 08-1815-001

TEST NO. C-VH-04 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 6/27/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 253. KM( 157. MILES)

BAROMETER 737.36 MM HG(29.03 IN HG)
RELATIVE HUMIDITY 47. PCT

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 8.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .93

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 41.7 (107.0) | 42.2 (108.0) |
| BLOWER REVOLUTIONS | 11247. | 29270. | 69465. | 40520. |
| TOT FLOW STD. CU. METRES(SCF) | 20.7 ( 733.) | 54.1 ( 1910.) | 128.5 ( 4538.) | 74.9 ( 2644.) |
| THC SAMPLE METER/RANGE/PPM | 10.7/ 3/ 107. | 11.4/ 2/ 11. | 9.0/ 2/ 9. | 16.8/ 2/ 17. |
| THC BCKGRD METER/RANGE/PPM | 1.1/ 3/ 11. | 9.6/ 2/ 9. | 10.0/ 2/ 10. | 9.6/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 47.3/ 14/ 208. | 4.4/ 12/ 4. | .0/ 12/ 0. | 7.9/ 12/ 8. |
| CO BCKGRD METER/RANGE/PPM | .2/ 14/ 1. | .0/ 12/ 0. | .0/ 12/ 0. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 50.3/ 1/ .9205 | 62.6/ 1/1.1504 | 78.4/ 14/ .6306 | 91.6/ 14/ .9066 |
| CO2 BCKGRD METER/RANGE/PCT | 2.2/ 1/ .0388 | 2.3/ 1/ .0406 | 11.9/ 14/ .0395 | 12.0/ 14/ .0399 |
| NOX SAMPLE METER/RANGE/PPM | 57.7/ 2/ 57.7 | 22.6/ 1/ 5.7 | 3.4/ 1/ .9 | 17.8/ 1/ 4.6 |
| NOX BCKGRD METER/RANGE/PPM | .4/ 2/ .4 | .6/ 1/ .2 | .2/ 1/ .1 | .0/ 1/ .0 |
| DILUTION FACTOR | 14.08 | 11.63 | 21.22 | 14.74 |
| THC CONCENTRATION PPM | 97. | 3. | 0. | 8. |
| CO CONCENTRATION PPM | 201. | 4. | 0. | 7. |
| CO2 CONCENTRATION PCT | .8845 | 1.1134 | .5929 | .8694 |
| NOX CONCENTRATION PPM | 57.3 | 5.6 | .8 | 4.6 |
| THC MASS GRAMS | 1.15 | .08 | .00 | .34 |
| CO MASS GRAMS | 4.85 | .25 | .00 | .64 |
| CO2 MASS GRAMS | 336.0 | 1102.8 | 1395.2 | 1192.0 |
| NOX MASS GRAMS | 2.11 | .54 | .19 | .60 |
| THC GRAMS/MI | 1.72 | .03 | .00 | .09 |
| CO GRAMS/MI | 7.24 | .09 | .00 | .18 |
| CO2 GRAMS/MI | 501.0 | 377.4 | 358.8 | 329.5 |
| NOX GRAMS/MI | 3.14 | .18 | .05 | .17 |
| FUEL ECONOMY IN MPG | 17.12 21.96 | 23.48 | 24.72 25.71 | 26.87 |
| RUN TIME SECONDS | 140. | 365. | 867. | 506. |
| MEASURED DISTANCE MI | .67 3.59 | 2.92 | 3.89 7.51 | 3.62 |
| SCF, DRY | .976 .975 | .974 | .979 .978 | .977 |
| DFC, WET (DRY) | .918( .904) | | .945( .931) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.8/ .00 | | 203.4/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VH-04 |
| BAROMETER | MM HG | 737.4 |
| HUMIDITY | G/KG | 8.3 |
| TEMPERATURE | DEG C | 22.8 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 359.3 |
| FUEL ECONOMY | MPG | 24.68 |
| HYDROCARBONS (THC) | G/MI | .10 |
| CARBON MONOXIDE | G/MI | .34 |
| OXIDES OF NITROGEN | G/MI | .22 |

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FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1815-001

TEST NO. C-AH-05 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 6/29/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-995-F
ODOMETER 312. KM( 194. MILES)

BAROMETER 739.14 MM HG(29.10 IN HG)
RELATIVE HUMIDITY 48. PCT
BAG RESULTS

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 9.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR .95

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 769.6 (30.3) | 767.1 (30.2) | 772.2 (30.4) | 769.6 (30.3) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.2 (108.0) | 41.7 (107.0) | 40.6 (105.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11235. | 29204. | 69437. | 40443. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 736.) | 54.3 ( 1916.) | 129.3 ( 4565.) | 75.2 ( 2656.) |
| THC SAMPLE METER/RANGE/PPM | 17.1/ 3/ 171. | 11.1/ 2/ 11. | 9.1/ 2/ 9. | 16.8/ 2/ 17. |
| THC BCKGRD METER/RANGE/PPM | 1.1/ 3/ 11. | 9.7/ 2/ 10. | 9.7/ 2/ 10. | 9.4/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 90.4/ 14/ 448. | 3.1/ 12/ 3. | 2.0/ 12/ 2. | 8.5/ 12/ 8. |
| CO BCKGRD METER/RANGE/PPM | .2/ 14/ 1. | .7/ 12/ 1. | .6/ 12/ 1. | .4/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 92.1/ 14/ .9193 | 63.7/ 1/1.1711 | 82.1/ 14/ .6979 | 92.4/ 14/ .9271 |
| CO2 BCKGRD METER/RANGE/PCT | 11.7/ 14/ .0388 | 2.1/ 1/ .0370 | 11.7/ 14/ .0388 | 11.8/ 14/ .0391 |
| NOX SAMPLE METER/RANGE/PPM | 38.9/ 2/ 38.9 | 6.4/ 1/ 1.7 | 2.5/ 1/ .7 | 11.0/ 1/ 2.8 |
| NOX BCKGRD METER/RANGE/PPM | .0/ 2/ .0 | .0/ 1/ .0 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 13.68 | 11.43 | 19.17 | 14.42 |
| THC CONCENTRATION PPM | 160. | 2. | 0. | 8. |
| CO CONCENTRATION PPM | 432. | 2. | 1. | 8. |
| CO2 CONCENTRATION PCT | .8834 | 1.1373 | .6611 | .8907 |
| NOX CONCENTRATION PPM | 38.9 | 1.7 | .7 | 2.8 |
| THC MASS GRAMS | 1.93 | .07 | .00 | .35 |
| CO MASS GRAMS | 10.49 | .14 | .20 | .66 |
| CO2 MASS GRAMS | 337.3 | 1130.0 | 1564.7 | 1226.6 |
| NOX MASS GRAMS | 1.47 | .16 | .15 | .39 |
| THC GRAMS/MI | 2.88 | .02 | .00 | .10 |
| CO GRAMS/MI | 15.64 | .05 | .05 | .18 |
| CO2 GRAMS/MI | 503.0 | 390.4 | 407.4 | 343.4 |
| NOX GRAMS/MI | 2.20 | .06 | .04 | .11 |
| FUEL ECONOMY IN MPG | 16.52 21.21 | 22.71 | 21.76 23.53 | 25.78 |
| RUN TIME SECONDS | 140. | 364. | 868. | 505. |
| MEASURED DISTANCE MI | .67 3.56 | 2.89 | 3.84 7.41 | 3.57 |
| SCF, DRY | .976 .974 | .974 | .978 .977 | .976 |
| DFC, WET (DRY) | .916( .902) | | .942( .927) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.1/ .00 | | 204.5/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-05 |
| BAROMETER | MM HG | 739.1 |
| HUMIDITY | G/KG | 9.1 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 390.7 |
| FUEL ECONOMY | MPG | 22.65 |
| HYDROCARBONS (THC) | G/MI | .14 |
| CARBON MONOXIDE | G/MI | .69 |
| OXIDES OF NITROGEN | G/MI | .15 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-06 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 6/30/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-995-F
ODOMETER 335. KM( 208. MILES)

BAROMETER 743.46 MM HG(29.27 IN HG)
RELATIVE HUMIDITY 61. PCT

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 10.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 769.6 (30.3) | 774.7 (30.5) | 772.2 (30.4) | 769.6 (30.3) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 769.6 (30.3) | 764.5 (30.1) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.2 (108.0) | 41.1 (106.0) | 40.0 (104.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11227. | 29224. | 69423. | 40423. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 741.) | 54.7 ( 1930.) | 130.2 ( 4597.) | 75.7 ( 2672.) |
| THC SAMPLE METER/RANGE/PPM | 52.7/ 2/ 52. | 12.2/ 2/ 12. | 10.7/ 2/ 11. | 17.1/ 2/ 17. |
| THC BCKGRD METER/RANGE/PPM | 12.5/ 2/ 12. | 13.2/ 2/ 13. | 12.8/ 2/ 13. | 11.9/ 2/ 12. |
| CO SAMPLE METER/RANGE/PPM | 61.6/ 13/ 146. | 54.2/ 12/ 53. | 1.4/ 12/ 1. | 4.9/ 12/ 5. |
| CO BCKGRD METER/RANGE/PPM | .4/ 13/ 1. | .7/ 12/ 1. | .8/ 12/ 1. | .6/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 92.7/ 14/ .9349 | 63.4/ 1/1.1654 | 81.0/ 14/ .6772 | 92.9/ 14/ .9402 |
| CO2 BCKGRD METER/RANGE/PCT | 12.4/ 14/ .0415 | 2.4/ 1/ .0423 | 12.3/ 14/ .0411 | 12.2/ 14/ .0407 |
| NOX SAMPLE METER/RANGE/PPM | 44.9/ 2/ 44.9 | 35.3/ 1/ 8.9 | 2.6/ 1/ .7 | 11.0/ 1/ 2.8 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | .6/ 1/ .2 | .8/ 1/ .2 | .0/ 1/ .0 |
| DILUTION FACTOR | 14.04 | 11.44 | 19.75 | 14.22 |
| THC CONCENTRATION PPM | 41. | 0. | 0. | 6. |
| CO CONCENTRATION PPM | 140. | 51. | 1. | 4. |
| CO2 CONCENTRATION PCT | .8964 | 1.1268 | .6382 | .9024 |
| NOX CONCENTRATION PPM | 44.6 | 8.7 | .5 | 2.8 |
| THC MASS GRAMS | .49 | .00 | .00 | .26 |
| CO MASS GRAMS | 3.41 | 3.22 | .09 | .35 |
| CO2 MASS GRAMS | 344.2 | 1127.5 | 1521.1 | 1250.2 |
| NOX MASS GRAMS | 1.77 | .91 | .12 | .41 |
| THC GRAMS/MI | .74 | .00 | .00 | .07 |
| CO GRAMS/MI | 5.12 | 1.12 | .02 | .10 |
| CO2 GRAMS/MI | 516.3 | 393.0 | 397.8 | 352.1 |
| NOX GRAMS/MI | 2.66 | .32 | .03 | .11 |
| FUEL ECONOMY IN MPG | 16.84 21.13 | 22.47 | 22.29 23.59 | 25.16 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .67 3.54 | 2.87 | 3.82 7.37 | 3.55 |
| SCF, DRY | .972 .970 | .970 | .974 .973 | .972 |
| DFC, WET (DRY) | .917( .899) | | .942( .924) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.6/ .00 | | 205.9/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-06 |
| BAROMETER | MM HG | 743.5 |
| HUMIDITY | G/KG | 10.4 |
| TEMPERATURE | DEG C | 22.2 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 389.1 |
| FUEL ECONOMY | MPG | 22.78 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .43 |
| OXIDES OF NITROGEN | G/MI | .20 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
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TEST NO. C-H-07 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/ 1/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 352. KM( 219. MILES)

BAROMETER 743.46 MM HG(29.27 IN HG)
RELATIVE HUMIDITY 65. PCT
BAG RESULTS

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 11.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 807.7 (31.8) | 792.5 (31.2) | 787.4 (31.0) | 787.4 (31.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 764.5 (30.1) | 774.7 (30.5) | 774.7 (30.5) | 777.2 (30.6) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 40.0 (104.0) | 43.9 (111.0) | 40.6 (105.0) |
| BLOWER REVOLUTIONS | 11239. | 29525. | 69406. | 40558. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 740.) | 55.3 ( 1952.) | 129.0 ( 4556.) | 75.8 ( 2678.) |
| THC SAMPLE METER/RANGE/PPM | 78.3/ 2/ 77. | 15.2/ 2/ 15. | 10.7/ 2/ 11. | 15.4/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 11.0/ 2/ 11. | 11.2/ 2/ 11. | 10.6/ 2/ 10. | 10.0/ 2/ 10. |
| CO SAMPLE METER/RANGE/PPM | 57.8/ 14/ 263. | 45.9/ 13/ 107. | 4.8/ 12/ 5. | 4.2/ 12/ 4. |
| CO BCKGRD METER/RANGE/PPM | .0/ 14/ 0. | .0/ 13/ 0. | .1/ 12/ 0. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 93.2/ 14/ .9482 | 64.6/ 1/1.1879 | 80.6/ 14/ .6698 | 92.9/ 14/ .9402 |
| CO2 BCKGRD METER/RANGE/PCT | 12.0/ 14/ .0399 | 2.2/ 1/ .0388 | 11.9/ 14/ .0395 | 11.8/ 14/ .0391 |
| NOX SAMPLE METER/RANGE/PPM | 34.6/ 2/ 34.6 | 6.3/ 1/ 1.6 | 3.3/ 1/ .9 | 6.8/ 1/ 1.8 |
| NOX BCKGRD METER/RANGE/PPM | .1/ 2/ .1 | .0/ 1/ .0 | .0/ 1/ .0 | .1/ 1/ .0 |
| DILUTION FACTOR | 13.66 | 11.17 | 19.96 | 14.22 |
| THC CONCENTRATION PPM | 67. | 5. | 1. | 6. |
| CO CONCENTRATION PPM | 252. | 102. | 4. | 4. |
| CO2 CONCENTRATION PCT | .9112 | 1.1526 | .6323 | .9038 |
| NOX CONCENTRATION PPM | 34.5 | 1.6 | .9 | 1.8 |
| THC MASS GRAMS | .81 | .16 | .05 | .26 |
| CO MASS GRAMS | 6.15 | 6.58 | .65 | .34 |
| CO2 MASS GRAMS | 349.4 | 1166.4 | 1493.6 | 1254.8 |
| NOX MASS GRAMS | 1.40 | .18 | .22 | .26 |
| THC GRAMS/MI | 1.21 | .05 | .01 | .07 |
| CO GRAMS/MI | 9.12 | 2.26 | .17 | .09 |
| CO2 GRAMS/MI | 518.1 | 400.6 | 382.0 | 347.3 |
| NOX GRAMS/MI | 2.08 | .06 | .06 | .07 |
| FUEL ECONOMY IN MPG | 16.54 20.67 | 21.93 | 23.19 24.25 | 25.51 |
| RUN TIME SECONDS | 140. | 368. | 866. | 506. |
| MEASURED DISTANCE MI | .67 3.59 | 2.91 | 3.91 7.52 | 3.61 |
| SCF, DRY | .970 .969 | .968 | .973 .972 | .970 |
| DFC, WET (DRY) | .915( .896) | | .942( .923) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 76.2/ .00 | | 204.9/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-H-07 |
| BAROMETER | MM HG | 743.5 |
| HUMIDITY | G/KG | 11.1 |
| TEMPERATURE | DEG C | 22.2 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 380.9 |
| FUEL ECONOMY | MPG | 23.25 |
| HYDROCARBONS (THC) | G/MI | .08 |
| CARBON MONOXIDE | G/MI | .84 |
| OXIDES OF NITROGEN | G/MI | .14 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-08 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/ 2/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 375. KM( 233. MILES)

BAROMETER 737.87 MM HG(29.05 IN HG)
RELATIVE HUMIDITY 39. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 7.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR .91

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 767.1 (30.2) | 767.1 (30.2) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 759.5 (29.9) | 762.0 (30.0) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 40.0 (104.0) | 42.2 (108.0) |
| BLOWER REVOLUTIONS | 11206. | 29226. | 69403. | 40471. |
| TOT FLOW STD. CU. METRES(SCF) | 20.7 ( 732.) | 54.2 ( 1913.) | 129.1 ( 4559.) | 75.0 ( 2648.) |
| THC SAMPLE METER/RANGE/PPM | 40.4/ 2/ 40. | 11.0/ 2/ 11. | 8.5/ 2/ 8. | 14.9/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 8.6/ 2/ 9. | 9.5/ 2/ 9. | 9.3/ 2/ 9. | 9.2/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 47.0/ 13/ 110. | 84.7/ 12/ 85. | 1.3/ 12/ 1. | 6.1/ 12/ 6. |
| CO BCKGRD METER/RANGE/PPM | .6/ 13/ 1. | .8/ 12/ 1. | .6/ 12/ 1. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 58.2/ 1/1.0681 | 66.0/ 1/1.2142 | 80.0/ 14/ .6589 | 94.0/ 14/ .9698 |
| CO2 BCKGRD METER/RANGE/PCT | 2.6/ 1/ .0459 | 2.4/ 1/ .0423 | 12.1/ 14/ .0403 | 12.2/ 14/ .0407 |
| NOX SAMPLE METER/RANGE/PPM | 65.3/ 2/ 65.3 | 31.9/ 1/ 8.0 | 4.1/ 1/ 1.1 | 13.1/ 1/ 3.4 |
| NOX BCKGRD METER/RANGE/PPM | .1/ 2/ .1 | .0/ 1/ .0 | .0/ 1/ .0 | .3/ 1/ .1 |
| DILUTION FACTOR | 12.38 | 10.95 | 20.31 | 13.79 |
| THC CONCENTRATION PPM | 32. | 2. | 0. | 6. |
| CO CONCENTRATION PPM | 105. | 81. | 1. | 6. |
| CO2 CONCENTRATION PCT | 1.0259 | 1.1758 | .6206 | .9321 |
| NOX CONCENTRATION PPM | 65.2 | 8.0 | 1.1 | 3.3 |
| THC MASS GRAMS | .38 | .07 | .00 | .27 |
| CO MASS GRAMS | 2.53 | 5.11 | .10 | .49 |
| CO2 MASS GRAMS | 389.2 | 1166.1 | 1466.9 | 1279.8 |
| NOX MASS GRAMS | 2.34 | .76 | .24 | .43 |
| THC GRAMS/MI | .56 | .02 | .00 | .07 |
| CO GRAMS/MI | 3.71 | 1.73 | .03 | .14 |
| CO2 GRAMS/MI | 571.7 | 396.2 | 383.4 | 352.1 |
| NOX GRAMS/MI | 3.44 | .26 | .06 | .12 |
| FUEL ECONOMY IN MPG | 15.31 20.49 | 22.23 | 23.13 24.07 | 25.15 |
| RUN TIME SECONDS | 140. | 365. | 868. | 506. |
| MEASURED DISTANCE MI | .68 3.62 | 2.94 | 3.83 7.46 | 3.63 |
| SCF, DRY | .978 .977 | .976 | .981 .980 | .979 |
| DFC, WET (DRY) | .912( .900) | | .942( .930) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.9/ .00 | | 204.1/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-08 |
| BAROMETER | MM HG | 737.9 |
| HUMIDITY | G/KG | 7.6 |
| TEMPERATURE | DEG C | 24.4 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 384.3 |
| FUEL ECONOMY | MPG | 23.08 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .49 |
| OXIDES OF NITROGEN | G/MI | .24 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-09 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO. 92
DATE 7/ 3/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 399. KM( 248. MILES)

BAROMETER 736.60 MM HG(29.00 IN HG)
RELATIVE HUMIDITY 41. PCT
BAG RESULTS

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 9.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 756.9 (29.8) | 756.9 (29.8) | 756.9 (29.8) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 43.3 (110.0) | 41.7 (107.0) | 42.2 (108.0) |
| BLOWER REVOLUTIONS | 11206. | 29238. | 69392. | 40467. |
| TOT FLOW STD. CU. METRES(SCF) | 20.7 ( 731.) | 54.0 ( 1907.) | 128.5 ( 4539.) | 74.9 ( 2643.) |
| THC SAMPLE METER/RANGE/PPM | 38.8/ 2/ 38. | 9.8/ 2/ 10. | 8.9/ 2/ 9. | 15.2/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 9.5/ 2/ 9. | 9.8/ 2/ 10. | 8.9/ 2/ 9. | 9.8/ 2/ 10. |
| CO SAMPLE METER/RANGE/PPM | 48.8/ 13/ 114. | 2.2/ 12/ 2. | 1.3/ 12/ 1. | 6.2/ 12/ 6. |
| CO BCKGRD METER/RANGE/PPM | .0/ 13/ 0. | .1/ 12/ 0. | .0/ 12/ 0. | .3/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 93.2/ 14/ .9482 | 65.1/ 1/1.1973 | 80.8/ 14/ .6735 | 92.7/ 14/ .9349 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 2.2/ 1/ .0388 | 11.9/ 14/ .0395 | 12.0/ 14/ .0399 |
| NOX SAMPLE METER/RANGE/PPM | 48.2/ 2/ 48.2 | 22.0/ 1/ 5.6 | 3.1/ 1/ .8 | 7.4/ 1/ 1.9 |
| NOX BCKGRD METER/RANGE/PPM | .2/ 2/ .2 | .6/ 1/ .2 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 13.91 | 11.18 | 19.87 | 14.30 |
| THC CONCENTRATION PPM | 30. | 1. | 0. | 6. |
| CO CONCENTRATION PPM | 110. | 2. | 1. | 5. |
| CO2 CONCENTRATION PCT | .9108 | 1.1620 | .6359 | .8978 |
| NOX CONCENTRATION PPM | 48.0 | 5.5 | .8 | 1.9 |
| THC MASS GRAMS | .35 | .03 | .03 | .26 |
| CO MASS GRAMS | 2.66 | .12 | .18 | .48 |
| CO2 MASS GRAMS | 345.1 | 1148.8 | 1496.6 | 1230.5 |
| NOX MASS GRAMS | 1.82 | .54 | .19 | .26 |
| THC GRAMS/MI | .52 | .01 | .01 | .07 |
| CO GRAMS/MI | 3.91 | .04 | .05 | .13 |
| CO2 GRAMS/MI | 507.2 | 389.7 | 383.3 | 337.4 |
| NOX GRAMS/MI | 2.67 | .18 | .05 | .07 |
| FUEL ECONOMY IN MPG | 17.22 21.46 | 22.75 | 23.13 24.54 | 26.25 |
| RUN TIME SECONDS | 140. | 365. | 867. | 506. |
| MEASURED DISTANCE MI | .68 3.63 | 2.95 | 3.90 7.55 | 3.65 |
| SCF, DRY | .978 .976 | .976 | .980 .979 | .978 |
| DFC, WET (DRY) | .915( .903) | | .942( .930) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.7/ .00 | | 203.4/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-09 |
| BAROMETER | MM HG | 736.6 |
| HUMIDITY | G/KG | 9.3 |
| TEMPERATURE | DEG C | 26.7 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 376.6 |
| FUEL ECONOMY | MPG | 23.57 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .22 |
| OXIDES OF NITROGEN | G/MI | .18 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-10 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/ 6/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 446. KM( 277. MILES)

BAROMETER 739.14 MM HG(29.10 IN HG)
RELATIVE HUMIDITY 59. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 11.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 756.9 (29.8) | 774.7 (30.5) | 769.6 (30.3) | 769.6 (30.3) |
| BLOWER INLET P MM. H2O(IN. H2O) | 764.5 (30.1) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 40.6 (105.0) | 41.7 (107.0) |
| BLOWER REVOLUTIONS | 11221. | 29340. | 69523. | 40552. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 734.) | 54.5 ( 1923.) | 129.4 ( 4571.) | 75.3 ( 2661.) |
| THC SAMPLE METER/RANGE/PPM | 33.3/ 2/ 33. | 12.1/ 2/ 12. | 8.5/ 2/ 8. | 16.1/ 2/ 16. |
| THC BCKGRD METER/RANGE/PPM | 8.5/ 2/ 8. | 8.3/ 2/ 8. | 8.9/ 2/ 9. | 9.2/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 86.0/ 12/ 86. | 72.4/ 12/ 72. | 2.3/ 12/ 2. | 5.5/ 12/ 5. |
| CO BCKGRD METER/RANGE/PPM | .3/ 12/ 0. | .4/ 12/ 0. | .5/ 12/ 0. | .5/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 94.3/ 14/ .9781 | 64.3/ 1/1.1823 | 78.9/ 14/ .6393 | 92.4/ 14/ .9271 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 2.2/ 1/ .0388 | 11.9/ 14/ .0395 | 11.9/ 14/ .0395 |
| NOX SAMPLE METER/RANGE/PPM | 40.2/ 2/ 40.2 | 6.3/ 1/ 1.6 | 1.9/ 1/ .5 | 5.1/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .0/ 2/ .0 | .0/ 1/ .0 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 13.54 | 11.26 | 20.93 | 14.42 |
| THC CONCENTRATION PPM | 25. | 4. | 0. | 7. |
| CO CONCENTRATION PPM | 83. | 69. | 2. | 5. |
| CO2 CONCENTRATION PCT | .9408 | 1.1470 | .6017 | .8903 |
| NOX CONCENTRATION PPM | 40.2 | 1.6 | .5 | 1.3 |
| THC MASS GRAMS | .30 | .14 | .00 | .32 |
| CO MASS GRAMS | 2.00 | 4.35 | .25 | .41 |
| CO2 MASS GRAMS | 358.1 | 1143.4 | 1425.9 | 1228.1 |
| NOX MASS GRAMS | 1.65 | .18 | .13 | .20 |
| THC GRAMS/MI | .45 | .05 | .00 | .09 |
| CO GRAMS/MI | 2.98 | 1.50 | .07 | .11 |
| CO2 GRAMS/MI | 534.4 | 395.2 | 372.2 | 341.7 |
| NOX GRAMS/MI | 2.47 | .06 | .03 | .06 |
| FUEL ECONOMY IN MPG | 16.41 20.89 | 22.30 | 23.82 24.79 | 25.92 |
| RUN TIME SECONDS | 140. | 366. | 868. | 506. |
| MEASURED DISTANCE MI | .67 3.56 | 2.89 | 3.83 7.43 | 3.59 |
| SCF, DRY | .972 .970 | .970 | .975 .974 | .972 |
| DFC, WET (DRY) | .915( .898) | | .944( .926) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.2/ .00 | | 204.8/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-10 |
| BAROMETER | MM HG | 739.1 |
| HUMIDITY | G/KG | 11.7 |
| TEMPERATURE | DEG C | 24.4 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 374.0 |
| FUEL ECONOMY | MPG | 23.72 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .43 |
| OXIDES OF NITROGEN | G/MI | .14 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-11 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/ 7/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 467. KM( 290. MILES)

BAROMETER 741.68 MM HG(29.20 IN HG)
RELATIVE HUMIDITY 65. PCT
BAG RESULTS

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 11.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.03

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 764.5 (30.1) | 774.7 (30.5) | 767.1 (30.2) | 764.5 (30.1) |
| BLOWER INLET P MM. H2O(IN. H2O) | 756.9 (29.8) | 764.5 (30.1) | 777.2 (30.6) | 774.7 (30.5) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.9 (111.0) | 41.7 (107.0) | 39.4 (103.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11259. | 29224. | 69579. | 40482. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 739.) | 54.5 ( 1924.) | 130.1 ( 4595.) | 75.5 ( 2666.) |
| THC SAMPLE METER/RANGE/PPM | 44.1/ 2/ 44. | 10.2/ 2/ 10. | 8.8/ 2/ 9. | 15.4/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 10.0/ 2/ 10. | 10.1/ 2/ 10. | 9.2/ 2/ 9. | 7.9/ 2/ 8. |
| CO SAMPLE METER/RANGE/PPM | 51.8/ 13/ 121. | 14.8/ 12/ 14. | 1.3/ 12/ 1. | 8.3/ 12/ 8. |
| CO BCKGRD METER/RANGE/PPM | .3/ 13/ 1. | .3/ 12/ 0. | .0/ 12/ 0. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 93.6/ 14/ .9589 | 64.4/ 1/1.1842 | 79.3/ 14/ .6464 | 92.6/ 14/ .9323 |
| CO2 BCKGRD METER/RANGE/PCT | 11.4/ 14/ .0376 | 2.3/ 1/ .0406 | 11.3/ 14/ .0372 | 11.3/ 14/ .0372 |
| NOX SAMPLE METER/RANGE/PPM | 46.4/ 2/ 46.4 | 15.5/ 1/ 4.0 | 2.5/ 1/ .7 | 11.1/ 1/ 2.9 |
| NOX BCKGRD METER/RANGE/PPM | .1/ 2/ .1 | 1.1/ 1/ .3 | .2/ 1/ .1 | .4/ 1/ .1 |
| DILUTION FACTOR | 13.74 | 11.29 | 20.70 | 14.34 |
| THC CONCENTRATION PPM | 34. | 1. | 0. | 8. |
| CO CONCENTRATION PPM | 116. | 13. | 1. | 8. |
| CO2 CONCENTRATION PCT | .9240 | 1.1472 | .6109 | .8977 |
| NOX CONCENTRATION PPM | 46.3 | 3.7 | .6 | 2.8 |
| THC MASS GRAMS | .42 | .03 | .00 | .35 |
| CO MASS GRAMS | 2.83 | .85 | .18 | .67 |
| CO2 MASS GRAMS | 354.2 | 1144.5 | 1455.5 | 1240.8 |
| NOX MASS GRAMS | 1.91 | .40 | .16 | .41 |
| THC GRAMS/MI | .62 | .01 | .00 | .10 |
| CO GRAMS/MI | 4.18 | .29 | .05 | .19 |
| CO2 GRAMS/MI | 523.8 | 391.7 | 376.9 | 342.7 |
| NOX GRAMS/MI | 2.83 | .14 | .04 | .11 |
| FUEL ECONOMY IN MPG | 16.66 21.19 | 22.61 | 23.53 24.59 | 25.83 |
| RUN TIME SECONDS | 140. | 364. | 868. | 504. |
| MEASURED DISTANCE MI | .68 3.60 | 2.92 | 3.86 7.48 | 3.62 |
| SCF, DRY | .970 .969 | .968 | .973 .972 | .970 |
| DFC, WET (DRY) | .916( .896) | | .944( .924) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.4/ .00 | | 205.6/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-11 |
| BAROMETER | MM HG | 741.7 |
| HUMIDITY | G/KG | 11.6 |
| TEMPERATURE | DEG C | 22.8 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 375.7 |
| FUEL ECONOMY | MPG | 23.62 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .29 |
| OXIDES OF NITROGEN | G/MI | .19 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
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TEST NO. CS-VAH-12 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/11/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 501. KM( 311. MILES)

BAROMETER 738.38 MM HG(29.07 IN HG)
RELATIVE HUMIDITY 43. PCT

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 8.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR .94

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 764.5 (30.1) | 762.0 (30.0) | 762.0 (30.0) | 764.5 (30.1) |
| BLOWER INLET P MM. H2O(IN. H2O) | 759.5 (29.9) | 756.9 (29.8) | 756.9 (29.8) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 43.3 (110.0) | 42.2 (108.0) | 43.3 (110.0) |
| BLOWER REVOLUTIONS | 11200. | 29186. | 69418. | 40404. |
| TOT FLOW STD. CU. METRES(SCF) | 20.7 ( 732.) | 54.0 ( 1908.) | 128.8 ( 4548.) | 74.8 ( 2641.) |
| THC SAMPLE METER/RANGE/PPM | 35.3/ 2/ 35. | 11.1/ 2/ 11. | 8.2/ 2/ 8. | 16.2/ 2/ 16. |
| THC BCKGRD METER/RANGE/PPM | 7.9/ 2/ 8. | 8.8/ 2/ 9. | 8.8/ 2/ 9. | 8.3/ 2/ 8. |
| CO SAMPLE METER/RANGE/PPM | 80.8/ 12/ 81. | 11.0/ 12/ 11. | 1.0/ 12/ 1. | 13.6/ 12/ 13. |
| CO BCKGRD METER/RANGE/PPM | .5/ 12/ 0. | .4/ 12/ 0. | .5/ 12/ 0. | .1/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 93.2/ 14/ .9482 | 64.4/ 1/1.1842 | 79.2/ 14/ .6446 | 92.3/ 14/ .9245 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 2.4/ 1/ .0423 | 11.8/ 14/ .0391 | 11.7/ 14/ .0388 |
| NOX SAMPLE METER/RANGE/PPM | 60.7/ 2/ 60.7 | 7.6/ 1/ 2.0 | 3.1/ 1/ .8 | 8.1/ 1/ 2.1 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | .7/ 1/ .2 | .5/ 1/ .1 | .6/ 1/ .2 |
| DILUTION FACTOR | 13.97 | 11.30 | 20.76 | 14.45 |
| THC CONCENTRATION PPM | 28. | 3. | 0. | 8. |
| CO CONCENTRATION PPM | 78. | 10. | 0. | 13. |
| CO2 CONCENTRATION PCT | .9107 | 1.1456 | .6073 | .8884 |
| NOX CONCENTRATION PPM | 60.4 | 1.8 | .7 | 2.0 |
| THC MASS GRAMS | .33 | .10 | .00 | .37 |
| CO MASS GRAMS | 1.87 | .62 | .07 | 1.10 |
| CO2 MASS GRAMS | 345.7 | 1133.6 | 1432.2 | 1216.5 |
| NOX MASS GRAMS | 2.24 | .18 | .16 | .26 |
| THC GRAMS/MI | .51 | .03 | .00 | .10 |
| CO GRAMS/MI | 2.85 | .21 | .02 | .31 |
| CO2 GRAMS/MI | 525.9 | 389.9 | 368.9 | 338.0 |
| NOX GRAMS/MI | 3.41 | .06 | .04 | .07 |
| FUEL ECONOMY IN MPG | 16.67 21.29 | 22.72 | 24.04 25.02 | 26.17 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .66 3.56 | 2.91 | 3.88 7.48 | 3.60 |
| SCF, DRY | .977 .976 | .975 | .980 .979 | .978 |
| DFC, WET (DRY) | .916( .904) | | .944( .931) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 74.8/ .00 | | 203.6/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-VAH-12 |
| BAROMETER | MM HG | 738.4 |
| HUMIDITY | G/KG | 8.6 |
| TEMPERATURE | DEG C | 25.0 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 369.9 |
| FUEL ECONOMY | MPG | 24.00 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .24 |
| OXIDES OF NITROGEN | G/MI | .18 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
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TEST NO. CS-OE-13 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/12/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 525. KM( 326. MILES)

BAROMETER 741.93 MM HG(29.21 IN HG)
RELATIVE HUMIDITY 59. PCT
BAG RESULTS

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 11.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 764.5 (30.1) | 767.1 (30.2) | 772.2 (30.4) |
| BLOWER INLET P MM. H2O(IN. H2O) | 754.4 (29.7) | 734.1 (28.9) | 762.0 (30.0) | 764.5 (30.1) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 40.6 (105.0) | 42.8 (109.0) |
| BLOWER REVOLUTIONS | 11208. | 29158. | 69400. | 40258. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 737.) | 54.5 ( 1925.) | 129.8 ( 4582.) | 74.9 ( 2646.) |
| THC SAMPLE METER/RANGE/PPM | 10.8/ 3/ 108. | 10.8/ 2/ 11. | 8.4/ 2/ 8. | 10.1/ 2/ 10. |
| THC BCKGRD METER/RANGE/PPM | .8/ 3/ 8. | 7.1/ 2/ 7. | 7.9/ 2/ 8. | 8.3/ 2/ 8. |
| CO SAMPLE METER/RANGE/PPM | 79.4/ 14/ 383. | 28.0/ 12/ 27. | 2.0/ 12/ 2. | 5.0/ 12/ 5. |
| CO BCKGRD METER/RANGE/PPM | .3/ 14/ 1. | 1.1/ 12/ 1. | .6/ 12/ 1. | .9/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 90.6/ 14/ .8817 | 98.0/ 14/1.0876 | 78.1/ 14/ .6254 | 88.8/ 14/ .8387 |
| CO2 BCKGRD METER/RANGE/PCT | 12.4/ 14/ .0415 | 12.4/ 14/ .0415 | 12.3/ 14/ .0411 | 12.0/ 14/ .0399 |
| NOX SAMPLE METER/RANGE/PPM | 56.5/ 1/ 14.2 | 13.0/ 1/ 3.4 | 2.6/ 1/ .7 | 4.9/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .5/ 1/ .1 | .0/ 1/ .0 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 14.42 | 12.28 | 21.39 | 15.95 |
| THC CONCENTRATION PPM | 100. | 4. | 1. | 2. |
| CO CONCENTRATION PPM | 368. | 25. | 1. | 4. |
| CO2 CONCENTRATION PCT | .8431 | 1.0496 | .5863 | .8013 |
| NOX CONCENTRATION PPM | 14.0 | 3.4 | .7 | 1.3 |
| THC MASS GRAMS | 1.21 | .13 | .07 | .10 |
| CO MASS GRAMS | 8.95 | 1.60 | .20 | .33 |
| CO2 MASS GRAMS | 322.2 | 1047.7 | 1392.9 | 1099.4 |
| NOX MASS GRAMS | .57 | .35 | .17 | .19 |
| THC GRAMS/MI | 1.81 | .05 | .02 | .03 |
| CO GRAMS/MI | 13.43 | .55 | .05 | .09 |
| CO2 GRAMS/MI | 483.2 | 361.7 | 357.7 | 305.7 |
| NOX GRAMS/MI | .85 | .12 | .04 | .05 |
| FUEL ECONOMY IN MPG | 17.39 22.72 | 24.45 | 24.78 26.64 | 28.99 |
| RUN TIME SECONDS | 140. | 364. | 868. | 503. |
| MEASURED DISTANCE MI | .67 3.56 | 2.90 | 3.89 7.49 | 3.60 |
| SCF, DRY | .973 .972 | .971 | .975 .975 | .973 |
| DFC, WET (DRY) | .922( .904) | | .947( .929) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.4/ .00 | | 204.7/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-OE-13 |
| BAROMETER | MM HG | 741.9 |
| HUMIDITY | G/KG | 11.2 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 349.0 |
| FUEL ECONOMY | MPG | 25.40 |
| HYDROCARBONS (THC) | G/MI | .09 |
| CARBON MONOXIDE | G/MI | .66 |
| OXIDES OF NITROGEN | G/MI | .09 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
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TEST NO. CS-VAH-12 RUN 2
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/13/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1035-F
ODOMETER 552. KM( 343. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 38. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 7.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR .89

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 767.1 (30.2) | 767.1 (30.2) | 767.1 (30.2) |
| BLOWER INLET P MM. H2O(IN. H2O) | 756.9 (29.8) | 762.0 (30.0) | 762.0 (30.0) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 42.8 (109.0) | 40.0 (104.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11218. | 29251. | 69408. | 40436. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 737.) | 54.4 ( 1920.) | 129.7 ( 4579.) | 75.4 ( 2663.) |
| THC SAMPLE METER/RANGE/PPM | 49.6/ 3/ 495. | 12.6/ 2/ 13. | 11.3/ 2/ 11. | 39.8/ 2/ 40. |
| THC BCKGRD METER/RANGE/PPM | 1.7/ 3/ 17. | 13.5/ 2/ 13. | 13.6/ 2/ 14. | 14.9/ 2/ 15. |
| CO SAMPLE METER/RANGE/PPM | 66.8/ 1/ 614. | 1.0/ 12/ 1. | .6/ 12/ 1. | 7.3/ 12/ 7. |
| CO BCKGRD METER/RANGE/PPM | .3/ 1/ 2. | .0/ 12/ 0. | .0/ 12/ 0. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 90.3/ 14/ .8743 | 96.6/ 14/1.0445 | 77.0/ 14/ .6068 | 88.1/ 14/ .8227 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 11.4/ 14/ .0376 | 11.5/ 14/ .0380 | 11.5/ 14/ .0380 |
| NOX SAMPLE METER/RANGE/PPM | 62.3/ 1/ 15.6 | 28.6/ 1/ 7.2 | 4.9/ 1/ 1.3 | 3.8/ 1/ 1.0 |
| NOX BCKGRD METER/RANGE/PPM | 2.3/ 1/ .6 | .0/ 1/ .0 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 13.63 | 12.81 | 22.04 | 16.20 |
| THC CONCENTRATION PPM | 479. | 0. | 0. | 26. |
| CO CONCENTRATION PPM | 594. | 1. | 1. | 7. |
| CO2 CONCENTRATION PCT | .8370 | 1.0098 | .5705 | .7870 |
| NOX CONCENTRATION PPM | 15.1 | 7.2 | 1.3 | 1.0 |
| THC MASS GRAMS | 5.76 | .00 | .00 | 1.12 |
| CO MASS GRAMS | 14.43 | .06 | .08 | .60 |
| CO2 MASS GRAMS | 319.8 | 1005.1 | 1354.5 | 1086.6 |
| NOX MASS GRAMS | .54 | .67 | .29 | .13 |
| THC GRAMS/MI | 8.67 | .00 | .00 | .31 |
| CO GRAMS/MI | 21.71 | .02 | .02 | .17 |
| CO2 GRAMS/MI | 481.2 | 346.3 | 351.7 | 302.6 |
| NOX GRAMS/MI | .81 | .23 | .07 | .04 |
| FUEL ECONOMY IN MPG | 16.34 23.16 | 25.61 | 25.21 26.98 | 29.18 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .66 3.57 | 2.90 | 3.85 7.44 | 3.59 |
| SCF, DRY | .980 .979 | .978 | .982 .981 | .980 |
| DFC, WET (DRY) | .923( .912) | | .949( .937) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.2/ .00 | | 205.1/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-VAH-12 |
| BAROMETER | MM HG | 740.7 |
| HUMIDITY | G/KG | 7.1 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 342.3 |
| FUEL ECONOMY | MPG | 25.78 |
| HYDROCARBONS (THC) | G/MI | .42 |
| CARBON MONOXIDE | G/MI | .90 |
| OXIDES OF NITROGEN | G/MI | .12 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1815-001

TEST NO. CS-VAH-15 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/14/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 594. KM( 369. MILES)

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 51. PCT
BAG RESULTS

DRY BULB TEMP. 20.6 DEG C(69.0 DEG F)
ABS. HUMIDITY 7.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .92

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 769.6 (30.3) | 787.4 (31.0) | 782.3 (30.8) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 764.5 (30.1) | 777.2 (30.6) | 774.7 (30.5) | 767.1 (30.2) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 40.0 (104.0) | 39.4 (103.0) | 37.8 (100.0) | 38.9 (102.0) |
| BLOWER REVOLUTIONS | 11231. | 29236. | 69531. | 40426. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 743.) | 54.7 ( 1932.) | 130.6 ( 4611.) | 75.8 ( 2678.) |
| THC SAMPLE METER/RANGE/PPM | 21.7/ 3/ 216. | 13.9/ 2/ 14. | 9.3/ 2/ 9. | 37.9/ 2/ 38. |
| THC BCKGRD METER/RANGE/PPM | 1.0/ 3/ 10. | 9.0/ 2/ 9. | 9.6/ 2/ 10. | 9.5/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 67.2/ 14/ 314. | 47.6/ 12/ 47. | 1.8/ 12/ 2. | 12.8/ 12/ 12. |
| CO BCKGRD METER/RANGE/PPM | .2/ 14/ 1. | .5/ 12/ 0. | .4/ 12/ 0. | .6/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 89.7/ 14/ .8599 | 57.2/ 1/1.0494 | 77.2/ 14/ .6102 | 88.2/ 14/ .8250 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 2.3/ 1/ .0406 | 12.0/ 14/ .0399 | 12.0/ 14/ .0399 |
| NOX SAMPLE METER/RANGE/PPM | 47.6/ 1/ 11.9 | 11.0/ 1/ 2.8 | 2.4/ 1/ .6 | 4.9/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 1/ .1 | .4/ 1/ .1 | .2/ 1/ .1 | .3/ 1/ .1 |
| DILUTION FACTOR | 14.69 | 12.70 | 21.92 | 16.15 |
| THC CONCENTRATION PPM | 207. | 6. | 0. | 29. |
| CO CONCENTRATION PPM | 303. | 45. | 1. | 11. |
| CO2 CONCENTRATION PCT | .8223 | 1.0120 | .5721 | .7875 |
| NOX CONCENTRATION PPM | 11.9 | 2.7 | .6 | 1.2 |
| THC MASS GRAMS | 2.51 | .18 | .01 | 1.27 |
| CO MASS GRAMS | 7.41 | 2.85 | .20 | 1.01 |
| CO2 MASS GRAMS | 316.7 | 1013.5 | 1367.7 | 1093.4 |
| NOX MASS GRAMS | .44 | .26 | .13 | .16 |
| THC GRAMS/MI | 3.75 | .06 | .00 | .35 |
| CO GRAMS/MI | 11.07 | .98 | .05 | .28 |
| CO2 GRAMS/MI | 472.9 | 349.7 | 353.5 | 305.9 |
| NOX GRAMS/MI | .65 | .09 | .03 | .04 |
| FUEL ECONOMY IN MPG | 17.66 23.35 | 25.23 | 25.08 26.76 | 28.84 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .67 3.57 | 2.90 | 3.87 7.44 | 3.57 |
| SCF, DRY | .975 .974 | .974 | .978 .977 | .976 |
| DFC, WET (DRY) | .924( .909) | | .948( .933) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.7/ .00 | | 206.4/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-VAH-15 |
| BAROMETER | MM HG | 742.4 |
| HUMIDITY | G/KG | 7.9 |
| TEMPERATURE | DEG C | 20.6 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 344.5 |
| FUEL ECONOMY | MPG | 25.66 |
| HYDROCARBONS (THC) | G/MI | .25 |
| CARBON MONOXIDE | G/MI | .70 |
| OXIDES OF NITROGEN | G/MI | .07 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1815-001

TEST NO. CS-OE-14 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/15/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 637. KM( 396. MILES)

BAROMETER 739.65 MM HG(29.12 IN HG)
RELATIVE HUMIDITY 69. PCT

DRY BULB TEMP. 21.7 DEG C(71.0 DEG F)
ABS. HUMIDITY 11.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 774.7 (30.5) | 774.7 (30.5) | 769.6 (30.3) |
| BLOWER INLET P MM. H2O(IN. H2O) | 756.9 (29.8) | 767.1 (30.2) | 767.1 (30.2) | 764.5 (30.1) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 40.6 (105.0) | 38.9 (102.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11237. | 29303. | 69579. | 40478. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 736.) | 54.6 ( 1927.) | 130.0 ( 4590.) | 75.3 ( 2660.) |
| THC SAMPLE METER/RANGE/PPM | 10.7/ 3/ 107. | 18.6/ 2/ 19. | 13.0/ 2/ 13. | 13.4/ 2/ 13. |
| THC BCKGRD METER/RANGE/PPM | 1.7/ 3/ 17. | 16.5/ 2/ 16. | 14.7/ 2/ 15. | 12.6/ 2/ 13. |
| CO SAMPLE METER/RANGE/PPM | 70.8/ 14/ 334. | 6.4/ 12/ 6. | 2.2/ 12/ 2. | 2.9/ 12/ 3. |
| CO BCKGRD METER/RANGE/PPM | .8/ 14/ 3. | 2.7/ 12/ 3. | 1.7/ 12/ 2. | 1.0/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 89.8/ 14/ .8623 | 96.6/ 14/1.0445 | 77.0/ 14/ .6068 | 88.0/ 14/ .8204 |
| CO2 BCKGRD METER/RANGE/PCT | 12.0/ 14/ .0399 | 12.1/ 14/ .0403 | 12.0/ 14/ .0399 | 11.8/ 14/ .0391 |
| NOX SAMPLE METER/RANGE/PPM | 29.1/ 1/ 7.4 | 21.5/ 1/ 5.5 | 4.1/ 1/ 1.1 | 5.1/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .8/ 1/ .2 | .3/ 1/ .1 | .2/ 1/ .1 | .1/ 1/ .0 |
| DILUTION FACTOR | 14.81 | 12.80 | 22.03 | 16.30 |
| THC CONCENTRATION PPM | 91. | 3. | 0. | 2. |
| CO CONCENTRATION PPM | 318. | 4. | 1. | 2. |
| CO2 CONCENTRATION PCT | .8251 | 1.0073 | .5687 | .7837 |
| NOX CONCENTRATION PPM | 7.2 | 5.4 | 1.0 | 1.3 |
| THC MASS GRAMS | 1.09 | .11 | .00 | .07 |
| CO MASS GRAMS | 7.72 | .23 | .08 | .16 |
| CO2 MASS GRAMS | 315.0 | 1006.4 | 1353.4 | 1080.8 |
| NOX MASS GRAMS | .29 | .58 | .26 | .19 |
| THC GRAMS/MI | 1.61 | .04 | .00 | .02 |
| CO GRAMS/MI | 11.41 | .08 | .02 | .04 |
| CO2 GRAMS/MI | 465.3 | 343.4 | 346.9 | 300.3 |
| NOX GRAMS/MI | .43 | .20 | .07 | .05 |
| FUEL ECONOMY IN MPG | 18.16 23.92 | 25.81 | 25.56 27.32 | 29.52 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.61 | 2.93 | 3.90 7.50 | 3.60 |
| SCF, DRY | .970 .969 | .968 | .972 .971 | .970 |
| DFC, WET (DRY) | .925( .904) | | .949( .928) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.4/ .00 | | 205.3/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-OE-14 |
| BAROMETER | MM HG | 739.6 |
| HUMIDITY | G/KG | 11.4 |
| TEMPERATURE | DEG C | 21.7 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 338.1 |
| FUEL ECONOMY | MPG | 26.21 |
| HYDROCARBONS (THC) | G/MI | .07 |
| CARBON MONOXIDE | G/MI | .48 |
| OXIDES OF NITROGEN | G/MI | .10 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
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TEST NO. C-VAH-16 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/18/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 705. KM( 438. MILES)

BAROMETER 742.95 MM HG(29.25 IN HG)
RELATIVE HUMIDITY 58. PCT
BAG RESULTS

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 12.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.08

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 756.9 (29.8) | 756.9 (29.8) | 756.9 (29.8) | 756.9 (29.8) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 42.8 (109.0) | 41.7 (107.0) | 41.1 (106.0) |
| BLOWER REVOLUTIONS | 11217. | 29204. | 69465. | 40403. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 739.) | 54.5 ( 1925.) | 129.9 ( 4587.) | 75.6 ( 2671.) |
| THC SAMPLE METER/RANGE/PPM | 12.9/ 3/ 129. | 13.3/ 2/ 13. | 12.7/ 2/ 13. | 50.2/ 2/ 50. |
| THC BCKGRD METER/RANGE/PPM | 1.3/ 3/ 13. | 11.8/ 2/ 12. | 11.8/ 2/ 12. | 11.2/ 2/ 11. |
| CO SAMPLE METER/RANGE/PPM | 51.8/ 14/ 231. | 1.1/ 12/ 1. | 1.5/ 12/ 1. | 15.0/ 12/ 14. |
| CO BCKGRD METER/RANGE/PPM | .2/ 14/ 1. | .4/ 12/ 0. | .8/ 12/ 1. | .7/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 91.0/ 14/ .8915 | 96.7/ 14/1.0475 | 78.1/ 14/ .6254 | 88.5/ 14/ .8318 |
| CO2 BCKGRD METER/RANGE/PCT | 11.5/ 14/ .0380 | 11.6/ 14/ .0384 | 12.2/ 14/ .0407 | 12.3/ 14/ .0411 |
| NOX SAMPLE METER/RANGE/PPM | 94.9/ 1/ 23.7 | 12.3/ 1/ 3.2 | 1.7/ 1/ .4 | 5.1/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .5/ 1/ .1 | .1/ 1/ .0 | .3/ 1/ .1 | .1/ 1/ .0 |
| DILUTION FACTOR | 14.46 | 12.78 | 21.38 | 15.99 |
| THC CONCENTRATION PPM | 117. | 2. | 1. | 40. |
| CO CONCENTRATION PPM | 222. | 1. | 1. | 13. |
| CO2 CONCENTRATION PCT | .8562 | 1.0121 | .5867 | .7933 |
| NOX CONCENTRATION PPM | 23.5 | 3.2 | .4 | 1.3 |
| THC MASS GRAMS | 1.41 | .08 | .11 | 1.73 |
| CO MASS GRAMS | 5.42 | .04 | .10 | 1.18 |
| CO2 MASS GRAMS | 328.2 | 1010.0 | 1395.4 | 1098.6 |
| NOX MASS GRAMS | 1.02 | .35 | .10 | .20 |
| THC GRAMS/MI | 2.07 | .03 | .03 | .48 |
| CO GRAMS/MI | 7.96 | .01 | .03 | .32 |
| CO2 GRAMS/MI | 482.0 | 346.0 | 361.5 | 301.6 |
| NOX GRAMS/MI | 1.49 | .12 | .03 | .06 |
| FUEL ECONOMY IN MPG | 17.70 23.62 | 25.62 | 24.52 26.59 | 29.21 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .68 3.60 | 2.92 | 3.86 7.50 | 3.64 |
| SCF, DRY | .973 .972 | .972 | .976 .975 | .974 |
| DFC, WET (DRY) | .924( .907) | | .947( .930) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.4/ .00 | | 205.6/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-16 |
| BAROMETER | MM HG | 743.0 |
| HUMIDITY | G/KG | 12.9 |
| TEMPERATURE | DEG C | 26.7 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 347.1 |
| FUEL ECONOMY | MPG | 25.51 |
| HYDROCARBONS (THC) | G/MI | .23 |
| CARBON MONOXIDE | G/MI | .42 |
| OXIDES OF NITROGEN | G/MI | .11 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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PROJECT 08-2346-001

TEST NO. C-VAH-16 RUN 3
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/19/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 761. KM( 473. MILES)

BAROMETER 741.43 MM HG(29.19 IN HG)
RELATIVE HUMIDITY 67. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 14.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.13

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 767.1 (30.2) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 43.3 (110.0) | 42.8 (109.0) | 42.8 (109.0) |
| BLOWER REVOLUTIONS | 11213. | 29164. | 69413. | 40446. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 736.) | 54.2 ( 1915.) | 129.2 ( 4562.) | 75.3 ( 2658.) |
| THC SAMPLE METER/RANGE/PPM | 45.4/ 2/ 45. | 12.6/ 2/ 13. | 11.4/ 2/ 11. | 19.8/ 2/ 20. |
| THC BCKGRD METER/RANGE/PPM | 11.6/ 2/ 12. | 10.7/ 2/ 11. | 10.4/ 2/ 10. | 17.9/ 2/ 18. |
| CO SAMPLE METER/RANGE/PPM | 45.4/ 12/ 45. | 5.0/ 12/ 5. | 2.8/ 12/ 3. | 10.4/ 12/ 10. |
| CO BCKGRD METER/RANGE/PPM | .8/ 12/ 1. | .7/ 12/ 1. | 1.0/ 12/ 1. | 3.1/ 12/ 3. |
| CO2 SAMPLE METER/RANGE/PCT | 93.2/ 14/ .9482 | 65.2/ 1/1.1992 | 78.9/ 14/ .6393 | 92.6/ 14/ .9323 |
| CO2 BCKGRD METER/RANGE/PCT | 12.0/ 14/ .0399 | 2.3/ 1/ .0406 | 12.1/ 14/ .0403 | 12.1/ 14/ .0403 |
| NOX SAMPLE METER/RANGE/PPM | 45.4/ 2/ 45.4 | 11.3/ 1/ 2.9 | 2.1/ 1/ .6 | 7.8/ 1/ 2.0 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | .3/ 1/ .1 | .6/ 1/ .2 | .3/ 1/ .1 |
| DILUTION FACTOR | 14.00 | 11.16 | 20.91 | 14.33 |
| THC CONCENTRATION PPM | 35. | 3. | 1. | 3. |
| CO CONCENTRATION PPM | 42. | 4. | 2. | 7. |
| CO2 CONCENTRATION PCT | .9111 | 1.1623 | .6009 | .8948 |
| NOX CONCENTRATION PPM | 45.1 | 2.9 | .4 | 2.0 |
| THC MASS GRAMS | .42 | .09 | .11 | .14 |
| CO MASS GRAMS | 1.02 | .25 | .25 | .61 |
| CO2 MASS GRAMS | 347.7 | 1153.9 | 1421.3 | 1233.2 |
| NOX MASS GRAMS | 2.03 | .33 | .11 | .32 |
| THC GRAMS/MI | .62 | .03 | .03 | .04 |
| CO GRAMS/MI | 1.52 | .09 | .07 | .17 |
| CO2 GRAMS/MI | 517.5 | 397.4 | 369.7 | 338.3 |
| NOX GRAMS/MI | 3.03 | .12 | .03 | .09 |
| FUEL ECONOMY IN MPG | 16.99 21.06 | 22.30 | 23.98 25.00 | 26.19 |
| RUN TIME SECONDS | 140. | 364. | 867. | 505. |
| MEASURED DISTANCE MI | .67 3.58 | 2.90 | 3.85 7.49 | 3.65 |
| SCF, DRY | .969 .968 | .967 | .972 .971 | .970 |
| DFC, WET (DRY) | .915( .895) | | .944( .924) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.1/ .00 | | 204.5/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-16 |
| BAROMETER | MM HG | 741.4 |
| HUMIDITY | G/KG | 14.2 |
| TEMPERATURE | DEG C | 25.6 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 371.4 |
| FUEL ECONOMY | MPG | 23.92 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .15 |
| OXIDES OF NITROGEN | G/MI | .18 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1815-001

TEST NO. C-VAH-17 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.5 L(154. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 7/20/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 803. KM( 499. MILES)

BAROMETER 739.14 MM HG(29.10 IN HG)
RELATIVE HUMIDITY 50. PCT
BAG RESULTS

DRY BULB TEMP. 28.9 DEG C(84.0 DEG F)
ABS. HUMIDITY 12.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.07

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 767.1 (30.2) | 772.2 (30.4) | 767.1 (30.2) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 764.5 (30.1) | 762.0 (30.0) | 767.1 (30.2) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 42.2 (108.0) | 42.2 (108.0) | 42.8 (109.0) |
| BLOWER REVOLUTIONS | 11221. | 29227. | 69408. | 40431. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 735.) | 54.2 ( 1915.) | 128.8 ( 4549.) | 74.9 ( 2645.) |
| THC SAMPLE METER/RANGE/PPM | 60.1/ 2/ 60. | 11.4/ 2/ 11. | 10.5/ 2/ 10. | 10.9/ 2/ 11. |
| THC BCKGRD METER/RANGE/PPM | 10.9/ 2/ 11. | 10.7/ 2/ 11. | 10.0/ 2/ 10. | 8.9/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 49.7/ 12/ 49. | 1.1/ 12/ 1. | 1.8/ 12/ 2. | 3.7/ 12/ 4. |
| CO BCKGRD METER/RANGE/PPM | .4/ 12/ 0. | .5/ 12/ 0. | .5/ 12/ 0. | .2/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 92.9/ 14/ .9402 | 64.0/ 1/1.1767 | 79.1/ 14/ .6428 | 91.8/ 14/ .9116 |
| CO2 BCKGRD METER/RANGE/PCT | 11.9/ 14/ .0395 | 2.2/ 1/ .0388 | 12.0/ 14/ .0399 | 12.1/ 14/ .0403 |
| NOX SAMPLE METER/RANGE/PPM | 47.4/ 2/ 47.4 | 32.0/ 1/ 8.1 | 3.3/ 1/ .9 | 11.1/ 1/ 2.9 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | .0/ 1/ .0 | .1/ 1/ .0 | .1/ 1/ .0 |
| DILUTION FACTOR | 14.09 | 11.38 | 20.81 | 14.68 |
| THC CONCENTRATION PPM | 50. | 2. | 1. | 3. |
| CO CONCENTRATION PPM | 47. | 1. | 1. | 3. |
| CO2 CONCENTRATION PCT | .9035 | 1.1413 | .6048 | .8741 |
| NOX CONCENTRATION PPM | 47.1 | 8.1 | .8 | 2.8 |
| THC MASS GRAMS | .60 | .05 | .07 | .11 |
| CO MASS GRAMS | 1.14 | .04 | .18 | .28 |
| CO2 MASS GRAMS | 344.2 | 1133.1 | 1426.7 | 1198.9 |
| NOX MASS GRAMS | 2.02 | .90 | .22 | .44 |
| THC GRAMS/MI | .88 | .02 | .02 | .03 |
| CO GRAMS/MI | 1.68 | .01 | .05 | .08 |
| CO2 GRAMS/MI | 507.2 | 383.6 | 364.2 | 334.7 |
| NOX GRAMS/MI | 2.97 | .30 | .06 | .12 |
| FUEL ECONOMY IN MPG | 17.30 21.75 | 23.12 | 24.34 25.32 | 26.48 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.63 | 2.95 | 3.92 7.50 | 3.58 |
| SCF, DRY | .975 .974 | .973 | .978 .977 | .975 |
| DFC, WET (DRY) | .917( .902) | | .945( .929) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.0/ .00 | | 203.8/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-17 |
| BAROMETER | MM HG | 739.1 |
| HUMIDITY | G/KG | 12.8 |
| TEMPERATURE | DEG C | 28.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 364.9 |
| FUEL ECONOMY | MPG | 24.33 |
| HYDROCARBONS (THC) | G/MI | .06 |
| CARBON MONOXIDE | G/MI | .11 |
| OXIDES OF NITROGEN | G/MI | .23 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-18 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/ 2/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 858. KM( 533. MILES)

BAROMETER 739.90 MM HG(29.13 IN HG)
RELATIVE HUMIDITY 54. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 10.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR .98

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 44.4 (112.0) | 42.2 (108.0) | 42.8 (109.0) | 41.7 (107.0) |
| BLOWER REVOLUTIONS | 11250. | 29198. | 69438. | 40379. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 736.) | 54.3 ( 1916.) | 128.9 ( 4553.) | 75.1 ( 2653.) |
| THC SAMPLE METER/RANGE/PPM | 40.2/ 2/ 40. | 16.9/ 2/ 17. | 15.2/ 2/ 15. | 14.1/ 2/ 14. |
| THC BCKGRD METER/RANGE/PPM | 17.6/ 2/ 18. | 17.2/ 2/ 17. | 15.4/ 2/ 15. | 13.8/ 2/ 14. |
| CO SAMPLE METER/RANGE/PPM | 47.2/ 12/ 46. | 2.6/ 12/ 2. | 1.6/ 12/ 2. | 1.2/ 12/ 1. |
| CO BCKGRD METER/RANGE/PPM | 1.4/ 12/ 1. | 1.3/ 12/ 1. | 1.2/ 12/ 1. | .6/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 91.5/ 14/ .9040 | 96.1/ 14/1.0296 | 78.6/ 14/ .6341 | 88.6/ 14/ .8341 |
| CO2 BCKGRD METER/RANGE/PCT | 13.8/ 14/ .0470 | 13.5/ 14/ .0458 | 13.3/ 14/ .0450 | 12.8/ 14/ .0430 |
| NOX SAMPLE METER/RANGE/PPM | 40.3/ 2/ 40.3 | 18.9/ 1/ 4.8 | 2.4/ 1/ .6 | 5.0/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .4/ 2/ .4 | .9/ 1/ .2 | .1/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 14.68 | 12.99 | 21.08 | 16.04 |
| THC CONCENTRATION PPM | 24. | 1. | 1. | 1. |
| CO CONCENTRATION PPM | 44. | 1. | 0. | 1. |
| CO2 CONCENTRATION PCT | .8603 | .9873 | .5912 | .7938 |
| NOX CONCENTRATION PPM | 39.9 | 4.6 | .6 | 1.3 |
| THC MASS GRAMS | .29 | .03 | .04 | .05 |
| CO MASS GRAMS | 1.06 | .08 | .06 | .05 |
| CO2 MASS GRAMS | 328.1 | 981.0 | 1395.6 | 1091.9 |
| NOX MASS GRAMS | 1.56 | .47 | .15 | .18 |
| THC GRAMS/MI | .42 | .01 | .01 | .01 |
| CO GRAMS/MI | 1.56 | .03 | .02 | .01 |
| CO2 GRAMS/MI | 483.4 | 336.3 | 360.6 | 301.4 |
| NOX GRAMS/MI | 2.29 | .16 | .04 | .05 |
| FUEL ECONOMY IN MPG | 18.20 24.31 | 26.36 | 24.59 26.71 | 29.42 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .68 3.60 | 2.92 | 3.87 7.49 | 3.62 |
| SCF, DRY | .974 .973 | .973 | .977 .976 | .975 |
| DFC, WET (DRY) | .925( .909) | | .947( .930) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.1/ .00 | | 204.1/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-18 |
| BAROMETER | MM HG | 739.9 |
| HUMIDITY | G/KG | 10.0 |
| TEMPERATURE | DEG C | 23.3 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 345.0 |
| FUEL ECONOMY | MPG | 25.74 |
| HYDROCARBONS (THC) | G/MI | .03 |
| CARBON MONOXIDE | G/MI | .08 |
| OXIDES OF NITROGEN | G/MI | .15 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-AH-19 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/ 3/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 877. KM( 545. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 55. PCT
BAG RESULTS

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 10.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 39.4 (103.0) | 38.9 (102.0) | 38.9 (102.0) | 38.9 (102.0) |
| BLOWER REVOLUTIONS | 11207. | 29167. | 69372. | 40399. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 740.) | 54.6 ( 1929.) | 129.9 ( 4587.) | 75.7 ( 2671.) |
| THC SAMPLE METER/RANGE/PPM | 40.9/ 2/ 41. | 13.5/ 2/ 13. | 12.0/ 2/ 12. | 13.0/ 2/ 13. |
| THC BCKGRD METER/RANGE/PPM | 12.6/ 2/ 13. | 12.6/ 2/ 13. | 11.5/ 2/ 11. | 11.7/ 2/ 12. |
| CO SAMPLE METER/RANGE/PPM | 57.6/ 12/ 57. | 2.7/ 12/ 3. | 2.9/ 12/ 3. | 4.0/ 12/ 4. |
| CO BCKGRD METER/RANGE/PPM | 1.4/ 12/ 1. | 1.2/ 12/ 1. | .9/ 12/ 1. | .5/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 91.1/ 14/ .8940 | 95.9/ 14/1.0237 | 77.2/ 14/ .6102 | 88.3/ 14/ .8273 |
| CO2 BCKGRD METER/RANGE/PCT | 12.1/ 14/ .0403 | 12.2/ 14/ .0407 | 12.0/ 14/ .0399 | 12.1/ 14/ .0403 |
| NOX SAMPLE METER/RANGE/PPM | 52.7/ 1/ 13.2 | 11.7/ 1/ 3.0 | 2.3/ 1/ .6 | 5.6/ 1/ 1.5 |
| NOX BCKGRD METER/RANGE/PPM | .9/ 1/ .2 | .6/ 1/ .2 | .4/ 1/ .1 | .5/ 1/ .1 |
| DILUTION FACTOR | 14.83 | 13.07 | 21.91 | 16.17 |
| THC CONCENTRATION PPM | 29. | 2. | 1. | 2. |
| CO CONCENTRATION PPM | 54. | 1. | 2. | 3. |
| CO2 CONCENTRATION PCT | .8564 | .9861 | .5721 | .7894 |
| NOX CONCENTRATION PPM | 13.0 | 2.9 | .5 | 1.3 |
| THC MASS GRAMS | .35 | .06 | .08 | .09 |
| CO MASS GRAMS | 1.31 | .09 | .28 | .29 |
| CO2 MASS GRAMS | 328.7 | 986.1 | 1360.6 | 1093.4 |
| NOX MASS GRAMS | .52 | .30 | .12 | .19 |
| THC GRAMS/MI | .52 | .02 | .02 | .02 |
| CO GRAMS/MI | 1.93 | .03 | .07 | .08 |
| CO2 GRAMS/MI | 484.3 | 336.3 | 347.0 | 305.4 |
| NOX GRAMS/MI | .76 | .10 | .03 | .05 |
| FUEL ECONOMY IN MPG | 18.13 24.29 | 26.36 | 25.54 27.09 | 29.01 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .68 3.61 | 2.93 | 3.92 7.50 | 3.58 |
| SCF, DRY | .974 .973 | .973 | .977 .976 | .975 |
| DFC, WET (DRY) | .926( .910) | | .948( .932) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.6/ .00 | | 205.6/ .00 | |

IMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-AH-19 |
| BAROMETER | MM HG | 740.7 |
| HUMIDITY | G/KG | 10.5 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 339.2 |
| FUEL ECONOMY | MPG | 26.16 |
| HYDROCARBONS (THC) | G/MI | .04 |
| CARBON MONOXIDE | G/MI | .14 |
| OXIDES OF NITROGEN | G/MI | .08 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-VAH-20 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/ 7/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 908. KM( 564. MILES)

BAROMETER 744.98 MM HG(29.33 IN HG)
RELATIVE HUMIDITY 59. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 11.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 751.8 (29.6) | 762.0 (30.0) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 749.3 (29.5) | 759.5 (29.9) | 759.5 (29.9) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.9 (111.0) | 43.9 (111.0) | 41.1 (106.0) | 43.3 (110.0) |
| BLOWER REVOLUTIONS | 11222. | 29218. | 69341. | 40400. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 741.) | 54.6 ( 1927.) | 130.2 ( 4596.) | 75.5 ( 2667.) |
| THC SAMPLE METER/RANGE/PPM | 47.7/ 2/ 48. | 13.2/ 2/ 13. | 10.0/ 2/ 10. | 14.7/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 9.3/ 2/ 9. | 8.7/ 2/ 9. | 8.8/ 2/ 9. | 12.2/ 2/ 12. |
| CO SAMPLE METER/RANGE/PPM | 92.9/ 12/ 93. | 7.1/ 12/ 7. | 1.8/ 12/ 2. | 6.6/ 12/ 6. |
| CO BCKGRD METER/RANGE/PPM | .6/ 12/ 1. | .4/ 12/ 0. | .6/ 12/ 1. | .6/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 92.4/ 14/ .9271 | 64.4/ 1/1.1842 | 78.9/ 14/ .6393 | 90.5/ 14/ .8792 |
| CO2 BCKGRD METER/RANGE/PCT | 11.4/ 14/ .0376 | 2.3/ 1/ .0406 | 11.7/ 14/ .0388 | 12.4/ 14/ .0415 |
| NOX SAMPLE METER/RANGE/PPM | 20.8/ 2/ 20.9 | 24.4/ 1/ 6.2 | 4.1/ 1/ 1.1 | 7.1/ 1/ 1.9 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | .7/ 1/ .2 | .7/ 1/ .2 | .7/ 1/ .2 |
| DILUTION FACTOR | 14.24 | 11.30 | 20.92 | 15.21 |
| THC CONCENTRATION PPM | 39. | 5. | 2. | 3. |
| CO CONCENTRATION PPM | 89. | 6. | 1. | 6. |
| CO2 CONCENTRATION PCT | .8921 | 1.1472 | .6024 | .8405 |
| NOX CONCENTRATION PPM | 20.6 | 6.0 | .9 | 1.7 |
| THC MASS GRAMS | .47 | .17 | .12 | .14 |
| CO MASS GRAMS | 2.19 | .39 | .17 | .49 |
| CO2 MASS GRAMS | 342.9 | 1146.3 | 1435.6 | 1162.3 |
| NOX MASS GRAMS | .84 | .64 | .23 | .25 |
| THC GRAMS/MI | .69 | .06 | .03 | .04 |
| CO GRAMS/MI | 3.21 | .13 | .04 | .14 |
| CO2 GRAMS/MI | 503.9 | 392.9 | 370.0 | 323.2 |
| NOX GRAMS/MI | 1.23 | .22 | .06 | .07 |
| FUEL ECONOMY IN MPG | 17.35 21.34 | 22.55 | 23.96 25.50 | 27.41 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.60 | 2.92 | 3.88 7.48 | 3.60 |
| SCF, DRY | .973 .971 | .970 | .975 .974 | .973 |
| DFC, WET (DRY) | .917( .899) | | .946( .928) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.6/ .00 | | 205.7/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-20 |
| BAROMETER | MM HG | 745.0 |
| HUMIDITY | G/KG | 11.1 |
| TEMPERATURE | DEG C | 23.9 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 366.2 |
| FUEL ECONOMY | MPG | 24.26 |
| HYDROCARBONS (THC) | G/MI | .06 |
| CARBON MONOXIDE | G/MI | .21 |
| OXIDES OF NITROGEN | G/MI | .13 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-VAH-21 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/ 8/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 925. KM( 575. MILES)

BAROMETER 744.73 MM HG(29.32 IN HG)
RELATIVE HUMIDITY 61. PCT
BAG RESULTS

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 10.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 774.7 (30.5) | 774.7 (30.5) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 759.5 (29.9) | 769.6 (30.3) | 769.6 (30.3) | 769.6 (30.3) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 36.7 ( 98.0) | 36.7 ( 98.0) | 36.7 ( 98.0) | 39.4 (103.0) |
| BLOWER REVOLUTIONS | 11232. | 29189. | 69291. | 40500. |
| TOT FLOW STD. CU. METRES(SCF) | 21.3 ( 751.) | 55.2 ( 1948.) | 131.0 ( 4624.) | 76.1 ( 2688.) |
| THC SAMPLE METER/RANGE/PPM | 33.4/ 2/ 33. | 12.0/ 2/ 12. | 13.2/ 2/ 13. | 16.2/ 2/ 16. |
| THC BCKGRD METER/RANGE/PPM | 12.5/ 2/ 12. | 11.8/ 2/ 12. | 12.5/ 2/ 12. | 16.2/ 2/ 16. |
| CO SAMPLE METER/RANGE/PPM | 45.5/ 12/ 45. | 1.6/ 12/ 2. | 3.0/ 12/ 3. | 1.9/ 12/ 2. |
| CO BCKGRD METER/RANGE/PPM | 1.5/ 12/ 1. | 1.0/ 12/ 1. | 1.0/ 12/ 1. | .9/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 89.8/ 14/ .8623 | 96.3/ 14/1.0355 | 75.1/ 14/ .5758 | 87.6/ 14/ .8114 |
| CO2 BCKGRD METER/RANGE/PCT | 12.3/ 14/ .0411 | 12.2/ 14/ .0407 | 12.5/ 14/ .0418 | 12.9/ 14/ .0434 |
| NOX SAMPLE METER/RANGE/PPM | 73.4/ 1/ 18.4 | 3.1/ 1/ .8 | 2.0/ 1/ .5 | 7.9/ 1/ 2.1 |
| NOX BCKGRD METER/RANGE/PPM | .4/ 1/ .1 | .2/ 1/ .1 | .3/ 1/ .1 | .5/ 1/ .1 |
| DILUTION FACTOR | 15.40 | 12.92 | 23.21 | 16.48 |
| THC CONCENTRATION PPM | 22. | 1. | 1. | 1. |
| CO CONCENTRATION PPM | 42. | 1. | 2. | 1. |
| CO2 CONCENTRATION PCT | .8239 | .9980 | .5358 | .7707 |
| NOX CONCENTRATION PPM | 18.3 | .8 | .5 | 1.9 |
| THC MASS GRAMS | .27 | .04 | .09 | .04 |
| CO MASS GRAMS | 1.03 | .04 | .29 | .08 |
| CO2 MASS GRAMS | 320.7 | 1008.0 | 1284.7 | 1074.1 |
| NOX MASS GRAMS | .75 | .08 | .11 | .28 |
| THC GRAMS/MI | .39 | .01 | .02 | .01 |
| CO GRAMS/MI | 1.53 | .01 | .07 | .02 |
| CO2 GRAMS/MI | 474.4 | 344.6 | 332.0 | 298.4 |
| NOX GRAMS/MI | 1.11 | .03 | .03 | .08 |
| FUEL ECONOMY IN MPG | 18.55 23.99 | 25.73 | 26.70 28.07 | 29.71 |
| RUN TIME SECONDS | 141. | 365. | 867. | 506. |
| MEASURED DISTANCE MI | .68 3.60 | 2.93 | 3.87 7.47 | 3.60 |
| SCF, DRY | .972 .971 | .971 | .975 .974 | .973 |
| DFC, WET (DRY) | .926( .908) | | .950( .932) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 76.4/ .00 | | 207.1/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-21 |
| BAROMETER | MM HG | 744.7 |
| HUMIDITY | G/KG | 10.9 |
| TEMPERATURE | DEG C | 22.8 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 330.4 |
| FUEL ECONOMY | MPG | 26.89 |
| HYDROCARBONS (THC) | G/MI | .03 |
| CARBON MONOXIDE | G/MI | .11 |
| OXIDES OF NITROGEN | G/MI | .08 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-VAH-22 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/10/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 959. KM( 596. MILES)

BAROMETER 743.71 MM HG(29.28 IN HG)
RELATIVE HUMIDITY 62. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 11.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 764.5 (30.1) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 759.5 (29.9) | 762.0 (30.0) | 762.0 (30.0) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 41.1 (106.0) | 37.8 (100.0) | 37.8 (100.0) | 40.6 (105.0) |
| BLOWER REVOLUTIONS | 11232. | 29202. | 69307. | 40388. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 743.) | 55.1 ( 1944.) | 130.7 ( 4614.) | 75.8 ( 2675.) |
| THC SAMPLE METER/RANGE/PPM | 86.3/ 2/ 86. | 18.8/ 2/ 19. | 13.4/ 2/ 13. | 11.7/ 2/ 12. |
| THC BCKGRD METER/RANGE/PPM | 14.5/ 2/ 14. | 14.2/ 2/ 14. | 12.2/ 2/ 12. | 11.3/ 2/ 11. |
| CO SAMPLE METER/RANGE/PPM | 60.6/ 13/ 144. | 62.0/ 12/ 61. | 2.9/ 12/ 3. | 1.2/ 12/ 1. |
| CO BCKGRD METER/RANGE/PPM | 1.1/ 13/ 3. | 1.8/ 12/ 2. | 1.3/ 12/ 1. | .8/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 92.5/ 14/ .9297 | 60.3/ 1/1.1074 | 77.3/ 14/ .6118 | 89.3/ 14/ .8504 |
| CO2 BCKGRD METER/RANGE/PCT | 12.4/ 14/ .0415 | 2.5/ 1/ .0441 | 12.2/ 14/ .0407 | 12.2/ 14/ .0407 |
| NOX SAMPLE METER/RANGE/PPM | 47.9/ 1/ 12.0 | 10.3/ 1/ 2.7 | 4.9/ 1/ 1.3 | 8.0/ 1/ 2.1 |
| NOX BCKGRD METER/RANGE/PPM | .4/ 1/ .1 | .4/ 1/ .1 | .3/ 1/ .1 | .1/ 1/ .0 |
| DILUTION FACTOR | 14.07 | 12.02 | 21.84 | 15.73 |
| THC CONCENTRATION PPM | 73. | 6. | 2. | 1. |
| CO CONCENTRATION PPM | 136. | 57. | 2. | 0. |
| CO2 CONCENTRATION PCT | .8912 | 1.0669 | .5730 | .8123 |
| NOX CONCENTRATION PPM | 11.9 | 2.6 | 1.2 | 2.1 |
| THC MASS GRAMS | .88 | .18 | .13 | .05 |
| CO MASS GRAMS | 3.33 | 3.67 | .23 | .04 |
| CO2 MASS GRAMS | 343.4 | 1075.4 | 1370.8 | 1126.6 |
| NOX MASS GRAMS | .49 | .28 | .31 | .30 |
| THC GRAMS/MI | 1.30 | .06 | .03 | .01 |
| CO GRAMS/MI | 4.90 | 1.25 | .06 | .01 |
| CO2 GRAMS/MI | 506.3 | 366.1 | 350.1 | 309.9 |
| NOX GRAMS/MI | .72 | .09 | .08 | .08 |
| FUEL ECONOMY IN MPG | 17.12 22.37 | 24.08 | 25.32 26.80 | 28.61 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.62 | 2.94 | 3.92 7.55 | 3.64 |
| SCF, DRY | .971 .970 | .970 | .974 .974 | .972 |
| DFC, WET (DRY) | .920( .902) | | .948( .929) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 76.1/ .00 | | 206.4/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-22 |
| BAROMETER | MM HG | 743.7 |
| HUMIDITY | G/KG | 11.4 |
| TEMPERATURE | DEG C | 23.3 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 347.8 |
| FUEL ECONOMY | MPG | 25.52 |
| HYDROCARBONS (THC) | G/MI | .08 |
| CARBON MONOXIDE | G/MI | .43 |
| OXIDES OF NITROGEN | G/MI | .11 |

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TEST NO. C-VAH-23 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/15/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 993. KM( 617. MILES)

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 54. PCT
BAG RESULTS

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 9.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 749.3 (29.5) | 762.0 (30.0) | 762.0 (30.0) | 759.5 (29.9) |
| BLOWER INLET P MM. H2O(IN. H2O) | 744.2 (29.3) | 759.5 (29.9) | 736.6 (29.0) | 754.4 (29.7) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 40.0 (104.0) | 39.4 (103.0) | 40.6 (105.0) |
| BLOWER REVOLUTIONS | 11225. | 29197. | 69371. | 40402. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 741.) | 54.7 ( 1932.) | 130.5 ( 4607.) | 75.7 ( 2672.) |
| THC SAMPLE METER/RANGE/PPM | 46.9/ 2/ 47. | 13.0/ 2/ 13. | 12.7/ 2/ 13. | 13.1/ 2/ 13. |
| THC BCKGRD METER/RANGE/PPM | 12.4/ 2/ 12. | 12.4/ 2/ 12. | 11.9/ 2/ 12. | 11.8/ 2/ 12. |
| CO SAMPLE METER/RANGE/PPM | 54.4/ 12/ 54. | 2.9/ 12/ 3. | 4.4/ 12/ 4. | 3.9/ 12/ 4. |
| CO BCKGRD METER/RANGE/PPM | .7/ 12/ 1. | .8/ 12/ 1. | .9/ 12/ 1. | .8/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 90.1/ 14/ .8695 | 65.8/ 1/1.2105 | 79.7/ 14/ .6535 | 88.9/ 14/ .8411 |
| CO2 BCKGRD METER/RANGE/PCT | 13.9/ 14/ .0474 | 2.7/ 1/ .0476 | 13.3/ 14/ .0450 | 13.1/ 14/ .0442 |
| NOX SAMPLE METER/RANGE/PPM | 55.9/ 2/ 55.9 | 53.4/ 1/ 13.4 | 3.8/ 1/ 1.0 | 5.2/ 1/ 1.4 |
| NOX BCKGRD METER/RANGE/PPM | .8/ 2/ .8 | 1.9/ 1/ .5 | 1.5/ 1/ .4 | .9/ 1/ .2 |
| DILUTION FACTOR | 15.24 | 11.06 | 20.45 | 15.90 |
| THC CONCENTRATION PPM | 35. | 2. | 1. | 2. |
| CO CONCENTRATION PPM | 51. | 2. | 3. | 3. |
| CO2 CONCENTRATION PCT | .8252 | 1.1671 | .6107 | .7997 |
| NOX CONCENTRATION PPM | 55.1 | 12.9 | .6 | 1.1 |
| THC MASS GRAMS | .43 | .05 | .10 | .09 |
| CO MASS GRAMS | 1.25 | .13 | .50 | .26 |
| CO2 MASS GRAMS | 316.9 | 1169.2 | 1458.8 | 1108.0 |
| NOX MASS GRAMS | 2.13 | 1.30 | .15 | .16 |
| THC GRAMS/MI | .62 | .02 | .03 | .02 |
| CO GRAMS/MI | 1.83 | .04 | .13 | .07 |
| CO2 GRAMS/MI | 463.4 | 395.1 | 373.5 | 304.1 |
| NOX GRAMS/MI | 3.11 | .44 | .04 | .04 |
| FUEL ECONOMY IN MPG | 18.94 21.68 | 22.44 | 23.73 26.07 | 29.15 |
| RUN TIME SECONDS | 140. | 365. | 868. | 505. |
| MEASURED DISTANCE MI | .68 3.64 | 2.96 | 3.91 7.55 | 3.64 |
| SCF, DRY | .975 .972 | .971 | .977 .976 | .975 |
| DFC, WET (DRY) | .916( .901) | | .946( .930) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.7/ .00 | | 206.2/ .00 | |

)MPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-23 |
| BAROMETER | MM HG | 742.4 |
| HUMIDITY | G/KG | 9.5 |
| TEMPERATURE | DEG C | 22.8 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 361.5 |
| FUEL ECONOMY | MPG | 24.62 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .16 |
| OXIDES OF NITROGEN | G/MI | .23 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-VAH-24 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 8/16/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 1015. KM( 631. MILES)

BAROMETER 742.19 MM HG(29.22 IN HG)
RELATIVE HUMIDITY 57. PCT

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 9.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 749.3 (29.5) | 759.5 (29.9) | 762.0 (30.0) | 762.0 (30.0) |
| BLOWER INLET P MM. H2O(IN. H2O) | 739.1 (29.1) | 756.9 (29.8) | 759.5 (29.9) | 756.9 (29.8) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 42.8 (109.0) | 41.7 (107.0) | 40.6 (105.0) | 42.2 (108.0) |
| BLOWER REVOLUTIONS | 11227. | 29220. | 69312. | 40403. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 741.) | 54.6 ( 1928.) | 129.7 ( 4580.) | 75.4 ( 2662.) |
| THC SAMPLE METER/RANGE/PPM | 49.7/ 2/ 50. | 15.6/ 2/ 16. | 13.9/ 2/ 14. | 14.9/ 2/ 15. |
| THC BCKGRD METER/RANGE/PPM | 15.1/ 2/ 15. | 14.4/ 2/ 14. | 13.7/ 2/ 14. | 12.4/ 2/ 12. |
| CO SAMPLE METER/RANGE/PPM | 70.0/ 12/ 69. | 5.4/ 12/ 5. | 3.4/ 12/ 3. | 6.3/ 12/ 6. |
| CO BCKGRD METER/RANGE/PPM | .6/ 12/ 1. | 1.0/ 12/ 1. | .8/ 12/ 1. | .9/ 12/ 1. |
| CO2 SAMPLE METER/RANGE/PCT | 89.9/ 14/ .8647 | 63.3/ 1/1.1636 | 79.5/ 14/ .6499 | 89.0/ 14/ .8434 |
| CO2 BCKGRD METER/RANGE/PCT | 12.6/ 14/ .0422 | 2.3/ 1/ .0406 | 12.7/ 14/ .0426 | 12.9/ 14/ .0434 |
| NOX SAMPLE METER/RANGE/PPM | 43.4/ 2/ 43.4 | 46.5/ 1/ 11.7 | 2.5/ 1/ .7 | 4.8/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .3/ 2/ .3 | 1.2/ 1/ .3 | .6/ 1/ .2 | .6/ 1/ .2 |
| DILUTION FACTOR | 15.29 | 11.50 | 20.56 | 15.85 |
| THC CONCENTRATION PPM | 36. | 2. | 1. | 3. |
| CO CONCENTRATION PPM | 67. | 4. | 2. | 5. |
| CO2 CONCENTRATION PCT | .8252 | 1.1265 | .6094 | .8027 |
| NOX CONCENTRATION PPM | 43.1 | 11.4 | .5 | 1.1 |
| THC MASS GRAMS | .43 | .08 | .06 | .14 |
| CO MASS GRAMS | 1.62 | .26 | .37 | .44 |
| CO2 MASS GRAMS | 317.0 | 1125.9 | 1447.0 | 1108.0 |
| NOX MASS GRAMS | 1.68 | 1.15 | .12 | .16 |
| THC GRAMS/MI | .57 | .03 | .02 | .04 |
| CO GRAMS/MI | 2.17 | .09 | .09 | .12 |
| CO2 GRAMS/MI | 423.1 | 396.4 | 374.0 | 308.1 |
| NOX GRAMS/MI | 2.24 | .41 | .03 | .04 |
| FUEL ECONOMY IN MPG | 20.70 21.99 | 22.36 | 23.70 25.89 | 28.75 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .75 3.59 | 2.84 | 3.87 7.47 | 3.60 |
| SCF, DRY | .974 .972 | .971 | .976 .975 | .974 |
| DFC, WET (DRY) | .919( .902) | | .946( .929) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.6/ .00 | | 205.1/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-24 |
| BAROMETER | MM HG | 742.2 |
| HUMIDITY | G/KG | 9.8 |
| TEMPERATURE | DEG C | 22.2 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 361.7 |
| FUEL ECONOMY | MPG | 24.58 |
| HYDROCARBONS (THC) | G/MI | .05 |
| CARBON MONOXIDE | G/MI | .19 |
| OXIDES OF NITROGEN | G/MI | .19 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. C-VAH-25 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 9/12/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 1040. KM( 646. MILES)

BAROMETER 739.39 MM HG(29.11 IN HG)
RELATIVE HUMIDITY 58. PCT

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 10.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 759.5 (29.9) | 762.0 (30.0) | 774.7 (30.5) | 767.1 (30.2) |
| BLOWER INLET P MM. H2O(IN. H2O) | 754.4 (29.7) | 759.5 (29.9) | 769.6 (30.3) | 759.5 (29.9) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 41.1 (106.0) | 41.7 (107.0) |
| BLOWER REVOLUTIONS | 11250. | 29224. | 69369. | 40416. |
| TOT FLOW STD. CU. METRES(SCF) | 20.9 ( 737.) | 54.3 ( 1917.) | 128.9 ( 4553.) | 75.1 ( 2653.) |
| THC SAMPLE METER/RANGE/PPM | 98.5/ 2/ 98. | 18.2/ 2/ 18. | 11.3/ 2/ 11. | 9.8/ 2/ 10. |
| THC BCKGRD METER/RANGE/PPM | 11.2/ 2/ 11. | 11.4/ 2/ 11. | 10.5/ 2/ 10. | 9.5/ 2/ 9. |
| CO SAMPLE METER/RANGE/PPM | 68.9/ 14/ 323. | 19.8/ 12/ 19. | 1.5/ 12/ 1. | 1.3/ 12/ 1. |
| CO BCKGRD METER/RANGE/PPM | .2/ 14/ 1. | .1/ 12/ 0. | .1/ 12/ 0. | .0/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 94.9/ 14/ .9949 | 64.2/ 1/1.1804 | 81.6/ 14/ .6884 | 92.3/ 14/ .9245 |
| CO2 BCKGRD METER/RANGE/PCT | 13.0/ 14/ .0438 | 2.4/ 1/ .0423 | 12.6/ 14/ .0422 | 12.4/ 14/ .0415 |
| NOX SAMPLE METER/RANGE/PPM | 11.0/ 1/ 2.8 | 4.2/ 1/ 1.1 | 1.6/ 1/ .4 | 5.7/ 1/ 1.5 |
| NOX BCKGRD METER/RANGE/PPM | .4/ 1/ .1 | .3/ 1/ .1 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 12.94 | 11.32 | 19.43 | 14.48 |
| THC CONCENTRATION PPM | 88. | 8. | 1. | 1. |
| CO CONCENTRATION PPM | 310. | 18. | 1. | 1. |
| CO2 CONCENTRATION PCT | .9545 | 1.1418 | .6483 | .8859 |
| NOX CONCENTRATION PPM | 2.7 | 1.0 | .4 | 1.5 |
| THC MASS GRAMS | 1.06 | .24 | .10 | .04 |
| CO MASS GRAMS | 7.54 | 1.16 | .19 | .10 |
| CO2 MASS GRAMS | 364.8 | 1135.0 | 1530.4 | 1218.9 |
| NOX MASS GRAMS | .11 | .11 | .10 | .21 |
| THC GRAMS/MI | 1.60 | .08 | .03 | .01 |
| CO GRAMS/MI | 11.37 | .39 | .05 | .03 |
| CO2 GRAMS/MI | 549.9 | 384.3 | 393.9 | 337.0 |
| NOX GRAMS/MI | .16 | .04 | .03 | .06 |
| FUEL ECONOMY IN MPG | 15.48 21.13 | 23.02 | 22.51 24.19 | 26.31 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .66 3.62 | 2.95 | 3.89 7.50 | 3.62 |
| SCF, DRY | .972 .971 | .970 | .975 .974 | .973 |
| DFC, WET (DRY) | .915( .898) | | .942( .925) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.2/ .00 | | 204.1/ .00 | |

OMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | C-VAH-25 |
| BAROMETER | MM HG | 739.4 |
| HUMIDITY | G/KG | 10.3 |
| TEMPERATURE | DEG C | 22.8 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 382.6 |
| FUEL ECONOMY | MPG | 23.17 |
| HYDROCARBONS (THC) | G/MI | .09 |
| CARBON MONOXIDE | G/MI | .53 |
| OXIDES OF NITROGEN | G/MI | .04 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
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TEST NO. CS-VAH-26 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 9/13/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1135-F
ODOMETER 1096. KM( 681. MILES)

BAROMETER 740.92 MM HG(29.17 IN HG)
RELATIVE HUMIDITY 69. PCT

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 11.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.04

BAG RESULTS

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 774.7 (30.5) | 774.7 (30.5) | 800.1 (31.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 759.5 (29.9) | 769.6 (30.3) | 769.6 (30.3) | 795.0 (31.3) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 43.3 (110.0) | 42.2 (108.0) | 40.6 (105.0) | 32.2 ( 90.0) |
| BLOWER REVOLUTIONS | 11217. | 29255. | 69442. | 40373. |
| TOT FLOW STD. CU. METRES(SCF) | 20.8 ( 736.) | 54.4 ( 1921.) | 129.5 ( 4573.) | 76.4 ( 2696.) |
| THC SAMPLE METER/RANGE/PPM | 32.8/ 2/ 33. | 17.6/ 2/ 18. | 13.3/ 2/ 13. | 12.8/ 2/ 13. |
| THC BCKGRD METER/RANGE/PPM | 13.7/ 2/ 14. | 13.6/ 2/ 14. | 13.1/ 2/ 13. | 12.7/ 2/ 13. |
| CO SAMPLE METER/RANGE/PPM | 41.1/ 12/ 40. | 66.5/ 12/ 66. | 1.5/ 12/ 1. | 1.7/ 12/ 2. |
| CO BCKGRD METER/RANGE/PPM | .8/ 12/ 1. | 1.1/ 12/ 1. | .9/ 12/ 1. | .5/ 12/ 0. |
| CO2 SAMPLE METER/RANGE/PCT | 93.9/ 14/ .9671 | 65.1/ 1/1.1973 | 79.8/ 14/ .6553 | 88.9/ 14/ .8411 |
| CO2 BCKGRD METER/RANGE/PCT | 12.7/ 14/ .0426 | 2.5/ 1/ .0441 | 12.7/ 14/ .0426 | 12.7/ 14/ .0426 |
| NOX SAMPLE METER/RANGE/PPM | 22.3/ 1/ 5.7 | 6.9/ 1/ 1.8 | 1.7/ 1/ .4 | 3.7/ 1/ 1.0 |
| NOX BCKGRD METER/RANGE/PPM | .2/ 1/ .1 | .0/ 1/ .0 | .0/ 1/ .0 | .0/ 1/ .0 |
| DILUTION FACTOR | 13.75 | 11.12 | 20.40 | 15.90 |
| THC CONCENTRATION PPM | 20. | 5. | 1. | 1. |
| CO CONCENTRATION PPM | 38. | 62. | 1. | 1. |
| CO2 CONCENTRATION PCT | .9275 | 1.1572 | .6147 | .8011 |
| NOX CONCENTRATION PPM | 5.6 | 1.8 | .4 | 1.0 |
| THC MASS GRAMS | .24 | .16 | .06 | .04 |
| CO MASS GRAMS | .92 | 3.93 | .09 | .10 |
| CO2 MASS GRAMS | 354.0 | 1152.4 | 1457.6 | 1119.9 |
| NOX MASS GRAMS | .23 | .19 | .12 | .15 |
| THC GRAMS/MI | .36 | .06 | .02 | .01 |
| CO GRAMS/MI | 1.37 | 1.35 | .02 | .03 |
| CO2 GRAMS/MI | 524.3 | 396.3 | 375.2 | 310.5 |
| NOX GRAMS/MI | .35 | .07 | .03 | .04 |
| FUEL ECONOMY IN MPG | 16.81 20.97 | 22.25 | 23.63 25.77 | 28.56 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.58 | 2.91 | 3.89 7.49 | 3.61 |
| SCF, DRY | .969 .967 | .967 | .972 .971 | .970 |
| DFC, WET (DRY) | .915( .894) | | .946( .925) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.2/ .00 | | 205.9/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-VAH-26 |
| BAROMETER | MM HG | 740.9 |
| HUMIDITY | G/KG | 11.9 |
| TEMPERATURE | DEG C | 22.2 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 366.7 |
| FUEL ECONOMY | MPG | 24.27 |
| HYDROCARBONS (THC) | G/MI | .03 |
| CARBON MONOXIDE | G/MI | .30 |
| OXIDES OF NITROGEN | G/MI | .05 |

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-3734-001

TEST NO. CS-VAH-27 RUN 1
VEHICLE MODEL 90 TOYOTA CELICA
ENGINE 2.2 L(134. CID) L-4
TRANSMISSION A4

VEHICLE NO.92
DATE 9/14/90
BAG CART NO. 2 / CVS NO. 2
DYNO NO. 3

TEST WEIGHT 1361. KG( 3000. LBS)
ACTUAL ROAD LOAD 4.3 KW( 5.7 HP)
GASOLINE EM-1026-F
ODOMETER 1152. KM( 716. MILES)

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 65. PCT
BAG RESULTS

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 11.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

| BAG NUMBER | 1A | 1B | 2 | 3 |
|---|---|---|---|---|
| DESCRIPTION | COLD TRANSIENT 0-140 SEC | COLD TRANSIENT 140-505 SEC | STABILIZED | HOT TRANSIENT |
| BLOWER DIF P MM. H2O(IN. H2O) | 762.0 (30.0) | 774.7 (30.5) | 784.9 (30.9) | 774.7 (30.5) |
| BLOWER INLET P MM. H2O(IN. H2O) | 759.5 (29.9) | 769.6 (30.3) | 774.7 (30.5) | 769.6 (30.3) |
| BLOWER INLET TEMP. DEG. C(DEG. F) | 41.7 (107.0) | 41.7 (107.0) | 40.0 (104.0) | 40.6 (105.0) |
| BLOWER REVOLUTIONS | 11214. | 29183. | 69301. | 40362. |
| TOT FLOW STD. CU. METRES(SCF) | 21.0 ( 740.) | 54.4 ( 1922.) | 129.5 ( 4574.) | 75.4 ( 2664.) |
| THC SAMPLE METER/RANGE/PPM | 38.3/ 2/ 38. | 17.6/ 2/ 18. | 13.9/ 2/ 14. | 13.6/ 2/ 14. |
| THC BCKGRD METER/RANGE/PPM | 13.0/ 2/ 13. | 13.3/ 2/ 13. | 13.6/ 2/ 14. | 13.3/ 2/ 13. |
| CO SAMPLE METER/RANGE/PPM | 52.9/ 12/ 53. | 40.8/ 12/ 41. | 6.5/ 12/ 7. | 5.8/ 12/ 6. |
| CO BCKGRD METER/RANGE/PPM | 5.2/ 12/ 5. | 5.2/ 12/ 5. | 4.8/ 12/ 5. | 3.8/ 12/ 4. |
| CO2 SAMPLE METER/RANGE/PCT | 94.7/ 14/ .9892 | 64.8/ 1/1.1917 | 78.9/ 14/ .6393 | 89.5/ 14/ .8551 |
| CO2 BCKGRD METER/RANGE/PCT | 15.5/ 14/ .0540 | 3.1/ 1/ .0547 | 15.3/ 14/ .0531 | 14.4/ 14/ .0494 |
| NOX SAMPLE METER/RANGE/PPM | 36.3/ 1/ 9.1 | 6.6/ 1/ 1.7 | 2.0/ 1/ .5 | 4.9/ 1/ 1.3 |
| NOX BCKGRD METER/RANGE/PPM | .8/ 1/ .2 | .6/ 1/ .2 | .6/ 1/ .2 | .4/ 1/ .1 |
| DILUTION FACTOR | 13.43 | 11.19 | 20.89 | 15.63 |
| THC CONCENTRATION PPM | 26. | 5. | 1. | 1. |
| CO CONCENTRATION PPM | 46. | 34. | 2. | 2. |
| CO2 CONCENTRATION PCT | .9393 | 1.1419 | .5887 | .8089 |
| NOX CONCENTRATION PPM | 8.9 | 1.6 | .4 | 1.2 |
| THC MASS GRAMS | .32 | .17 | .07 | .05 |
| CO MASS GRAMS | 1.12 | 2.16 | .27 | .19 |
| CO2 MASS GRAMS | 360.3 | 1137.9 | 1396.3 | 1117.2 |
| NOX MASS GRAMS | .36 | .17 | .09 | .17 |
| THC GRAMS/MI | .47 | .06 | .02 | .01 |
| CO GRAMS/MI | 1.65 | .74 | .07 | .05 |
| CO2 GRAMS/MI | 531.9 | 391.9 | 359.0 | 309.6 |
| NOX GRAMS/MI | .54 | .06 | .02 | .05 |
| FUEL ECONOMY IN MPG | 16.55 21.10 | 22.55 | 24.69 26.44 | 28.63 |
| RUN TIME SECONDS | 140. | 365. | 867. | 505. |
| MEASURED DISTANCE MI | .68 3.58 | 2.90 | 3.89 7.50 | 3.61 |
| SCF, DRY | .970 .969 | .968 | .973 .972 | .971 |
| DFC, WET (DRY) | .915( .896) | | .946( .926) | |
| TOT VOL (SCM) / SAM BLR (SCM) | 75.4/ .00 | | 205.0/ .00 | |

COMPOSITE RESULTS

| | | |
|---|---|---|
| TEST NUMBER | | CS-VAH-27 |
| BAROMETER | MM HG | 742.4 |
| HUMIDITY | G/KG | 11.2 |
| TEMPERATURE | DEG C | 22.2 |

| | | 3-BAG |
|---|---|---|
| CARBON DIOXIDE | G/MI | 357.7 |
| FUEL ECONOMY | MPG | 24.89 |
| HYDROCARBONS (THC) | G/MI | .04 |
| CARBON MONOXIDE | G/MI | .24 |
| OXIDES OF NITROGEN | G/MI | .06 |

# APPENDIX N

## 1990 BUICK LESABRE
## FTP HYDROCARBON SPECIATION MEASUREMENTS

# TABLE N-1. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-11

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 117 | 32.7 | 22.03 | 37 | 9.7 | 29.27 | 71 | 19.9 | 37.57 | 17.3 | 27.64 |
| ETHYLENE | 7 | 1.9 | 1.27 | 0 | 0.0 | 0.00 | 5 | 1.4 | 2.63 | 0.8 | 1.24 |
| ETHANE | 31 | 8.8 | 5.93 | 5 | 1.3 | 3.77 | 11 | 3.1 | 5.93 | 3.3 | 5.33 |
| ACETYLENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPANE | 2 | 0.5 | 0.32 | 1 | 0.2 | 0.72 | 0 | 0.0 | 0.00 | 0.2 | 0.36 |
| PROPYLENE | 6 | 1.6 | 1.07 | 5 | 1.2 | 3.52 | 0 | 0.0 | 0.00 | 0.9 | 1.50 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 3 | 0.8 | 0.52 | 1 | 0.1 | 0.40 | 0 | 0.0 | 0.00 | 0.2 | 0.37 |
| BUTANE | 42 | 11.8 | 7.93 | 7 | 1.9 | 5.59 | 2 | 0.4 | 0.81 | 3.5 | 5.63 |
| 1-BUTENE | 1 | 0.2 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| ISOBUTYLENE | 6 | 1.6 | 1.06 | 0 | 0.0 | 0.00 | 4 | 1.1 | 2.08 | 0.6 | 1.00 |
| CIS-2-BUTENE | 1 | 0.4 | 0.26 | 1 | 0.2 | 0.59 | 1 | 0.2 | 0.46 | 0.2 | 0.39 |
| TRANS-2-BUTENE | 0 | 0.1 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| BENZENE | 21 | 5.9 | 3.96 | 7 | 1.7 | 5.13 | 19 | 5.3 | 10.05 | 3.6 | 5.70 |
| TOLUENE | 45 | 12.5 | 8.42 | 6 | 1.5 | 4.60 | 25 | 7.0 | 13.18 | 5.3 | 8.47 |
| ISOPENTANE | 53 | 14.9 | 10.04 | 33 | 8.6 | 26.00 | 12 | 3.4 | 6.45 | 8.5 | 13.61 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 8 | 2.2 | 1.46 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.72 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 4 | 1.2 | 0.84 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.41 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 3 | 0.8 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.25 |
| 4-METHYL-2-PENTENE | 3 | 0.7 | 0.50 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.25 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 4 | 1.2 | 0.84 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.41 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 1 | 0.3 | 0.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |
| C6 OLEFINS | 1 | 0.4 | 0.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |

TABLE N-1 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-11

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 2 | 0.6 | 0.40 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.19 |
| METHYLCYCLOPENTANE | 4 | 1.1 | 0.75 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.37 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 23 | 6.4 | 4.29 | 0 | 0.0 | 0.00 | 13 | 3.5 | 6.59 | 2.3 | 3.64 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 0.3 | 0.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| 2,2,4-TRIMETHYLPENTANE | 47 | 13.2 | 8.93 | 8 | 2.2 | 6.61 | 20 | 5.6 | 10.67 | 5.4 | 8.70 |
| N-HEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 1.1 | 0.74 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.37 |
| 2,3,4-TRIMETHYLPENTANE | 15 | 4.1 | 2.78 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 1.37 |
| 2,3,3-TRIMETHYLPENTANE | 7 | 1.9 | 1.27 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.63 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 34 | 9.4 | 6.35 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.9 | 3.12 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 5 | 1.4 | 0.96 | 17 | 4.4 | 13.27 | 0 | 0.0 | 0.00 | 2.6 | 4.13 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 9 | 2.5 | 1.71 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.84 |

TABLE N-1 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-11

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 2 | 0.7 | 0.46 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.23 |
| O-ETHYLTOLUENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 12 | 3.3 | 2.19 | 0 | 0.0 | 0.00 | 5 | 1.4 | 2.64 | 1.1 | 1.69 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 4 | 1.0 | 0.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.34 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 2 | 0.5 | 0.35 | 1 | 0.2 | 0.52 | 2 | 0.5 | 0.94 | 0.3 | 0.54 |
| ACETALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 1 | 0.3 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE N-2. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 130 | 35.9 | 27.69 | 47 | 12.0 | 49.50 | 66 | 18.4 | 40.02 | 18.7 | 35.97 |
| ETHYLENE | 12 | 3.2 | 2.48 | 3 | 0.8 | 3.31 | 2 | 0.6 | 1.38 | 1.3 | 2.41 |
| ETHANE | 29 | 8.1 | 6.27 | 7 | 1.9 | 7.83 | 10 | 2.8 | 6.02 | 3.4 | 6.59 |
| ACETYLENE | 1 | 0.2 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| PROPANE | 2 | 0.7 | 0.51 | 0 | 0.0 | 0.21 | 2 | 0.4 | 0.92 | 0.3 | 0.53 |
| PROPYLENE | 4 | 1.0 | 0.80 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.41 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 3 | 0.7 | 0.55 | 1 | 0.2 | 1.02 | 1 | 0.3 | 0.63 | 0.4 | 0.69 |
| BUTANE | 41 | 11.4 | 8.76 | 0 | 0.0 | 0.00 | 7 | 1.8 | 3.94 | 2.8 | 5.46 |
| 1-BUTENE | 1 | 0.2 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| ISOBUTYLENE | 4 | 1.1 | 0.85 | 2 | 0.6 | 2.37 | 2 | 0.5 | 1.05 | 0.7 | 1.27 |
| CIS-2-BUTENE | 1 | 0.2 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.09 |
| TRANS-2-BUTENE | 0 | 0.1 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.05 |
| BENZENE | 16 | 4.3 | 3.35 | 10 | 2.5 | 10.35 | 13 | 3.5 | 7.69 | 3.2 | 6.10 |
| TOLUENE | 34 | 9.3 | 7.19 | 8 | 2.1 | 8.82 | 0 | 0.0 | 0.00 | 3.0 | 5.85 |
| ISOPENTANE | 56 | 15.6 | 12.01 | 0 | 0.0 | 0.00 | 22 | 6.1 | 13.27 | 4.9 | 9.39 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 8 | 2.1 | 1.62 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.84 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 3 | 1.0 | 0.74 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.38 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 4 | 1.2 | 0.93 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.48 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 3 | 0.9 | 0.69 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.35 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE N-2 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 5 | 1.3 | 0.98 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.50 |
| METHYLCYCLOPENTANE | 1 | 0.3 | 0.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 20 | 5.4 | 4.19 | 0 | 0.0 | 0.00 | 7 | 2.0 | 4.30 | 1.7 | 3.20 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 0.3 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |
| 2,2,4-TRIMETHYLPENTANE | 47 | 12.9 | 9.93 | 15 | 3.9 | 16.09 | 16 | 4.4 | 9.64 | 5.9 | 11.36 |
| N-HEPTANE | 1 | 0.3 | 0.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 1.0 | 0.79 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.41 |
| 2,3,4-TRIMETHYLPENTANE | 6 | 1.6 | 1.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.64 |
| 2,3,3-TRIMETHYLPENTANE | 4 | 1.2 | 0.95 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.49 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 2 | 0.5 | 0.42 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.21 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 13 | 3.7 | 2.85 | 0 | 0.0 | 0.00 | 16 | 4.5 | 9.71 | 2.0 | 3.82 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 3 | 0.9 | 0.66 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.34 |

TABLE N-2 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 0 | 0.1 | 0.08 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| O-ETHYLTOLUENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 4 | 1.2 | 0.90 | 0 | 0.0 | 0.00 | 2 | 0.4 | 0.96 | 0.4 | 0.70 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 3 | 0.8 | 0.65 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.33 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 2 | 0.7 | 0.52 | 0 | 0.1 | 0.29 | 0 | 0.0 | 0.00 | 0.2 | 0.34 |
| ACETALDEHYDE | 1 | 0.3 | 0.22 | 0 | 0.0 | 0.20 | 1 | 0.2 | 0.48 | 0.1 | 0.28 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE N-3. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 128 | 36.2 | 8.70 | 53 | 13.7 | 29.43 | 90 | 25.0 | 27.32 | 21.4 | 15.89 |
| ETHYLENE | 94 | 26.6 | 6.40 | 2 | 0.4 | 0.91 | 14 | 3.9 | 4.31 | 6.8 | 5.03 |
| ETHANE | 29 | 8.2 | 1.98 | 3 | 0.7 | 1.62 | 14 | 3.9 | 4.27 | 3.1 | 2.34 |
| ACETYLENE | 13 | 3.6 | 0.87 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.55 |
| PROPANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLENE | 90 | 25.2 | 6.07 | 27 | 7.0 | 15.09 | 12 | 3.3 | 3.61 | 9.7 | 7.23 |
| 1,3-BUTADIENE | 15 | 4.2 | 1.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 0.64 |
| ISOBUTANE | 6 | 1.6 | 0.38 | 2 | 0.4 | 0.87 | 3 | 0.8 | 0.83 | 0.7 | 0.55 |
| BUTANE | 71 | 20.0 | 4.81 | 7 | 1.9 | 4.07 | 19 | 5.4 | 5.92 | 6.6 | 4.88 |
| 1-BUTENE | 11 | 3.0 | 0.72 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.46 |
| ISOBUTYLENE | 52 | 14.6 | 3.52 | 0 | 0.0 | 0.00 | 6 | 1.7 | 1.87 | 3.5 | 2.58 |
| CIS-2-BUTENE | 5 | 1.5 | 0.37 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.40 | 0.4 | 0.31 |
| TRANS-2-BUTENE | 7 | 2.0 | 0.48 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.30 |
| BENZENE | 58 | 16.4 | 3.95 | 26 | 6.8 | 14.55 | 33 | 9.1 | 9.93 | 9.4 | 6.97 |
| TOLUENE | 264 | 74.3 | 17.88 | 0 | 0.0 | 0.00 | 39 | 10.9 | 11.96 | 18.3 | 13.57 |
| ISOPENTANE | 72 | 20.2 | 4.86 | 0 | 0.0 | 0.00 | 22 | 6.2 | 6.74 | 5.8 | 4.33 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 16 | 4.4 | 1.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 0.67 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 7 | 1.9 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.29 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 0.2 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| 3-METHYL-1-PENTENE | 1 | 0.2 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| 4-METHYL-1-PENTENE | 1 | 0.2 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| 2,3-DIMETHYLBUTANE | 7 | 2.1 | 0.50 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.32 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 6 | 1.7 | 0.40 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.25 |
| 4-METHYL-2-PENTENE | 6 | 1.6 | 0.39 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.25 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 7 | 1.9 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.28 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 6 | 1.8 | 0.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.28 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE N-3 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 13 | 3.7 | 0.89 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 0.57 |
| METHYLCYCLOPENTANE | 6 | 1.6 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.24 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 48 | 13.6 | 3.27 | 0 | 0.0 | 0.00 | 13 | 3.7 | 4.09 | 3.8 | 2.84 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 5 | 1.3 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.20 |
| 2,2,4-TRIMETHYLPENTANE | 113 | 31.9 | 7.67 | 25 | 6.5 | 14.08 | 33 | 9.2 | 10.07 | 12.5 | 9.27 |
| N-HEPTANE | 3 | 0.9 | 0.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.13 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 4 | 1.0 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.15 |
| 2,4,4-TRIMETHYL-2-PENTENE | 2 | 0.5 | 0.13 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| 2,4/2-5-DIMETHYLHEXANE | 13 | 3.6 | 0.87 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.55 |
| 2,3,4-TRIMETHYLPENTANE | 19 | 5.3 | 1.28 | 0 | 0.0 | 0.00 | 3 | 0.7 | 0.82 | 1.3 | 0.97 |
| 2,3,3-TRIMETHYLPENTANE | 12 | 3.4 | 0.83 | 0 | 0.0 | 0.00 | 3 | 0.7 | 0.82 | 0.9 | 0.68 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 4 | 1.2 | 0.29 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.18 |
| 3-METHYLHEPTANE | 4 | 1.1 | 0.26 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.17 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 1.3 | 0.30 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.19 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 3 | 0.8 | 0.19 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.12 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 17 | 4.9 | 1.18 | 0 | 0.0 | 0.00 | 4 | 1.0 | 1.14 | 1.3 | 0.96 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 73 | 20.7 | 4.98 | 0 | 0.0 | 0.00 | 14 | 3.9 | 4.30 | 5.3 | 3.96 |
| 2-METHYLOCTANE | 2 | 0.5 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.07 |
| 4-METHYLOCTANE | 2 | 0.5 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.07 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 30 | 8.3 | 2.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.7 | 1.27 |

TABLE N-3 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 5 | 1.4 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.22 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 4 | 1.1 | 0.27 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.17 |
| 2,3-DIMETHYLOCTANE | 9 | 2.6 | 0.63 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.40 |
| O-ETHYLTOLUENE | 5 | 1.3 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.19 |
| 1,2,4-TRIMETHYLBENZENE | 23 | 6.4 | 1.55 | 7 | 1.9 | 3.99 | 5 | 1.4 | 1.53 | 2.7 | 1.98 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 5 | 1.3 | 0.31 | 19 | 5.0 | 10.83 | 0 | 0.0 | 0.00 | 2.9 | 2.14 |
| INDAN(E) | 1 | 0.4 | 0.09 | 7 | 1.8 | 3.93 | 0 | 0.0 | 0.00 | 1.0 | 0.76 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 1 | 0.4 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.06 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 0.6 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 2 | 0.5 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 3 | 0.8 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.12 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 3.0 | 0.71 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.45 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 17 | 4.9 | 1.17 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 0.74 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 18 | 5.2 | 1.25 | 1 | 0.2 | 0.42 | 0 | 0.0 | 0.00 | 1.2 | 0.87 |
| ACETALDEHYDE | 11 | 3.0 | 0.73 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.46 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 11 | 3.0 | 0.73 | 0 | 0.1 | 0.21 | 0 | 0.1 | 0.09 | 0.7 | 0.52 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE N-4. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 145 | 40.4 | 9.21 | 94 | 24.5 | 31.99 | 94 | 26.4 | 32.43 | 28.3 | 18.51 |
| ETHYLENE | 109 | 30.3 | 6.91 | 3 | 0.9 | 1.14 | 10 | 2.8 | 3.42 | 7.5 | 4.90 |
| ETHANE | 33 | 9.1 | 2.08 | 13 | 3.4 | 4.46 | 14 | 4.0 | 4.93 | 4.8 | 3.12 |
| ACETYLENE | 8 | 2.2 | 0.51 | 0 | 0.0 | 0.00 | 2 | 0.6 | 0.70 | 0.6 | 0.41 |
| PROPANE | 3 | 0.8 | 0.18 | 0 | 0.0 | 0.00 | 5 | 1.3 | 1.59 | 0.5 | 0.34 |
| PROPYLENE | 71 | 19.9 | 4.54 | 11 | 2.9 | 3.83 | 13 | 3.6 | 4.39 | 6.6 | 4.33 |
| 1,3-BUTADIENE | 12 | 3.3 | 0.75 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.44 |
| ISOBUTANE | 1 | 0.4 | 0.09 | 0 | 0.0 | 0.00 | 3 | 0.9 | 1.10 | 0.3 | 0.21 |
| BUTANE | 62 | 17.2 | 3.92 | 17 | 4.4 | 5.80 | 21 | 5.8 | 7.09 | 7.5 | 4.87 |
| 1-BUTENE | 12 | 3.5 | 0.79 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.47 |
| ISOBUTYLENE | 27 | 7.6 | 1.73 | 2 | 0.6 | 0.77 | 0 | 0.0 | 0.00 | 1.9 | 1.23 |
| CIS-2-BUTENE | 4 | 1.0 | 0.23 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.45 | 0.3 | 0.20 |
| TRANS-2-BUTENE | 5 | 1.5 | 0.35 | 0 | 0.0 | 0.00 | 1 | 0.2 | 0.30 | 0.4 | 0.25 |
| BENZENE | 144 | 40.1 | 9.14 | 102 | 26.5 | 34.62 | 33 | 9.3 | 11.37 | 24.6 | 16.09 |
| TOLUENE | 191 | 53.3 | 12.15 | 24 | 6.2 | 8.04 | 33 | 9.3 | 11.41 | 16.8 | 10.97 |
| ISOPENTANE | 57 | 15.8 | 3.60 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 3.3 | 2.14 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 37 | 10.3 | 2.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.1 | 1.39 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 4 | 1.3 | 0.29 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.17 |
| TRANS-2-PENTENE | 4 | 1.0 | 0.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.14 |
| CIS-2-PENTENE | 3 | 0.7 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| 2-METHYL-2-BUTENE | 9 | 2.5 | 0.56 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.34 |
| 2,2-DIMETHYLBUTANE | 4 | 1.1 | 0.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.15 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 0.2 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.03 |
| 3-METHYL-1-PENTENE | 1 | 0.2 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.03 |
| 4-METHYL-1-PENTENE | 1 | 0.2 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.03 |
| 2,3-DIMETHYLBUTANE | 12 | 3.4 | 0.78 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.47 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 17 | 4.8 | 1.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 0.65 |
| 4-METHYL-2-PENTENE | 17 | 4.7 | 1.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 0.63 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 17 | 4.9 | 1.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 0.66 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 20 | 5.5 | 1.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.1 | 0.74 |
| C6 OLEFINS | 1 | 0.4 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.06 |

TABLE N-4 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 8 | 2.3 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.31 |
| METHYLCYCLOPENTANE | 7 | 2.0 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.27 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 3 | 0.7 | 0.17 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.10 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 33 | 9.3 | 2.11 | 26 | 6.8 | 8.87 | 0 | 0.0 | 0.00 | 5.4 | 3.56 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 12 | 3.3 | 0.75 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.45 |
| 2,2,4-TRIMETHYLPENTANE | 53 | 14.9 | 3.39 | 0 | 0.0 | 0.00 | 19 | 5.3 | 6.47 | 4.5 | 2.96 |
| N-HEPTANE | 8 | 2.2 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.30 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 5 | 1.4 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.19 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 10 | 2.9 | 0.65 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.39 |
| 2,3,4-TRIMETHYLPENTANE | 8 | 2.4 | 0.54 | 0 | 0.0 | 0.00 | 4 | 1.1 | 1.39 | 0.8 | 0.52 |
| 2,3,3-TRIMETHYLPENTANE | 7 | 1.8 | 0.42 | 0 | 0.0 | 0.00 | 4 | 1.1 | 1.39 | 0.7 | 0.45 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 9 | 2.6 | 0.58 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.35 |
| 3-METHYLHEPTANE | 9 | 2.4 | 0.55 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.33 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 1.1 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.14 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 6 | 1.6 | 0.35 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.21 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 2 | 0.6 | 0.13 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.07 |
| ETHYLBENZENE | 40 | 11.1 | 2.53 | 0 | 0.0 | 0.00 | 6 | 1.8 | 2.15 | 2.8 | 1.82 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 99 | 27.6 | 6.30 | 0 | 0.0 | 0.00 | 17 | 4.9 | 6.01 | 7.1 | 4.62 |
| 2-METHYLOCTANE | 5 | 1.3 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.18 |
| 4-METHYLOCTANE | 5 | 1.3 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.18 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 39 | 10.9 | 2.49 | 0 | 0.0 | 0.00 | 8 | 2.2 | 2.72 | 2.9 | 1.88 |

TABLE N-4 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 2 | 0.7 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 6 | 1.7 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.23 |
| 2,3-DIMETHYLOCTANE | 15 | 4.3 | 0.97 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 0.58 |
| O-ETHYLTOLUENE | 8 | 2.1 | 0.48 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.28 |
| 1,2,4-TRIMETHYLBENZENE | 36 | 10.0 | 2.28 | 0 | 0.0 | 0.00 | 2 | 0.6 | 0.71 | 2.2 | 1.46 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 6 | 1.8 | 0.41 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.24 |
| INDAN(E) | 3 | 0.8 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.11 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 0.7 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| 1-METHYL-3-PROPYLBENZENE | 3 | 0.9 | 0.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.12 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 0.8 | 0.19 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.11 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 1.2 | 0.27 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.16 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 1 | 0.4 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.06 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 3.2 | 0.72 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.43 |
| C7 OLEFINS | 6 | 1.7 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.23 |
| C8-C9 OLEFINS | 27 | 7.5 | 1.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.5 | 1.01 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 21 | 5.8 | 1.31 | 1 | 0.4 | 0.47 | 0 | 0.0 | 0.00 | 1.4 | 0.90 |
| ACETALDEHYDE | 7 | 2.1 | 0.47 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.28 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 1 | 0.3 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| METHYL ETHYL KETONE | 1 | 0.3 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| BENZALDEHYDE | 5 | 1.5 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.20 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE N-5. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 119 | 33.4 | 26.98 | 81 | 20.8 | 35.65 | 63 | 17.6 | 62.51 | 22.5 | 35.44 |
| ETHYLENE | 9 | 2.5 | 2.02 | 4 | 1.0 | 1.76 | 1 | 0.4 | 1.45 | 1.2 | 1.83 |
| ETHANE | 27 | 7.6 | 6.16 | 11 | 2.9 | 4.92 | 8 | 2.4 | 8.34 | 3.7 | 5.83 |
| ACETYLENE | 1 | 0.2 | 0.13 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.05 |
| PROPANE | 3 | 0.8 | 0.66 | 10 | 2.5 | 4.31 | 3 | 0.8 | 2.88 | 1.7 | 2.67 |
| PROPYLENE | 8 | 2.3 | 1.83 | 5 | 1.2 | 2.02 | 0 | 0.0 | 0.00 | 1.1 | 1.70 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 0.3 | 0.26 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| BUTANE | 46 | 12.8 | 10.34 | 12 | 3.1 | 5.35 | 10 | 2.7 | 9.58 | 5.0 | 7.87 |
| 1-BUTENE | 1 | 0.2 | 0.20 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| ISOBUTYLENE | 2 | 0.7 | 0.55 | 2 | 0.4 | 0.67 | 1 | 0.4 | 1.30 | 0.4 | 0.70 |
| CIS-2-BUTENE | 1 | 0.4 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.13 |
| TRANS-2-BUTENE | 1 | 0.2 | 0.20 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| BENZENE | 26 | 7.3 | 5.93 | 49 | 12.8 | 21.83 | 6 | 1.7 | 6.17 | 8.6 | 13.55 |
| TOLUENE | 9 | 2.5 | 2.02 | 46 | 11.9 | 20.44 | 0 | 0.0 | 0.00 | 6.7 | 10.56 |
| ISOPENTANE | 25 | 7.1 | 5.77 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.5 | 2.32 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 15 | 4.2 | 3.39 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 1.36 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 5 | 1.5 | 1.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.49 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 6 | 1.8 | 1.43 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.57 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 7 | 1.9 | 1.52 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.61 |
| 4-METHYL-2-PENTENE | 7 | 1.8 | 1.48 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.59 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 7 | 1.9 | 1.54 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.62 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 7 | 1.8 | 1.49 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.60 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE N-5 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 3 | 0.8 | 0.63 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.25 |
| METHYLCYCLOPENTANE | 1 | 0.3 | 0.28 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 8 | 2.2 | 1.79 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.72 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 3 | 0.9 | 0.71 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.29 |
| 2,2,4-TRIMETHYLPENTANE | 20 | 5.7 | 4.63 | 6 | 1.5 | 2.62 | 8 | 2.1 | 7.47 | 2.6 | 4.02 |
| N-HEPTANE | 2 | 0.6 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.21 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 3 | 0.8 | 0.65 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.26 |
| 2,3,3-TRIMETHYLPENTANE | 2 | 0.6 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.21 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 3 | 0.7 | 0.57 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.23 |
| 3-METHYLHEPTANE | 2 | 0.6 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.18 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 2 | 0.4 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 8 | 2.3 | 1.87 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.75 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 24 | 6.8 | 5.49 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.4 | 2.20 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 10 | 2.7 | 2.19 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.88 |

TABLE N-5 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 2 | 0.4 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| O-ETHYLTOLUENE | 1 | 0.3 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| 1,2,4-TRIMETHYLBENZENE | 8 | 2.3 | 1.90 | 0 | 0.1 | 0.17 | 0 | 0.1 | 0.31 | 0.6 | 0.88 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 2 | 0.6 | 0.48 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.19 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 2 | 0.5 | 0.43 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.17 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 2 | 0.7 | 0.56 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.22 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 0 | 0.0 | 0.00 | 1 | 0.1 | 0.25 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |
| ACETALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE N-6. HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-16

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 122 | 33.9 | 28.75 | 80 | 20.6 | 31.42 | 80 | 22.2 | 32.33 | 23.8 | 30.80 |
| ETHYLENE | 5 | 1.3 | 1.14 | 3 | 0.8 | 1.19 | 2 | 0.6 | 0.89 | 0.8 | 1.10 |
| ETHANE | 29 | 8.0 | 6.78 | 0 | 0.0 | 0.00 | 10 | 2.9 | 4.18 | 2.4 | 3.17 |
| ACETYLENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPANE | 1 | 0.3 | 0.24 | 0 | 0.0 | 0.00 | 3 | 0.9 | 1.30 | 0.3 | 0.39 |
| PROPYLENE | 3 | 0.8 | 0.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.22 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 0.3 | 0.26 | 0 | 0.0 | 0.00 | 1 | 0.3 | 0.37 | 0.1 | 0.17 |
| BUTANE | 33 | 9.1 | 7.75 | 9 | 2.4 | 3.72 | 12 | 3.4 | 5.01 | 4.1 | 5.31 |
| 1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYLENE | 2 | 0.5 | 0.41 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.53 | 0.2 | 0.26 |
| CIS-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZENE | 12 | 3.4 | 2.85 | 13 | 3.2 | 4.95 | 14 | 4.0 | 5.83 | 3.5 | 4.50 |
| TOLUENE | 18 | 5.1 | 4.34 | 23 | 6.1 | 9.25 | 9 | 2.6 | 3.76 | 4.9 | 6.36 |
| ISOPENTANE | 31 | 8.6 | 7.29 | 21 | 5.4 | 8.29 | 20 | 5.5 | 8.03 | 6.1 | 7.91 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 12 | 3.4 | 2.87 | 12 | 3.2 | 4.91 | 10 | 2.8 | 4.01 | 3.1 | 4.05 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 5 | 1.4 | 1.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.38 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 9 | 2.6 | 2.23 | 9 | 2.2 | 3.36 | 10 | 2.7 | 4.00 | 2.4 | 3.16 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 11 | 3.0 | 2.54 | 9 | 2.2 | 3.36 | 10 | 2.7 | 4.00 | 2.5 | 3.26 |
| 4-METHYL-2-PENTENE | 11 | 2.9 | 2.48 | 8 | 2.1 | 3.28 | 10 | 2.7 | 3.90 | 2.5 | 3.18 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 8 | 2.1 | 1.80 | 12 | 3.2 | 4.89 | 10 | 2.7 | 4.00 | 2.8 | 3.69 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 6 | 1.8 | 1.53 | 10 | 2.6 | 3.97 | 7 | 1.9 | 2.72 | 2.2 | 2.89 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

## TABLE N-6 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-16

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 3 | 0.8 | 0.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.22 |
| METHYLCYCLOPENTANE | 2 | 0.5 | 0.43 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 18 | 4.9 | 4.16 | 19 | 5.0 | 7.61 | 11 | 3.1 | 4.52 | 4.4 | 5.76 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 3 | 0.7 | 0.62 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.19 |
| 2,2,4-TRIMETHYLPENTANE | 16 | 4.4 | 3.75 | 8 | 2.1 | 3.25 | 12 | 3.2 | 4.73 | 2.9 | 3.77 |
| N-HEPTANE | 2 | 0.4 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 4 | 1.2 | 1.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.33 |
| 2,3,3-TRIMETHYLPENTANE | 2 | 0.5 | 0.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 3 | 0.8 | 0.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.22 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 6 | 1.6 | 1.37 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.43 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 15 | 4.1 | 3.50 | 0 | 0.0 | 0.00 | 10 | 2.8 | 4.03 | 1.6 | 2.09 |
| 2-METHYLOCTANE | 1 | 0.4 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| 4-METHYLOCTANE | 1 | 0.4 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 5 | 1.3 | 1.11 | 14 | 3.5 | 5.36 | 0 | 0.0 | 0.00 | 2.1 | 2.71 |

TABLE N-6 (Cont'd). HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-16

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 1 | 0.3 | 0.26 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| O-ETHYLTOLUENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 7 | 2.0 | 1.69 | 0 | 0.0 | 0.00 | 4 | 1.0 | 1.52 | 0.7 | 0.91 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 15 | 4.1 | 3.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 1.09 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 1 | 0.4 | 0.30 | 2 | 0.5 | 0.71 | 1 | 0.2 | 0.34 | 0.4 | 0.49 |
| ACETALDEHYDE | 0 | 0.0 | 0.00 | 1 | 0.3 | 0.46 | 0 | 0.0 | 0.00 | 0.2 | 0.20 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 1 | 0.2 | 0.14 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| METHYL ETHYL KETONE | 1 | 0.2 | 0.14 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.04 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# APPENDIX O

## 1990 BUICK LESABRE
## FTP COLD-START HYDROCARBON SPECIATION MEASUREMENTS

## TABLE O-1. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-11

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 74 | 109.7 | 22.9 | 43 | 14.9 | 21.0 | 117 | 32.7 | 22.03 |
| ETHYLENE | 7 | 10.0 | 2.1 | 0 | 0.0 | 0.0 | 7 | 1.9 | 1.27 |
| ETHANE | 24 | 35.3 | 7.4 | 8 | 2.7 | 3.8 | 31 | 8.8 | 5.93 |
| ACETYLENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPANE | 2 | 2.5 | 0.5 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.32 |
| PROPYLENE | 6 | 8.5 | 1.8 | 0 | 0.0 | 0.0 | 6 | 1.6 | 1.07 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 2 | 2.6 | 0.5 | 1 | 0.3 | 0.5 | 3 | 0.8 | 0.52 |
| BUTANE | 31 | 46.2 | 9.7 | 11 | 3.8 | 5.4 | 42 | 11.8 | 7.93 |
| 1-BUTENE | 1 | 1.3 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.16 |
| ISOBUTYLENE | 3 | 5.1 | 1.1 | 2 | 0.8 | 1.1 | 6 | 1.6 | 1.06 |
| CIS-2-BUTENE | 1 | 1.1 | 0.2 | 1 | 0.2 | 0.3 | 1 | 0.4 | 0.26 |
| TRANS-2-BUTENE | 0 | 0.7 | 0.2 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.09 |
| BENZENE | 9 | 12.8 | 2.7 | 12 | 4.3 | 6.0 | 21 | 5.9 | 3.96 |
| TOLUENE | 29 | 42.8 | 8.9 | 16 | 5.5 | 7.7 | 45 | 12.5 | 8.42 |
| ISOPENTANE | 30 | 45.0 | 9.4 | 23 | 7.9 | 11.2 | 53 | 14.9 | 10.04 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 8 | 11.5 | 2.4 | 0 | 0.0 | 0.0 | 8 | 2.2 | 1.46 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 4 | 6.7 | 1.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.84 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 3 | 4.1 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.51 |
| 4-METHYL-2-PENTENE | 3 | 4.0 | 0.8 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.50 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 4 | 6.7 | 1.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.84 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 1 | 1.9 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.23 |
| C6 OLEFINS | 1 | 2.0 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.25 |
| 2,4-DIMETHYLPENTANE | 2 | 3.1 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.40 |
| METHYLCYCLOPENTANE | 4 | 6.0 | 1.2 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.75 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 11 | 16.6 | 3.5 | 12 | 4.0 | 5.6 | 23 | 6.4 | 4.29 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 1.8 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.23 |
| 2,2,4-TRIMETHYLPENTANE | 24 | 36.2 | 7.6 | 23 | 7.9 | 11.2 | 47 | 13.2 | 8.93 |
| N-HEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 5.9 | 1.2 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.74 |
| 2,3,4-TRIMETHYLPENTANE | 4 | 6.6 | 1.4 | 10 | 3.5 | 5.0 | 15 | 4.1 | 2.78 |

TABLE O-1 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-11

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 3 | 4.8 | 1.0 | 4 | 1.2 | 1.7 | 7 | 1.9 | 1.27 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 3 | 4.3 | 0.9 | 31 | 10.6 | 14.9 | 34 | 9.4 | 6.35 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 5 | 7.6 | 1.6 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.96 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 6 | 8.2 | 1.7 | 4 | 1.2 | 1.7 | 9 | 2.5 | 1.71 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 2 | 3.7 | 0.8 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.46 |
| O-ETHYLTOLUENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 5 | 7.9 | 1.7 | 6 | 2.2 | 3.1 | 12 | 3.3 | 2.19 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 4 | 5.5 | 1.2 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.70 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 2 | 0.5 | 0.35 |
| ACETALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 1 | 0.3 | 0.18 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE O-2. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-12

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 91 | 131.3 | 26.5 | 39 | 13.4 | 26.0 | 130 | 35.9 | 27.69 |
| ETHYLENE | 9 | 13.1 | 2.6 | 3 | 0.9 | 1.7 | 12 | 3.2 | 2.48 |
| ETHANE | 23 | 32.7 | 6.6 | 7 | 2.4 | 4.6 | 29 | 8.1 | 6.27 |
| ACETYLENE | 1 | 0.8 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.12 |
| PROPANE | 1 | 1.4 | 0.3 | 1 | 0.5 | 1.0 | 2 | 0.7 | 0.51 |
| PROPYLENE | 4 | 5.4 | 1.1 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.80 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 2 | 2.6 | 0.5 | 1 | 0.3 | 0.5 | 3 | 0.7 | 0.55 |
| BUTANE | 32 | 45.7 | 9.2 | 10 | 3.3 | 6.3 | 41 | 11.4 | 8.76 |
| 1-BUTENE | 1 | 1.1 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.16 |
| ISOBUTYLENE | 1 | 2.1 | 0.4 | 3 | 0.9 | 1.7 | 4 | 1.1 | 0.85 |
| CIS-2-BUTENE | 1 | 1.2 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.18 |
| TRANS-2-BUTENE | 0 | 0.7 | 0.1 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.10 |
| BENZENE | 7 | 10.5 | 2.1 | 8 | 2.9 | 5.6 | 16 | 4.3 | 3.35 |
| TOLUENE | 20 | 28.7 | 5.8 | 14 | 4.8 | 9.3 | 34 | 9.3 | 7.19 |
| ISOPENTANE | 32 | 46.8 | 9.5 | 24 | 8.2 | 15.9 | 56 | 15.6 | 12.01 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 8 | 11.0 | 2.2 | 0 | 0.0 | 0.0 | 8 | 2.1 | 1.62 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 3 | 5.0 | 1.0 | 0 | 0.0 | 0.0 | 3 | 1.0 | 0.74 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 4 | 6.3 | 1.3 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.93 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 3 | 4.7 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.69 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 5 | 6.6 | 1.3 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.98 |
| METHYLCYCLOPENTANE | 1 | 1.4 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.21 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 12 | 16.9 | 3.4 | 8 | 2.7 | 5.3 | 20 | 5.4 | 4.19 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 1.6 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.24 |
| 2,2,4-TRIMETHYLPENTANE | 26 | 37.8 | 7.6 | 21 | 7.0 | 13.6 | 47 | 12.9 | 9.93 |
| N-HEPTANE | 1 | 1.4 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.21 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 5.4 | 1.1 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.79 |
| 2,3,4-TRIMETHYLPENTANE | 4 | 6.1 | 1.2 | 2 | 0.5 | 1.1 | 6 | 1.6 | 1.24 |

TABLE O-2 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-12

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 2 | 3.3 | 0.7 | 2 | 0.5 | 1.1 | 4 | 1.2 | 0.95 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 3 | 3.6 | 0.7 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 2 | 2.9 | 0.6 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 2 | 2.2 | 0.4 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 5 | 7.1 | 1.4 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.42 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 13 | 19.3 | 3.9 | 7 | 2.4 | 4.7 | 13 | 3.7 | 2.85 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 5 | 7.4 | 1.5 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.66 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 2 | 2.2 | 0.4 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.08 |
| O-ETHYLTOLUENE | 1 | 1.5 | 0.3 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 5 | 7.8 | 1.6 | 2 | 0.8 | 1.6 | 4 | 1.2 | 0.90 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 2 | 3.1 | 0.6 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 2 | 2.7 | 0.5 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 2 | 3.6 | 0.7 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.65 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 2 | 0.7 | 0.52 |
| ACETALDEHYDE | — | — | — | — | — | — | 1 | 0.3 | 0.22 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE O-3. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OEM-13

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 86 | 128.0 | 7.0 | 43 | 14.8 | 20.7 | 128 | 36.2 | 8.70 |
| ETHYLENE | 91 | 136.5 | 7.4 | 3 | 1.0 | 1.4 | 94 | 26.6 | 6.40 |
| ETHANE | 25 | 37.0 | 2.0 | 4 | 1.5 | 2.1 | 29 | 8.2 | 1.98 |
| ACETYLENE | 13 | 19.2 | 1.0 | 0 | 0.0 | 0.0 | 13 | 3.6 | 0.87 |
| PROPANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLENE | 79 | 118.5 | 6.5 | 10 | 3.5 | 4.9 | 90 | 25.2 | 6.07 |
| 1,3-BUTADIENE | 15 | 22.1 | 1.2 | 0 | 0.0 | 0.0 | 15 | 4.2 | 1.00 |
| ISOBUTANE | 4 | 6.0 | 0.3 | 2 | 0.6 | 0.8 | 6 | 1.6 | 0.38 |
| BUTANE | 63 | 93.5 | 5.1 | 8 | 2.9 | 4.0 | 71 | 20.0 | 4.81 |
| 1-BUTENE | 11 | 15.8 | 0.9 | 0 | 0.0 | 0.0 | 11 | 3.0 | 0.72 |
| ISOBUTYLENE | 49 | 73.8 | 4.0 | 3 | 0.9 | 1.2 | 52 | 14.6 | 3.52 |
| CIS-2-BUTENE | 5 | 8.2 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.5 | 0.37 |
| TRANS-2-BUTENE | 7 | 10.5 | 0.6 | 0 | 0.0 | 0.0 | 7 | 2.0 | 0.48 |
| BENZENE | 41 | 61.8 | 3.4 | 17 | 5.9 | 8.2 | 58 | 16.4 | 3.95 |
| TOLUENE | 243 | 362.3 | 19.8 | 21 | 7.3 | 10.2 | 264 | 74.3 | 17.88 |
| ISOPENTANE | 52 | 78.2 | 4.3 | 19 | 6.7 | 9.3 | 72 | 20.2 | 4.86 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 16 | 23.4 | 1.3 | 0 | 0.0 | 0.0 | 16 | 4.4 | 1.06 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 7 | 10.0 | 0.5 | 0 | 0.0 | 0.0 | 7 | 1.9 | 0.45 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.06 |
| 3-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.06 |
| 4-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.06 |
| 2,3-DIMETHYLBUTANE | 7 | 11.0 | 0.6 | 0 | 0.0 | 0.0 | 7 | 2.1 | 0.50 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 6 | 8.7 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.40 |
| 4-METHYL-2-PENTENE | 6 | 8.5 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.39 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 7 | 9.9 | 0.5 | 0 | 0.0 | 0.0 | 7 | 1.9 | 0.45 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 6 | 9.7 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.44 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 13 | 19.7 | 1.1 | 0 | 0.0 | 0.0 | 13 | 3.7 | 0.89 |
| METHYLCYCLOPENTANE | 6 | 8.4 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.38 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 38 | 57.1 | 3.1 | 10 | 3.5 | 4.9 | 48 | 13.6 | 3.27 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 5 | 6.9 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.31 |
| 2,2,4-TRIMETHYLPENTANE | 87 | 129.3 | 7.1 | 27 | 9.2 | 12.8 | 113 | 31.9 | 7.67 |
| N-HEPTANE | 3 | 4.6 | 0.3 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.21 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 4 | 5.3 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.24 |
| 2,4,4-TRIMETHYL-2-PENTENE | 2 | 2.9 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.13 |
| 2,4/2-5-DIMETHYLHEXANE | 13 | 19.1 | 1.0 | 0 | 0.0 | 0.0 | 13 | 3.6 | 0.87 |
| 2,3,4-TRIMETHYLPENTANE | 17 | 25.3 | 1.4 | 2 | 0.7 | 0.9 | 19 | 5.3 | 1.28 |

TABLE O-3 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OEM-13

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 10 | 15.4 | 0.8 | 2 | 0.7 | 0.9 | 12 | 3.4 | 0.83 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 4 | 6.3 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.29 |
| 3-METHYLHEPTANE | 4 | 5.7 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.26 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 6.6 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.3 | 0.30 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 3 | 4.3 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.19 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 17 | 26.0 | 1.4 | 0 | 0.0 | 0.0 | 17 | 4.9 | 1.18 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 53 | 78.7 | 4.3 | 21 | 7.2 | 10.0 | 73 | 20.7 | 4.98 |
| 2-METHYLOCTANE | 2 | 2.4 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.11 |
| 4-METHYLOCTANE | 2 | 2.4 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.11 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 21 | 32.0 | 1.7 | 8 | 2.8 | 3.9 | 30 | 8.3 | 2.00 |
| NONANE | 1 | 2.2 | 0.1 | 4 | 1.2 | 1.7 | 5 | 1.4 | 0.34 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 4 | 6.1 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.27 |
| 2,3-DIMETHYLOCTANE | 9 | 13.8 | 0.8 | 0 | 0.0 | 0.0 | 9 | 2.6 | 0.63 |
| O-ETHYLTOLUENE | 5 | 6.7 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.31 |
| 1,2,4-TRIMETHYLBENZENE | 19 | 28.2 | 1.5 | 4 | 1.4 | 1.9 | 23 | 6.4 | 1.55 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 5 | 6.8 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.31 |
| INDAN(E) | 1 | 2.0 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.09 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 1 | 2.1 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.09 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 3.3 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.15 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 2 | 2.6 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.12 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 3 | 4.1 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.18 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 15.7 | 0.9 | 0 | 0.0 | 0.0 | 11 | 3.0 | 0.71 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 17 | 25.8 | 1.4 | 0 | 0.0 | 0.0 | 17 | 4.9 | 1.17 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 18 | 5.2 | 1.25 |
| ACETALDEHYDE | — | — | — | — | — | — | 11 | 3.0 | 0.73 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 11 | 3.0 | 0.73 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE O-4. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OEM-14

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 72 | 107.9 | 5.8 | 72 | 24.9 | 25.1 | 145 | 40.4 | 9.21 |
| ETHYLENE | 105 | 156.9 | 8.4 | 3 | 1.2 | 1.2 | 109 | 30.3 | 6.91 |
| ETHANE | 23 | 34.9 | 1.9 | 9 | 3.2 | 3.2 | 33 | 9.1 | 2.08 |
| ACETYLENE | 8 | 11.9 | 0.6 | 0 | 0.0 | 0.0 | 8 | 2.2 | 0.51 |
| PROPANE | 3 | 4.2 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.18 |
| PROPYLENE | 67 | 99.3 | 5.3 | 5 | 1.6 | 1.6 | 71 | 19.9 | 4.54 |
| 1,3-BUTADIENE | 12 | 17.5 | 0.9 | 0 | 0.0 | 0.0 | 12 | 3.3 | 0.75 |
| ISOBUTANE | 1 | 2.1 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.09 |
| BUTANE | 47 | 70.7 | 3.8 | 14 | 4.9 | 4.9 | 62 | 17.2 | 3.92 |
| 1-BUTENE | 12 | 17.6 | 0.9 | 1 | 0.2 | 0.2 | 12 | 3.5 | 0.79 |
| ISOBUTYLENE | 25 | 37.7 | 2.0 | 2 | 0.7 | 0.7 | 27 | 7.6 | 1.73 |
| CIS-2-BUTENE | 4 | 5.4 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.23 |
| TRANS-2-BUTENE | 5 | 8.2 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.5 | 0.35 |
| BENZENE | 77 | 115.5 | 6.2 | 66 | 22.7 | 22.9 | 144 | 40.1 | 9.14 |
| TOLUENE | 143 | 213.4 | 11.5 | 48 | 16.4 | 16.6 | 191 | 53.3 | 12.15 |
| ISOPENTANE | 42 | 62.9 | 3.4 | 14 | 4.9 | 5.0 | 57 | 15.8 | 3.60 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 30 | 44.3 | 2.4 | 7 | 2.5 | 2.5 | 37 | 10.3 | 2.34 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 4 | 6.7 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.3 | 0.29 |
| TRANS-2-PENTENE | 4 | 5.4 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.23 |
| CIS-2-PENTENE | 3 | 3.8 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.16 |
| 2-METHYL-2-BUTENE | 9 | 13.2 | 0.7 | 0 | 0.0 | 0.0 | 9 | 2.5 | 0.56 |
| 2,2-DIMETHYLBUTANE | 4 | 5.8 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.25 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.05 |
| 3-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.05 |
| 4-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.05 |
| 2,3-DIMETHYLBUTANE | 12 | 18.4 | 1.0 | 0 | 0.0 | 0.0 | 12 | 3.4 | 0.78 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 17 | 25.6 | 1.4 | 0 | 0.0 | 0.0 | 17 | 4.8 | 1.09 |
| 4-METHYL-2-PENTENE | 17 | 25.0 | 1.3 | 0 | 0.0 | 0.0 | 17 | 4.7 | 1.07 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 17 | 26.0 | 1.4 | 0 | 0.0 | 0.0 | 17 | 4.9 | 1.11 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 20 | 29.4 | 1.6 | 0 | 0.0 | 0.0 | 20 | 5.5 | 1.25 |
| C6 OLEFINS | 1 | 2.2 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.09 |
| 2,4-DIMETHYLPENTANE | 8 | 12.0 | 0.6 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.51 |
| METHYLCYCLOPENTANE | 7 | 10.5 | 0.6 | 0 | 0.0 | 0.0 | 7 | 2.0 | 0.45 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 3 | 3.9 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.17 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 26 | 39.4 | 2.1 | 7 | 2.3 | 2.4 | 33 | 9.3 | 2.11 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 12 | 17.6 | 0.9 | 0 | 0.0 | 0.0 | 12 | 3.3 | 0.75 |
| 2,2,4-TRIMETHYLPENTANE | 38 | 56.0 | 3.0 | 16 | 5.4 | 5.5 | 53 | 14.9 | 3.39 |
| N-HEPTANE | 8 | 11.9 | 0.6 | 0 | 0.0 | 0.0 | 8 | 2.2 | 0.51 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 5 | 7.6 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.33 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 10 | 15.3 | 0.8 | 0 | 0.0 | 0.0 | 10 | 2.9 | 0.65 |
| 2,3,4-TRIMETHYLPENTANE | 8 | 12.6 | 0.7 | 0 | 0.0 | 0.0 | 8 | 2.4 | 0.54 |

TABLE O-4 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-OEM-14

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 7 | 9.8 | 0.5 | 0 | 0.0 | 0.0 | 7 | 1.8 | 0.42 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 9 | 13.7 | 0.7 | 0 | 0.0 | 0.0 | 9 | 2.6 | 0.58 |
| 3-METHYLHEPTANE | 9 | 12.9 | 0.7 | 0 | 0.0 | 0.0 | 9 | 2.4 | 0.55 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 5.7 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.24 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 6 | 8.3 | 0.4 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.35 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 2 | 3.0 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.13 |
| ETHYLBENZENE | 35 | 52.7 | 2.8 | 4 | 1.5 | 1.6 | 40 | 11.1 | 2.53 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 90 | 134.3 | 7.2 | 9 | 3.1 | 3.1 | 99 | 27.6 | 6.30 |
| 2-METHYLOCTANE | 5 | 7.2 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.31 |
| 4-METHYLOCTANE | 5 | 7.2 | 0.4 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.31 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 32 | 47.7 | 2.6 | 7 | 2.5 | 2.5 | 39 | 10.9 | 2.49 |
| NONANE | 2 | 3.5 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.15 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 6 | 9.0 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.38 |
| 2,3-DIMETHYLOCTANE | 15 | 22.8 | 1.2 | 0 | 0.0 | 0.0 | 15 | 4.3 | 0.97 |
| O-ETHYLTOLUENE | 8 | 11.2 | 0.6 | 0 | 0.0 | 0.0 | 8 | 2.1 | 0.48 |
| 1,2,4-TRIMETHYLBENZENE | 32 | 48.4 | 2.6 | 3 | 1.1 | 1.2 | 36 | 10.0 | 2.28 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 6 | 9.6 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.41 |
| INDAN(E) | 3 | 4.2 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.18 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 3.5 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.15 |
| 1-METHYL-3-PROPYLBENZENE | 3 | 4.9 | 0.3 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.21 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 4.3 | 0.2 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.19 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 6.4 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.27 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 1 | 2.2 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.09 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 16.9 | 0.9 | 0 | 0.0 | 0.0 | 11 | 3.2 | 0.72 |
| C7 OLEFINS | 6 | 8.9 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.38 |
| C8-C9 OLEFINS | 27 | 39.9 | 2.1 | 0 | 0.0 | 0.0 | 27 | 7.5 | 1.70 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 21 | 5.8 | 1.31 |
| ACETALDEHYDE | — | — | — | — | — | — | 7 | 2.1 | 0.47 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 1 | 0.3 | 0.06 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 1 | 0.3 | 0.06 |
| BENZALDEHYDE | — | — | — | — | — | — | 5 | 1.5 | 0.34 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE O-5. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-15

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 67 | 100.7 | 21.3 | 52 | 17.8 | 41.5 | 119 | 33.4 | 26.98 |
| ETHYLENE | 7 | 9.8 | 2.1 | 2 | 0.8 | 1.9 | 9 | 2.5 | 2.02 |
| ETHANE | 21 | 31.3 | 6.6 | 6 | 2.1 | 5.0 | 27 | 7.6 | 6.16 |
| ACETYLENE | 1 | 0.9 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.13 |
| PROPANE | 2 | 3.1 | 0.7 | 1 | 0.3 | 0.6 | 3 | 0.8 | 0.66 |
| PROPYLENE | 4 | 5.3 | 1.1 | 4 | 1.5 | 3.6 | 8 | 2.3 | 1.83 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 1.7 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.26 |
| BUTANE | 36 | 54.4 | 11.5 | 9 | 3.2 | 7.4 | 46 | 12.8 | 10.34 |
| 1-BUTENE | 1 | 1.3 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.20 |
| ISOBUTYLENE | 1 | 2.2 | 0.5 | 1 | 0.3 | 0.8 | 2 | 0.7 | 0.55 |
| CIS-2-BUTENE | 1 | 1.1 | 0.2 | 1 | 0.2 | 0.5 | 1 | 0.4 | 0.31 |
| TRANS-2-BUTENE | 1 | 1.3 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.20 |
| BENZENE | 9 | 13.6 | 2.9 | 17 | 5.9 | 13.7 | 26 | 7.3 | 5.93 |
| TOLUENE | 9 | 13.3 | 2.8 | 0 | 0.0 | 0.0 | 9 | 2.5 | 2.02 |
| ISOPENTANE | 25 | 38.0 | 8.0 | 0 | 0.0 | 0.0 | 25 | 7.1 | 5.77 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 15 | 22.3 | 4.7 | 0 | 0.0 | 0.0 | 15 | 4.2 | 3.39 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 5 | 8.1 | 1.7 | 0 | 0.0 | 0.0 | 5 | 1.5 | 1.23 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 6 | 9.4 | 2.0 | 0 | 0.0 | 0.0 | 6 | 1.8 | 1.43 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 7 | 10.0 | 2.1 | 0 | 0.0 | 0.0 | 7 | 1.9 | 1.52 |
| 4-METHYL-2-PENTENE | 7 | 9.7 | 2.1 | 0 | 0.0 | 0.0 | 7 | 1.8 | 1.48 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 7 | 10.2 | 2.1 | 0 | 0.0 | 0.0 | 7 | 1.9 | 1.54 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 7 | 9.8 | 2.1 | 0 | 0.0 | 0.0 | 7 | 1.8 | 1.49 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 3 | 4.1 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.63 |
| METHYLCYCLOPENTANE | 1 | 1.8 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.28 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 8 | 11.8 | 2.5 | 0 | 0.0 | 0.0 | 8 | 2.2 | 1.79 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 3 | 4.7 | 1.0 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.71 |
| 2,2,4-TRIMETHYLPENTANE | 11 | 16.8 | 3.6 | 9 | 3.2 | 7.4 | 20 | 5.7 | 4.63 |
| N-HEPTANE | 2 | 3.4 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.51 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 3 | 4.3 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.65 |

TABLE O-5 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-15

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 2 | 3.4 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.51 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 3 | 3.7 | 0.8 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.57 |
| 3-METHYLHEPTANE | 2 | 3.0 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.45 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 2 | 2.2 | 0.5 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.34 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 5 | 7.3 | 1.5 | 3 | 1.2 | 2.7 | 8 | 2.3 | 1.87 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 13 | 19.8 | 4.2 | 11 | 3.8 | 8.8 | 24 | 6.8 | 5.49 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 5 | 7.7 | 1.6 | 5 | 1.6 | 3.7 | 10 | 2.7 | 2.19 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 2 | 2.2 | 0.5 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.34 |
| O-ETHYLTOLUENE | 1 | 1.6 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.24 |
| 1,2,4-TRIMETHYLBENZENE | 5 | 8.0 | 1.7 | 3 | 1.0 | 2.4 | 8 | 2.3 | 1.90 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 2 | 3.2 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.48 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 2 | 2.8 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.43 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 2 | 3.7 | 0.8 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.56 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE O-6. COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-16

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 75 | 110.5 | 27.9 | 47 | 16.0 | 30.8 | 122 | 33.9 | 28.75 |
| ETHYLENE | 3 | 4.3 | 1.1 | 2 | 0.7 | 1.3 | 5 | 1.3 | 1.14 |
| ETHANE | 22 | 32.3 | 8.1 | 7 | 2.3 | 4.5 | 29 | 8.0 | 6.78 |
| ACETYLENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPANE | 1 | 1.5 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.24 |
| PROPYLENE | 2 | 2.5 | 0.6 | 1 | 0.4 | 0.8 | 3 | 0.8 | 0.70 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 1.1 | 0.3 | 0 | 0.1 | 0.2 | 1 | 0.3 | 0.26 |
| BUTANE | 28 | 41.4 | 10.4 | 5 | 1.6 | 3.1 | 33 | 9.1 | 7.75 |
| 1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTYLENE | 0 | 0.7 | 0.2 | 1 | 0.4 | 0.8 | 2 | 0.5 | 0.41 |
| CIS-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BENZENE | 4 | 5.3 | 1.3 | 9 | 2.9 | 5.6 | 12 | 3.4 | 2.85 |
| TOLUENE | 8 | 11.4 | 2.9 | 11 | 3.7 | 7.0 | 18 | 5.1 | 4.34 |
| ISOPENTANE | 21 | 31.5 | 8.0 | 9 | 3.2 | 6.2 | 31 | 8.6 | 7.29 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 12 | 17.9 | 4.5 | 0 | 0.0 | 0.0 | 12 | 3.4 | 2.87 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 5 | 7.5 | 1.9 | 0 | 0.0 | 0.0 | 5 | 1.4 | 1.21 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 6 | 8.6 | 2.2 | 4 | 1.2 | 2.4 | 9 | 2.6 | 2.23 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 6 | 9.2 | 2.3 | 5 | 1.6 | 3.0 | 11 | 3.0 | 2.54 |
| 4-METHYL-2-PENTENE | 6 | 9.0 | 2.3 | 4 | 1.5 | 2.9 | 11 | 2.9 | 2.48 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 8 | 11.2 | 2.8 | 0 | 0.0 | 0.0 | 8 | 2.1 | 1.80 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 6 | 9.5 | 2.4 | 0 | 0.0 | 0.0 | 6 | 1.8 | 1.53 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 3 | 4.4 | 1.1 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.70 |
| METHYLCYCLOPENTANE | 2 | 2.7 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.43 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 8 | 11.2 | 2.8 | 10 | 3.4 | 6.6 | 18 | 4.9 | 4.16 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 3 | 3.8 | 1.0 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.62 |
| 2,2,4-TRIMETHYLPENTANE | 8 | 12.1 | 3.1 | 8 | 2.6 | 5.0 | 16 | 4.4 | 3.75 |
| N-HEPTANE | 2 | 2.4 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.38 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 4 | 6.6 | 1.7 | 0 | 0.0 | 0.0 | 4 | 1.2 | 1.05 |

## TABLE O-6 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE BUICK LESABRE, TEST NO. LS-AH-16

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 2 | 2.7 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.44 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 3 | 4.4 | 1.1 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.70 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 2 | 3.2 | 0.8 | 4 | 1.2 | 2.4 | 6 | 1.6 | 1.37 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 7 | 10.3 | 2.6 | 8 | 2.7 | 5.1 | 15 | 4.1 | 3.50 |
| 2-METHYLOCTANE | 1 | 2.0 | 0.5 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.32 |
| 4-METHYLOCTANE | 1 | 2.0 | 0.5 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.32 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 5 | 7.0 | 1.8 | 0 | 0.0 | 0.0 | 5 | 1.3 | 1.11 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLOCTANE | 1 | 1.6 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.26 |
| O-ETHYLTOLUENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,2,4-TRIMETHYLBENZENE | 3 | 4.8 | 1.2 | 4 | 1.3 | 2.6 | 7 | 2.0 | 1.69 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 0 | 0.0 | 0.0 | 15 | 5.0 | 9.6 | 15 | 4.1 | 3.44 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 1 | 0.4 | 0.30 |
| ACETALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 1 | 0.2 | 0.14 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 1 | 0.2 | 0.14 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

# APPENDIX P

## 1990 TOYOTA CELICA
## FTP HYDROCARBON SPECIATION MEASUREMENTS

# TABLE P-1. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 108 | 30.2 | 24.32 | 4 | 1.1 | 28.62 | 29 | 7.9 | 9.11 | 9.0 | 17.42 |
| ETHYLENE | 12 | 3.4 | 2.77 | 0 | 0.0 | 0.00 | 4 | 1.2 | 1.39 | 1.0 | 2.02 |
| ETHANE | 16 | 4.6 | 3.70 | 2 | 0.4 | 11.63 | 5 | 1.3 | 1.53 | 1.5 | 3.00 |
| ACETYLENE | 1 | 0.2 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| PROPANE | 0 | 0.1 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.1 | 0.07 | 0.0 | 0.06 |
| PROPYLENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3-BUTADIENE | 0 | 0.1 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.05 |
| ISOBUTANE | 2 | 0.6 | 0.47 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.46 | 0.2 | 0.45 |
| BUTANE | 29 | 8.1 | 6.49 | 0 | 0.0 | 0.00 | 27 | 7.5 | 8.68 | 3.7 | 7.26 |
| 1-BUTENE | 1 | 0.3 | 0.22 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| ISOBUTYLENE | 5 | 1.5 | 1.22 | 0 | 0.0 | 0.00 | 2 | 0.5 | 0.56 | 0.4 | 0.86 |
| CIS-2-BUTENE | 1 | 0.2 | 0.19 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.10 |
| TRANS-2-BUTENE | 1 | 0.2 | 0.19 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.10 |
| BENZENE | 21 | 5.8 | 4.69 | 7 | 1.7 | 45.20 | 14 | 3.8 | 4.38 | 3.1 | 6.11 |
| TOLUENE | 41 | 11.5 | 9.23 | 0 | 0.0 | 0.00 | 45 | 12.6 | 14.48 | 5.8 | 11.31 |
| ISOPENTANE | 29 | 8.0 | 6.46 | 0 | 0.0 | 0.00 | 40 | 11.2 | 12.91 | 4.7 | 9.20 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 10 | 2.8 | 2.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 1.12 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 5 | 1.3 | 1.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.51 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 2 | 0.6 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.22 |
| 4-METHYL-2-PENTENE | 2 | 0.5 | 0.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.22 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 3 | 0.8 | 0.67 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.33 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 2 | 0.6 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.22 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE P-1 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 2 | 0.6 | 0.52 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.26 |
| 2,3-DIMETHYLOCTANE | 2 | 0.7 | 0.53 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.26 |
| O-ETHYLTOLUENE | 1 | 0.3 | 0.26 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.13 |
| 1,2,4-TRIMETHYLBENZENE | 12 | 3.3 | 2.66 | 0 | 0.0 | 0.00 | 7 | 1.8 | 2.12 | 1.2 | 2.31 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 12 | 3.3 | 2.64 | 0 | 0.0 | 0.00 | 11 | 3.0 | 3.47 | 1.5 | 2.92 |
| INDAN(E) | 4 | 1.1 | 0.87 | 0 | 0.0 | 0.00 | 4 | 1.2 | 1.44 | 0.6 | 1.10 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 3 | 0.8 | 0.65 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.32 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 14 | 3.9 | 3.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 1.58 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 0 | 0.0 | 0.00 | 2 | 0.6 | 14.55 | 0 | 0.0 | 0.00 | 0.3 | 0.56 |
| ACETALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.1 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.02 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE P-1 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 4 | 1.2 | 0.98 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.49 |
| METHYLCYCLOPENTANE | 1 | 0.4 | 0.30 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.15 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 12 | 3.2 | 2.62 | 0 | 0.0 | 0.00 | 24 | 6.6 | 7.54 | 2.5 | 4.80 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 0.3 | 0.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.12 |
| 2,2,4-TRIMETHYLPENTANE | 37 | 10.3 | 8.32 | 0 | 0.0 | 0.00 | 56 | 15.7 | 18.02 | 6.4 | 12.50 |
| N-HEPTANE | 1 | 0.3 | 0.22 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.11 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 1.2 | 0.95 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.47 |
| 2,3,4-TRIMETHYLPENTANE | 5 | 1.4 | 1.14 | 0 | 0.0 | 0.00 | 11 | 3.0 | 3.41 | 1.1 | 2.15 |
| 2,3,3-TRIMETHYLPENTANE | 3 | 0.9 | 0.70 | 0 | 0.0 | 0.00 | 7 | 1.9 | 2.13 | 0.7 | 1.33 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 1 | 0.3 | 0.28 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 4 | 1.0 | 0.83 | 0 | 0.0 | 0.00 | 4 | 1.1 | 1.32 | 0.5 | 1.02 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 20 | 5.6 | 4.53 | 0 | 0.0 | 0.00 | 14 | 3.9 | 4.48 | 2.2 | 4.33 |
| 2-METHYLOCTANE | 1 | 0.4 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.15 |
| 4-METHYLOCTANE | 1 | 0.4 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.15 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 6 | 1.7 | 1.40 | 0 | 0.0 | 0.00 | 8 | 2.2 | 2.51 | 1.0 | 1.86 |

# TABLE P-2. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OE-13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 91 | 25.5 | 7.99 | 12 | 3.0 | 27.37 | 24 | 6.7 | 32.89 | 8.7 | 11.24 |
| ETHYLENE | 45 | 12.5 | 3.92 | 3 | 0.8 | 7.07 | 6 | 1.6 | 7.71 | 3.4 | 4.43 |
| ETHANE | 16 | 4.6 | 1.43 | 0 | 0.1 | 0.89 | 2 | 0.5 | 2.31 | 1.1 | 1.45 |
| ACETYLENE | 6 | 1.5 | 0.49 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.41 |
| PROPANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLENE | 43 | 11.9 | 3.73 | 0 | 0.0 | 0.00 | 2 | 0.6 | 2.97 | 2.6 | 3.40 |
| 1,3-BUTADIENE | 4 | 1.1 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.29 |
| ISOBUTANE | 5 | 1.4 | 0.45 | 2 | 0.6 | 5.49 | 2 | 0.5 | 2.46 | 0.7 | 0.97 |
| BUTANE | 66 | 18.5 | 5.78 | 4 | 1.0 | 9.03 | 7 | 2.0 | 9.99 | 4.9 | 6.33 |
| 1-BUTENE | 5 | 1.5 | 0.47 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.40 |
| ISOBUTYLENE | 26 | 7.4 | 2.32 | 0 | 0.0 | 0.00 | 1 | 0.4 | 1.78 | 1.6 | 2.11 |
| CIS-2-BUTENE | 4 | 1.0 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.27 |
| TRANS-2-BUTENE | 4 | 1.1 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.28 |
| BENZENE | 47 | 13.1 | 4.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.7 | 3.50 |
| TOLUENE | 178 | 49.8 | 15.59 | 0 | 0.0 | 0.00 | 9 | 2.6 | 12.74 | 11.0 | 14.22 |
| ISOPENTANE | 73 | 20.3 | 6.36 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 4.2 | 5.43 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 18 | 5.2 | 1.62 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.1 | 1.38 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 4 | 1.2 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.33 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 0.2 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| 3-METHYL-1-PENTENE | 1 | 0.2 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| 4-METHYL-1-PENTENE | 1 | 0.2 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| 2,3-DIMETHYLBUTANE | 10 | 2.7 | 0.85 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.73 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 7 | 2.1 | 0.65 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.55 |
| 4-METHYL-2-PENTENE | 7 | 2.0 | 0.63 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.54 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 9 | 2.5 | 0.80 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.68 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 8 | 2.3 | 0.71 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.61 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

## TABLE P–2 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS–OE–13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4–DIMETHYLPENTANE | 17 | 4.7 | 1.47 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 1.25 |
| METHYLCYCLOPENTANE | 6 | 1.8 | 0.57 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.48 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3–METHYL–1,3–PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3–DIMETHYLPENTANE/2–METHYLHEXANE | 47 | 13.2 | 4.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.7 | 3.51 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–METHYL–2–HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3–METHYLHEXANE | 6 | 1.7 | 0.53 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.46 |
| 2,2,4–TRIMETHYLPENTANE | 114 | 32.0 | 10.02 | 5 | 1.3 | 11.72 | 10 | 2.7 | 13.10 | 8.0 | 10.37 |
| N–HEPTANE | 4 | 1.0 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.27 |
| 2,4,4–TRIMETHYL–1–PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4–TRIMETHYL–1–PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 4 | 1.2 | 0.37 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.32 |
| 2,4,4–TRIMETHYL–2–PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2–5–DIMETHYLHEXANE | 17 | 4.7 | 1.46 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 1.24 |
| 2,3,4–TRIMETHYLPENTANE | 21 | 5.9 | 1.85 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.58 |
| 2,3,3–TRIMETHYLPENTANE | 13 | 3.7 | 1.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 0.99 |
| 2–METHYL–3–HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5–TRIMETHYL–1–HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2–/4–METHYLHEPTANE | 5 | 1.4 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.38 |
| 3–METHYLHEPTANE | 4 | 1.3 | 0.39 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.33 |
| 2,5–DIMETHYL–1,5–HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5–TRIMETHYLHEXANE | 5 | 1.4 | 0.42 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.36 |
| 2–ETHYL–1–HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–CIS–4–DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 3 | 0.9 | 0.27 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.23 |
| 2,3,5–TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4–DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5–DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 15 | 4.2 | 1.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 1.13 |
| 2,3–DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P–XYLENE/M–XYLENE | 59 | 16.6 | 5.20 | 16 | 4.2 | 38.44 | 10 | 2.8 | 13.47 | 6.4 | 8.27 |
| 2–METHYLOCTANE | 1 | 0.2 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.05 |
| 4–METHYLOCTANE | 1 | 0.2 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.05 |
| 3–METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O–XYLENE | 21 | 5.8 | 1.82 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.55 |

# TABLE P-2 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OE-13

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 2 | 0.5 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.13 |
| TRANS-2-NONENE | 1 | 0.2 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| PROPYLBENZENE | 4 | 1.0 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.28 |
| 2,3-DIMETHYLOCTANE | 8 | 2.2 | 0.69 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.59 |
| O-ETHYLTOLUENE | 4 | 1.2 | 0.37 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.31 |
| 1,2,4-TRIMETHYLBENZENE | 22 | 6.1 | 1.90 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.62 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 4 | 1.1 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.29 |
| INDAN(E) | 1 | 0.4 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 0.5 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.13 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 0.5 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.14 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 2 | 0.5 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.13 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 2 | 0.7 | 0.22 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.18 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 3.1 | 0.98 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.83 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 24 | 6.6 | 2.08 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.4 | 1.77 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 5 | 1.3 | 0.41 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.35 |
| ACETALDEHYDE | 4 | 1.0 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.27 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 3 | 0.8 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.1 | 0.60 | 0.2 | 0.25 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P–3. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS–VAH–12–2

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 458 | 128.8 | 8.00 | 13 | 3.4 | 12.81 | 32 | 9.0 | 3.03 | 30.8 | 7.20 |
| ETHYLENE | 156 | 43.7 | 2.72 | 0 | 0.0 | 0.00 | 0 | 0.1 | 0.04 | 9.1 | 2.12 |
| ETHANE | 50 | 14.1 | 0.87 | 30 | 7.8 | 29.49 | 6 | 1.7 | 0.57 | 7.4 | 1.73 |
| ACETYLENE | 7 | 1.9 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.09 |
| PROPANE | 9 | 2.5 | 0.15 | 13 | 3.3 | 12.46 | 4 | 1.0 | 0.34 | 2.5 | 0.59 |
| PROPYLENE | 163 | 45.9 | 2.85 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 9.5 | 2.22 |
| 1,3–BUTADIENE | 23 | 6.6 | 0.41 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.4 | 0.32 |
| ISOBUTANE | 36 | 10.1 | 0.63 | 0 | 0.0 | 0.14 | 6 | 1.6 | 0.52 | 2.5 | 0.59 |
| BUTANE | 598 | 168.1 | 10.45 | 0 | 0.0 | 0.00 | 93 | 26.0 | 8.72 | 41.9 | 9.78 |
| 1–BUTENE | 20 | 5.6 | 0.35 | 0 | 0.0 | 0.00 | 1 | 0.2 | 0.08 | 1.2 | 0.29 |
| ISOBUTYLENE | 113 | 31.6 | 1.97 | 0 | 0.0 | 0.00 | 2 | 0.6 | 0.21 | 6.7 | 1.57 |
| CIS–2–BUTENE | 15 | 4.2 | 0.26 | 0 | 0.0 | 0.00 | 1 | 0.2 | 0.05 | 0.9 | 0.21 |
| TRANS–2–BUTENE | 18 | 5.2 | 0.32 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.13 | 1.2 | 0.27 |
| BENZENE | 309 | 86.8 | 5.40 | 0 | 0.0 | 0.00 | 45 | 12.6 | 4.24 | 21.4 | 5.00 |
| TOLUENE | 749 | 210.3 | 13.07 | 0 | 0.0 | 0.00 | 147 | 41.1 | 13.78 | 54.7 | 12.79 |
| ISOPENTANE | 716 | 201.2 | 12.51 | 0 | 0.0 | 0.00 | 105 | 29.4 | 9.85 | 49.7 | 11.60 |
| 1–PENTENE | 6 | 1.6 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.08 |
| PENTANE | 170 | 47.7 | 2.96 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 9.9 | 2.30 |
| 2–METHYL–1–BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2–METHYL–1,3–BUTADIENE) | 13 | 3.7 | 0.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 0.18 |
| TRANS–2–PENTENE | 13 | 3.6 | 0.22 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.17 |
| CIS–2–PENTENE | 7 | 1.8 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.09 |
| 2–METHYL–2–BUTENE | 29 | 8.0 | 0.50 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.7 | 0.39 |
| 2,2–DIMETHYLBUTANE | 19 | 5.3 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.1 | 0.25 |
| CYCLOPENTENE | 3 | 0.8 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.04 |
| CYCLOPENTANE | 6 | 1.8 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.09 |
| 3–METHYL–1–PENTENE | 6 | 1.8 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.09 |
| 4–METHYL–1–PENTENE | 6 | 1.8 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.09 |
| 2,3–DIMETHYLBUTANE | 78 | 22.0 | 1.37 | 0 | 0.0 | 0.00 | 19 | 5.3 | 1.77 | 6.0 | 1.40 |
| 2,3–DIMETHYL–1–BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2–METHYLPENTANE | 57 | 16.0 | 1.00 | 0 | 0.0 | 0.00 | 14 | 3.9 | 1.30 | 4.4 | 1.02 |
| 4–METHYL–2–PENTENE | 56 | 15.6 | 0.97 | 0 | 0.0 | 0.00 | 14 | 3.8 | 1.27 | 4.3 | 1.00 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3–METHYLPENTANE | 65 | 18.4 | 1.14 | 0 | 0.0 | 0.00 | 17 | 4.8 | 1.60 | 5.1 | 1.19 |
| 2–METHYL–1–PENTENE/1–HEXENE | 5 | 1.4 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.07 |
| HEXANE | 56 | 15.7 | 0.97 | 0 | 0.0 | 0.00 | 12 | 3.3 | 1.09 | 4.1 | 0.97 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

TABLE P-3 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12-2

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 103 | 29.0 | 1.81 | 0 | 0.0 | 0.00 | 33 | 9.3 | 3.10 | 8.5 | 2.00 |
| METHYLCYCLOPENTANE | 45 | 12.6 | 0.78 | 0 | 0.0 | 0.00 | 11 | 2.9 | 0.99 | 3.4 | 0.80 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 5 | 1.5 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.07 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 254 | 71.3 | 4.43 | 0 | 0.0 | 0.00 | 90 | 25.1 | 8.43 | 21.6 | 5.06 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 34 | 9.5 | 0.59 | 0 | 0.0 | 0.00 | 12 | 3.3 | 1.09 | 2.9 | 0.67 |
| 2,2,4-TRIMETHYLPENTANE | 512 | 144.0 | 8.95 | 0 | 0.0 | 0.00 | 174 | 48.4 | 16.24 | 43.1 | 10.06 |
| N-HEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 6 | 1.8 | 0.59 | 0.5 | 0.11 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 19 | 5.2 | 0.33 | 0 | 0.0 | 0.00 | 7 | 2.1 | 0.70 | 1.7 | 0.39 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 69 | 19.5 | 1.21 | 0 | 0.0 | 0.00 | 33 | 9.1 | 3.05 | 6.5 | 1.53 |
| 2,3,4-TRIMETHYLPENTANE | 76 | 21.4 | 1.33 | 0 | 0.0 | 0.00 | 30 | 8.3 | 2.78 | 6.7 | 1.57 |
| 2,3,3-TRIMETHYLPENTANE | 43 | 12.1 | 0.76 | 0 | 0.0 | 0.00 | 24 | 6.6 | 2.20 | 4.3 | 1.01 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 23 | 6.5 | 0.40 | 0 | 0.0 | 0.00 | 10 | 2.9 | 0.96 | 2.1 | 0.50 |
| 3-METHYLHEPTANE | 17 | 4.7 | 0.29 | 0 | 0.0 | 0.00 | 9 | 2.5 | 0.84 | 1.7 | 0.39 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 21 | 5.8 | 0.36 | 0 | 0.0 | 0.00 | 9 | 2.6 | 0.88 | 1.9 | 0.45 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 10 | 2.8 | 0.18 | 0 | 0.0 | 0.00 | 5 | 1.5 | 0.50 | 1.0 | 0.23 |
| 2,3,5-TRIMETHYLHEXANE | 3 | 0.9 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.04 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 4 | 1.1 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.05 |
| ETHYLBENZENE | 41 | 11.5 | 0.71 | 0 | 0.0 | 0.00 | 8 | 2.2 | 0.74 | 3.0 | 0.69 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 119 | 33.3 | 2.07 | 0 | 0.0 | 0.00 | 37 | 10.3 | 3.45 | 9.7 | 2.27 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 2 | 0.6 | 0.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.03 |
| 3-METHYLOCTANE | 2 | 0.6 | 0.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.03 |
| O-XYLENE | 62 | 17.5 | 1.09 | 12 | 3.2 | 11.96 | 6 | 1.6 | 0.54 | 5.7 | 1.33 |

## TABLE P-3 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12-2

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 3 | 0.7 | 0.05 | 0 | 0.0 | 0.00 | 14 | 3.8 | 1.28 | 1.2 | 0.28 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 9 | 2.5 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.12 |
| 2,3-DIMETHYLOCTANE | 14 | 4.0 | 0.25 | 0 | 0.0 | 0.00 | 6 | 1.7 | 0.56 | 1.3 | 0.30 |
| O-ETHYLTOLUENE | 8 | 2.3 | 0.14 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.11 |
| 1,2,4-TRIMETHYLBENZENE | 31 | 8.6 | 0.53 | 0 | 0.0 | 0.00 | 6 | 1.8 | 0.60 | 2.3 | 0.53 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 9 | 2.4 | 9.25 | 0 | 0.0 | 0.00 | 1.3 | 0.30 |
| DECANE | 0 | 0.0 | 0.00 | 10 | 2.6 | 9.81 | 0 | 0.0 | 0.00 | 1.3 | 0.31 |
| P-CYMENE | 6 | 1.7 | 0.11 | 7 | 1.9 | 7.12 | 0 | 0.0 | 0.00 | 1.3 | 0.31 |
| INDAN(E) | 2 | 0.4 | 0.03 | 7 | 1.8 | 6.96 | 0 | 0.0 | 0.00 | 1.0 | 0.24 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 0.7 | 0.04 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.03 |
| 1-METHYL-3-PROPYLBENZENE | 4 | 1.1 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.06 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 0.9 | 0.05 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.04 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 1.2 | 0.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.06 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 1 | 0.4 | 0.02 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.02 |
| 1,3,5-TRIMETHYLBENZENE | 23 | 6.6 | 0.41 | 0 | 0.0 | 0.00 | 12 | 3.4 | 1.13 | 2.3 | 0.53 |
| C7 OLEFINS | 50 | 14.1 | 0.88 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.9 | 0.68 |
| C8-C9 OLEFINS | 39 | 10.9 | 0.68 | 0 | 0.0 | 0.00 | 6 | 1.7 | 0.55 | 2.7 | 0.63 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 26 | 7.3 | 0.45 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.5 | 0.35 |
| FORMALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1 | 0.3 | 0.11 | 0.1 | 0.02 |
| ACETALDEHYDE | 2 | 0.6 | 0.04 | 0 | 0.0 | 0.00 | 1 | 0.2 | 0.06 | 0.2 | 0.04 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P-4. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 251 | 70.3 | 9.92 | 24 | 6.1 | 47.40 | 43 | 12.0 | 3.75 | 20.9 | 8.71 |
| ETHYLENE | 63 | 17.6 | 2.48 | 0 | 0.0 | 0.00 | 8 | 2.1 | 0.66 | 4.2 | 1.75 |
| ETHANE | 28 | 7.7 | 1.09 | 19 | 4.9 | 37.84 | 12 | 3.3 | 1.04 | 5.0 | 2.09 |
| ACETYLENE | 5 | 1.4 | 0.19 | 5 | 1.3 | 9.96 | 0 | 0.0 | 0.00 | 0.9 | 0.39 |
| PROPANE | 1 | 0.4 | 0.05 | 0 | 0.0 | 0.00 | 4 | 1.0 | 0.31 | 0.3 | 0.14 |
| PROPYLENE | 32 | 8.9 | 1.25 | 0 | 0.0 | 0.00 | 7 | 2.0 | 0.62 | 2.4 | 0.99 |
| 1,3-BUTADIENE | 6 | 1.6 | 0.23 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.14 |
| ISOBUTANE | 6 | 1.8 | 0.25 | 0 | 0.0 | 0.00 | 2 | 0.7 | 0.21 | 0.5 | 0.23 |
| BUTANE | 249 | 69.8 | 9.85 | 1 | 0.3 | 2.04 | 94 | 26.5 | 8.29 | 21.8 | 9.06 |
| 1-BUTENE | 6 | 1.6 | 0.23 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.12 | 0.4 | 0.18 |
| ISOBUTYLENE | 13 | 3.6 | 0.51 | 0 | 0.0 | 0.00 | 2 | 0.5 | 0.16 | 0.9 | 0.36 |
| CIS-2-BUTENE | 4 | 1.0 | 0.14 | 0 | 0.0 | 0.00 | 1 | 0.4 | 0.12 | 0.3 | 0.13 |
| TRANS-2-BUTENE | 4 | 1.1 | 0.16 | 0 | 0.0 | 0.00 | 22 | 6.2 | 1.94 | 1.9 | 0.80 |
| BENZENE | 99 | 27.7 | 3.91 | 0 | 0.0 | 0.00 | 50 | 14.0 | 4.38 | 9.5 | 3.97 |
| TOLUENE | 132 | 37.1 | 5.23 | 0 | 0.0 | 0.00 | 71 | 19.8 | 6.20 | 13.1 | 5.44 |
| ISOPENTANE | 253 | 70.8 | 9.99 | 0 | 0.0 | 0.00 | 88 | 24.5 | 7.68 | 21.3 | 8.87 |
| 1-PENTENE | 6 | 1.7 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.15 |
| PENTANE | 169 | 47.2 | 6.66 | 0 | 0.0 | 0.00 | 58 | 16.3 | 5.11 | 14.2 | 5.92 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 5 | 1.3 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.11 |
| TRANS-2-PENTENE | 17 | 4.9 | 0.69 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 0.42 |
| CIS-2-PENTENE | 10 | 2.7 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.23 |
| 2-METHYL-2-BUTENE | 28 | 7.8 | 1.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.6 | 0.67 |
| 2,2-DIMETHYLBUTANE | 42 | 11.9 | 1.68 | 0 | 0.0 | 0.00 | 17 | 4.7 | 1.47 | 3.7 | 1.56 |
| CYCLOPENTENE | 4 | 1.2 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.10 |
| CYCLOPENTANE | 4 | 1.0 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.09 |
| 3-METHYL-1-PENTENE | 4 | 1.0 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.09 |
| 4-METHYL-1-PENTENE | 4 | 1.0 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.09 |
| 2,3-DIMETHYLBUTANE | 64 | 17.9 | 2.53 | 0 | 0.0 | 0.00 | 37 | 10.4 | 3.26 | 6.5 | 2.72 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 90 | 25.1 | 3.55 | 0 | 0.0 | 0.00 | 41 | 11.6 | 3.62 | 8.3 | 3.47 |
| 4-METHYL-2-PENTENE | 88 | 24.5 | 3.46 | 0 | 0.0 | 0.00 | 40 | 11.3 | 3.53 | 8.1 | 3.39 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 86 | 24.2 | 3.42 | 0 | 0.0 | 0.00 | 42 | 11.7 | 3.66 | 8.2 | 3.41 |
| 2-METHYL-1-PENTENE/1-HEXENE | 6 | 1.7 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.15 |
| HEXANE | 78 | 21.9 | 3.09 | 0 | 0.0 | 0.00 | 39 | 10.9 | 3.42 | 7.5 | 3.12 |
| C6 OLEFINS | 29 | 8.2 | 1.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.7 | 0.70 |

## TABLE P-4 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 32 | 8.9 | 1.26 | 0 | 0.0 | 0.00 | 16 | 4.4 | 1.39 | 3.1 | 1.27 |
| METHYLCYCLOPENTANE | 28 | 7.9 | 1.12 | 0 | 0.0 | 0.00 | 12 | 3.5 | 1.09 | 2.6 | 1.07 |
| CYCLOHEXANE | 4 | 1.2 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.10 |
| METHYLCYCLOPENTENE | 4 | 1.2 | 0.18 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.11 |
| 3-METHYL-1,3-PENTADIENE | 4 | 1.1 | 0.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.10 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 82 | 22.8 | 3.22 | 0 | 0.0 | 0.00 | 50 | 13.9 | 4.36 | 8.5 | 3.55 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 36 | 10.0 | 1.41 | 0 | 0.0 | 0.00 | 25 | 7.0 | 2.18 | 4.0 | 1.65 |
| 2,2,4-TRIMETHYLPENTANE | 92 | 25.7 | 3.62 | 0 | 0.0 | 0.00 | 50 | 14.1 | 4.41 | 9.1 | 3.81 |
| N-HEPTANE | 25 | 7.0 | 0.99 | 0 | 0.0 | 0.00 | 15 | 4.2 | 1.31 | 2.6 | 1.07 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 12 | 3.2 | 0.46 | 0 | 0.0 | 0.00 | 9 | 2.6 | 0.82 | 1.4 | 0.57 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 18 | 5.1 | 0.73 | 0 | 0.0 | 0.00 | 18 | 5.2 | 1.62 | 2.5 | 1.03 |
| 2,3,4-TRIMETHYLPENTANE | 17 | 4.9 | 0.69 | 0 | 0.0 | 0.00 | 16 | 4.5 | 1.42 | 2.3 | 0.94 |
| 2,3,3-TRIMETHYLPENTANE | 13 | 3.6 | 0.51 | 0 | 0.0 | 0.00 | 13 | 3.7 | 1.15 | 1.8 | 0.73 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 18 | 5.0 | 0.70 | 0 | 0.0 | 0.00 | 20 | 5.6 | 1.74 | 2.5 | 1.06 |
| 3-METHYLHEPTANE | 16 | 4.5 | 0.63 | 0 | 0.0 | 0.00 | 18 | 4.9 | 1.54 | 2.3 | 0.95 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 6 | 1.7 | 0.25 | 0 | 0.0 | 0.00 | 7 | 1.9 | 0.59 | 0.9 | 0.37 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 8 | 2.3 | 0.33 | 0 | 0.0 | 0.00 | 10 | 2.8 | 0.87 | 1.2 | 0.51 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 3 | 0.8 | 0.11 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.07 |
| ETHYLBENZENE | 28 | 7.8 | 1.10 | 0 | 0.0 | 0.00 | 29 | 8.1 | 2.53 | 3.8 | 1.59 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 65 | 18.2 | 2.57 | 0 | 0.0 | 0.00 | 71 | 19.9 | 6.22 | 9.2 | 3.83 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 1 | 0.4 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| 3-METHYLOCTANE | 1 | 0.4 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| O-XYLENE | 29 | 8.2 | 1.15 | 0 | 0.0 | 0.00 | 27 | 7.6 | 2.39 | 3.8 | 1.57 |

# TABLE P-4 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-15

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 3 | 0.7 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.06 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 3 | 0.9 | 0.13 | 0 | 0.0 | 0.00 | 4 | 1.2 | 0.37 | 0.5 | 0.22 |
| 2,3-DIMETHYLOCTANE | 8 | 2.2 | 0.32 | 0 | 0.0 | 0.00 | 11 | 3.0 | 0.95 | 1.3 | 0.54 |
| O-ETHYLTOLUENE | 4 | 1.0 | 0.14 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.09 |
| 1,2,4-TRIMETHYLBENZENE | 17 | 4.7 | 0.66 | 0 | 0.0 | 0.00 | 13 | 3.8 | 1.18 | 2.0 | 0.83 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 3 | 1.0 | 0.13 | 0 | 0.0 | 0.00 | 5 | 1.3 | 0.41 | 0.6 | 0.23 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 0.4 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 0.5 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.04 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 1 | 0.4 | 0.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.03 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 2 | 0.7 | 0.09 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.06 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 6 | 1.6 | 0.23 | 0 | 0.0 | 0.00 | 7 | 2.0 | 0.63 | 0.9 | 0.37 |
| C7 OLEFINS | 28 | 7.8 | 1.10 | 0 | 0.0 | 0.00 | 3 | 0.7 | 0.23 | 1.8 | 0.75 |
| C8-C9 OLEFINS | 13 | 3.7 | 0.52 | 0 | 0.0 | 0.00 | 11 | 3.0 | 0.93 | 1.6 | 0.66 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 6 | 1.8 | 0.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.15 |
| FORMALDEHYDE | 3 | 0.9 | 0.12 | 1 | 0.3 | 2.16 | 1 | 0.2 | 0.08 | 0.4 | 0.16 |
| ACETALDEHYDE | 3 | 0.7 | 0.10 | 0 | 0.1 | 0.60 | 1 | 0.2 | 0.07 | 0.3 | 0.11 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P-5. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 107 | 29.6 | 9.06 | 15 | 3.8 | 14.59 | 20 | 5.4 | 35.40 | 9.5 | 11.23 |
| ETHYLENE | 57 | 15.7 | 4.80 | 1 | 0.2 | 0.79 | 3 | 0.7 | 4.83 | 3.5 | 4.17 |
| ETHANE | 20 | 5.7 | 1.73 | 1 | 0.3 | 1.17 | 2 | 0.6 | 3.94 | 1.5 | 1.75 |
| ACETYLENE | 7 | 1.9 | 0.59 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.47 |
| PROPANE | 4 | 1.1 | 0.34 | 7 | 1.9 | 7.25 | 1 | 0.2 | 1.04 | 1.2 | 1.47 |
| PROPYLENE | 30 | 8.3 | 2.55 | 61 | 15.6 | 60.27 | 0 | 0.0 | 0.00 | 9.8 | 11.53 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 0 | 0.1 | 0.04 | 1 | 0.2 | 0.96 | 0 | 0.0 | 0.00 | 0.2 | 0.18 |
| BUTANE | 10 | 2.7 | 0.81 | 4 | 0.9 | 3.51 | 0 | 0.0 | 0.00 | 1.0 | 1.20 |
| 1-BUTENE | 0 | 0.1 | 0.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.02 |
| ISOBUTYLENE | 3 | 0.8 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.19 |
| CIS-2-BUTENE | 1 | 0.2 | 0.06 | 1 | 0.2 | 0.89 | 0 | 0.0 | 0.00 | 0.2 | 0.19 |
| TRANS-2-BUTENE | 0 | 0.0 | 0.01 | 0 | 0.0 | 0.14 | 0 | 0.0 | 0.00 | 0.0 | 0.03 |
| BENZENE | 68 | 18.7 | 5.74 | 2 | 0.6 | 2.41 | 9 | 2.6 | 16.99 | 4.9 | 5.77 |
| TOLUENE | 113 | 31.3 | 9.60 | 2 | 0.6 | 2.37 | 0 | 0.0 | 0.00 | 6.8 | 7.98 |
| ISOPENTANE | 83 | 23.0 | 7.06 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 4.8 | 5.60 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 36 | 9.9 | 3.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.0 | 2.40 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 5 | 1.4 | 0.42 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.34 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 9 | 2.4 | 0.72 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.57 |
| 2,2-DIMETHYLBUTANE | 7 | 2.0 | 0.60 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.48 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 0.3 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| 3-METHYL-1-PENTENE | 1 | 0.3 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| 4-METHYL-1-PENTENE | 1 | 0.3 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| 2,3-DIMETHYLBUTANE | 21 | 5.8 | 1.78 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.41 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 20 | 5.6 | 1.72 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.36 |
| 4-METHYL-2-PENTENE | 20 | 5.5 | 1.68 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.1 | 1.33 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 25 | 7.0 | 2.13 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.4 | 1.69 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 19 | 5.3 | 1.62 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.1 | 1.28 |
| C6 OLEFINS | 1 | 0.4 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.10 |

# TABLE P-5 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 9 | 2.6 | 0.80 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.63 |
| METHYLCYCLOPENTANE | 9 | 2.4 | 0.73 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.58 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 2 | 0.7 | 0.21 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.17 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 28 | 7.8 | 2.40 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.6 | 1.90 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 13 | 3.5 | 1.08 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.7 | 0.86 |
| 2,2,4-TRIMETHYLPENTANE | 37 | 10.2 | 3.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 2.1 | 2.48 |
| N-HEPTANE | 8 | 2.3 | 0.70 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.55 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 5 | 1.4 | 0.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.35 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 11 | 2.9 | 0.90 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.72 |
| 2,3,4-TRIMETHYLPENTANE | 6 | 1.6 | 0.50 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.40 |
| 2,3,3-TRIMETHYLPENTANE | 6 | 1.7 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.40 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 10 | 2.7 | 0.84 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 0.67 |
| 3-METHYLHEPTANE | 9 | 2.5 | 0.77 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.61 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 1.1 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.26 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 6 | 1.7 | 0.54 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.43 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 4 | 1.2 | 0.37 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.29 |
| ETHYLBENZENE | 31 | 8.5 | 2.61 | 0 | 0.0 | 0.00 | 0 | 0.1 | 0.69 | 1.8 | 2.10 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 81 | 22.3 | 6.84 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 4.6 | 5.43 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 1 | 0.4 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| 3-METHYLOCTANE | 1 | 0.4 | 0.12 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.09 |
| O-XYLENE | 32 | 9.0 | 2.75 | 4 | 0.9 | 3.56 | 0 | 0.0 | 0.00 | 2.3 | 2.75 |

## TABLE P-5 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OE-14

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 4 | 1.1 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.26 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 6 | 1.6 | 0.50 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.40 |
| 2,3-DIMETHYLOCTANE | 15 | 4.3 | 1.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.9 | 1.04 |
| O-ETHYLTOLUENE | 7 | 1.9 | 0.58 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.46 |
| 1,2,4-TRIMETHYLBENZENE | 34 | 9.4 | 2.88 | 0 | 0.0 | 0.00 | 3 | 0.9 | 5.58 | 2.2 | 2.56 |
| ISOBUTYLBENZENE | 5 | 1.5 | 0.44 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.35 |
| DECANE | 6 | 1.5 | 0.47 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.37 |
| P-CYMENE | 8 | 2.3 | 0.70 | 0 | 0.0 | 0.00 | 12 | 3.3 | 21.36 | 1.4 | 1.61 |
| INDAN(E) | 2 | 0.7 | 0.20 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.16 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 6 | 1.6 | 0.50 | 0 | 0.0 | 0.00 | 4 | 1.2 | 7.63 | 0.7 | 0.78 |
| 1-METHYL-3-PROPYLBENZENE | 3 | 1.0 | 0.30 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.24 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 0.8 | 0.24 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.19 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 1.2 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.30 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 1 | 0.3 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.08 |
| 1,3,5-TRIMETHYLBENZENE | 14 | 3.8 | 1.16 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 0.92 |
| C7 OLEFINS | 8 | 2.3 | 0.69 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.5 | 0.55 |
| C8-C9 OLEFINS | 26 | 7.1 | 2.17 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.5 | 1.72 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 21 | 5.9 | 1.81 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.2 | 1.43 |
| FORMALDEHYDE | 3 | 0.8 | 0.26 | 1 | 0.3 | 1.02 | 1 | 0.2 | 1.36 | 0.4 | 0.43 |
| ACETALDEHYDE | 3 | 0.8 | 0.25 | 1 | 0.3 | 1.06 | 1 | 0.2 | 1.18 | 0.4 | 0.42 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 14 | 4.0 | 1.22 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 0.97 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P-6. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-26

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 109 | 30.3 | 27.30 | 11 | 2.8 | 9.66 | 21 | 5.7 | 46.36 | 9.3 | 22.36 |
| ETHYLENE | 20 | 5.6 | 5.09 | 26 | 6.6 | 22.48 | 0 | 0.1 | 1.07 | 4.6 | 11.15 |
| ETHANE | 14 | 3.9 | 3.52 | 0 | 0.0 | 0.00 | 3 | 0.7 | 6.05 | 1.0 | 2.43 |
| ACETYLENE | 0 | 0.0 | 0.00 | 2 | 0.5 | 1.84 | 0 | 0.0 | 0.00 | 0.3 | 0.67 |
| PROPANE | 2 | 0.6 | 0.54 | 0 | 0.0 | 0.00 | 1 | 0.3 | 2.31 | 0.2 | 0.49 |
| PROPYLENE | 4 | 1.0 | 0.92 | 0 | 0.0 | 0.13 | 0 | 0.0 | 0.00 | 0.2 | 0.56 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 0.3 | 0.24 | 0 | 0.1 | 0.27 | 2 | 0.4 | 3.64 | 0.2 | 0.52 |
| BUTANE | 17 | 4.6 | 4.15 | 1 | 0.3 | 1.16 | 3 | 0.9 | 7.14 | 1.4 | 3.29 |
| 1-BUTENE | 1 | 0.2 | 0.15 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.08 |
| ISOBUTYLENE | 3 | 0.7 | 0.67 | 0 | 0.0 | 0.06 | 1 | 0.1 | 1.13 | 0.2 | 0.49 |
| CIS-2-BUTENE | 0 | 0.1 | 0.07 | 0 | 0.0 | 0.13 | 1 | 0.2 | 1.26 | 0.1 | 0.19 |
| TRANS-2-BUTENE | 1 | 0.3 | 0.31 | 0 | 0.0 | 0.00 | 2 | 0.5 | 4.01 | 0.2 | 0.50 |
| BENZENE | 58 | 16.3 | 14.65 | 4 | 1.1 | 3.84 | 2 | 0.4 | 3.38 | 4.1 | 9.76 |
| TOLUENE | 38 | 10.5 | 9.42 | 7 | 1.8 | 6.13 | 0 | 0.0 | 0.00 | 3.1 | 7.45 |
| ISOPENTANE | 19 | 5.3 | 4.74 | 8 | 2.0 | 6.96 | 5 | 1.5 | 12.11 | 2.6 | 6.15 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 5 | 1.3 | 1.14 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.63 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 3 | 0.8 | 0.74 | 1 | 0.3 | 1.17 | 0 | 0.0 | 0.00 | 0.3 | 0.84 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 2 | 0.5 | 0.46 | 1 | 0.2 | 0.56 | 0 | 0.0 | 0.00 | 0.2 | 0.46 |
| 4-METHYL-2-PENTENE | 2 | 0.5 | 0.45 | 1 | 0.2 | 0.55 | 0 | 0.0 | 0.00 | 0.2 | 0.45 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 4 | 1.1 | 1.01 | 5 | 1.4 | 4.79 | 0 | 0.0 | 0.00 | 1.0 | 2.32 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 3 | 0.9 | 0.84 | 12 | 3.2 | 10.82 | 0 | 0.0 | 0.00 | 1.8 | 4.44 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

## TABLE P-6 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-26

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 2 | 0.6 | 0.56 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.31 |
| METHYLCYCLOPENTANE | 1 | 0.3 | 0.27 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.15 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 16 | 4.4 | 3.93 | 17 | 4.4 | 14.82 | 5 | 1.4 | 11.26 | 3.5 | 8.53 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYLPENTANE | 22 | 6.0 | 5.43 | 2 | 0.6 | 2.06 | 0 | 0.0 | 0.00 | 1.6 | 3.75 |
| N-HEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 6 | 1.8 | 1.60 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 0.89 |
| 2,3,3-TRIMETHYLPENTANE | 6 | 1.6 | 1.42 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.78 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 6 | 1.6 | 1.49 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.82 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 13 | 3.7 | 3.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.8 | 1.83 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 4 | 1.2 | 1.04 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.57 |

TABLE P-6 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-26

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 1 | 0.4 | 0.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.18 |
| 2,3-DIMETHYLOCTANE | 1 | 0.4 | 0.34 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.19 |
| O-ETHYLTOLUENE | 1 | 0.4 | 0.35 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.19 |
| 1,2,4-TRIMETHYLBENZENE | 2 | 0.6 | 0.55 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.30 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 3 | 0.9 | 0.78 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.43 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 4 | 1.1 | 0.95 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.52 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| FORMALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETALDEHYDE | 3 | 0.9 | 0.80 | 14 | 3.8 | 12.13 | 0 | 0.0 | 0.00 | 2.0 | 4.90 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 2 | 0.5 | 0.43 | 1 | 0.1 | 0.44 | 0 | 0.0 | 0.27 | 0.2 | 0.42 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P-7. HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-27

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| METHANE | 98 | 27.4 | 24.95 | 25 | 6.4 | 31.28 | 26 | 7.2 | 48.37 | 10.9 | 29.31 |
| ETHYLENE | 17 | 4.9 | 4.44 | 8 | 2.0 | 9.78 | 1 | 0.4 | 2.72 | 2.1 | 5.76 |
| ETHANE | 17 | 4.7 | 4.26 | 3 | 0.7 | 3.66 | 3 | 0.9 | 5.95 | 1.6 | 4.28 |
| ACETYLENE | 0 | 0.1 | 0.06 | 0 | 0.0 | 0.00 | 1 | 0.2 | 1.52 | 0.1 | 0.20 |
| PROPANE | 0 | 0.1 | 0.06 | 0 | 0.0 | 0.00 | 4 | 1.1 | 7.36 | 0.3 | 0.84 |
| PROPYLENE | 8 | 2.3 | 2.14 | 7 | 1.8 | 8.69 | 2 | 0.6 | 4.21 | 1.6 | 4.22 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTANE | 0 | 0.0 | 0.03 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.02 |
| BUTANE | 20 | 5.6 | 5.12 | 5 | 1.2 | 5.72 | 0 | 0.0 | 0.00 | 1.8 | 4.73 |
| 1-BUTENE | 1 | 0.3 | 0.31 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.19 |
| ISOBUTYLENE | 4 | 1.2 | 1.14 | 2 | 0.6 | 2.86 | 1 | 0.4 | 2.46 | 0.7 | 1.77 |
| CIS-2-BUTENE | 1 | 0.2 | 0.19 | 1 | 0.2 | 1.05 | 0 | 0.1 | 0.93 | 0.2 | 0.52 |
| TRANS-2-BUTENE | 1 | 0.3 | 0.30 | 2 | 0.4 | 1.91 | 1 | 0.4 | 2.46 | 0.4 | 0.99 |
| BENZENE | 33 | 9.2 | 8.36 | 6 | 1.5 | 7.52 | 2 | 0.6 | 3.79 | 2.8 | 7.62 |
| TOLUENE | 41 | 11.5 | 10.45 | 14 | 3.6 | 17.81 | 4 | 1.2 | 8.10 | 4.6 | 12.28 |
| ISOPENTANE | 18 | 5.1 | 4.64 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 1.0 | 2.81 |
| 1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PENTANE | 1 | 0.3 | 0.25 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.15 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 10 | 2.8 | 2.59 | 0 | 0.1 | 0.42 | 0 | 0.1 | 0.48 | 0.6 | 1.74 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 4 | 1.0 | 0.93 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.57 |
| 4-METHYL-2-PENTENE | 4 | 1.0 | 0.91 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.55 |
| MTBE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 1 | 0.4 | 0.35 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.21 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANE | 7 | 2.0 | 1.84 | 1 | 0.1 | 0.70 | 0 | 0.0 | 0.00 | 0.5 | 1.31 |
| C6 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# TABLE P-7 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-27

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| 2,4-DIMETHYLPENTANE | 5 | 1.4 | 1.32 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.3 | 0.80 |
| METHYLCYCLOPENTANE | 3 | 0.7 | 0.66 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.40 |
| CYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 7 | 1.8 | 1.68 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 1.02 |
| CYCLOHEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 2 | 0.6 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.31 |
| 2,2,4-TRIMETHYLPENTANE | 7 | 1.9 | 1.72 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.4 | 1.04 |
| N-HEPTANE | 4 | 1.2 | 1.07 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.65 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 1 | 0.4 | 0.38 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.23 |
| 2,3,3-TRIMETHYLPENTANE | 1 | 0.3 | 0.29 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.17 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 2 | 0.6 | 0.51 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.31 |
| 3-METHYLHEPTANE | 1 | 0.4 | 0.35 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.21 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ETHYLBENZENE | 11 | 3.1 | 2.80 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 1.70 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 23 | 6.3 | 5.78 | 0 | 0.0 | 0.00 | 6 | 1.7 | 11.64 | 1.8 | 4.78 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-XYLENE | 10 | 2.8 | 2.53 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 1.54 |

## TABLE P-7 (Cont'd). HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-27

| COMPOUND | BAG 1 | | | BAG 2 | | | BAG 3 | | | FTP TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG | MG/MI | WGT. % | MG/MI | WGT. % |
| NONANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| PROPYLBENZENE | 1 | 0.4 | 0.36 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.22 |
| 2,3-DIMETHYLOCTANE | 3 | 0.9 | 0.82 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.50 |
| O-ETHYLTOLUENE | 1 | 0.4 | 0.33 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 11 | 2.9 | 2.68 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.6 | 1.63 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 2 | 0.7 | 0.62 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.38 |
| C7 OLEFINS | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 4 | 1.1 | 0.97 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.2 | 0.59 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 2 | 0.4 | 0.40 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.1 | 0.25 |
| FORMALDEHYDE | 0 | 0.1 | 0.10 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.06 |
| ACETALDEHYDE | 2 | 0.4 | 0.38 | 5 | 1.3 | 6.57 | 0 | 0.0 | 0.00 | 0.8 | 2.10 |
| ACROLEIN | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ACETONE | 2 | 0.5 | 0.44 | 2 | 0.4 | 2.02 | 0 | 0.0 | 0.00 | 0.3 | 0.84 |
| PROPIONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| CROTONALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| BENZALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| HEXANALDEHYDE | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |

# APPENDIX Q

## 1990 TOYOTA CELICA
## FTP COLD-START HYDROCARBON SPECIATION MEASUREMENTS

## TABLE Q-1. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 84 | 127.1 | 24.2 | 24 | 8.2 | 24.9 | 108 | 30.2 | 24.32 |
| ETHYLENE | 9 | 14.3 | 2.7 | 3 | 1.0 | 3.0 | 12 | 3.4 | 2.77 |
| ETHANE | 12 | 17.5 | 3.3 | 5 | 1.7 | 5.0 | 16 | 4.6 | 3.70 |
| ACETYLENE | 1 | 1.0 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.15 |
| PROPANE | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.2 | 0 | 0.1 | 0.05 |
| PROPYLENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3-BUTADIENE | 0 | 0.7 | 0.1 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.11 |
| ISOBUTANE | 2 | 2.5 | 0.5 | 0 | 0.1 | 0.4 | 2 | 0.6 | 0.47 |
| BUTANE | 26 | 38.8 | 7.4 | 3 | 1.1 | 3.3 | 29 | 8.1 | 6.49 |
| 1-BUTENE | 1 | 1.5 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.22 |
| ISOBUTYLENE | 4 | 5.3 | 1.0 | 2 | 0.6 | 2.0 | 5 | 1.5 | 1.22 |
| CIS-2-BUTENE | 1 | 1.3 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.19 |
| TRANS-2-BUTENE | 1 | 1.3 | 0.2 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.19 |
| BENZENE | 9 | 14.1 | 2.7 | 11 | 3.9 | 12.0 | 21 | 5.8 | 4.69 |
| TOLUENE | 27 | 40.2 | 7.6 | 14 | 4.9 | 15.0 | 41 | 11.5 | 9.23 |
| ISOPENTANE | 29 | 43.4 | 8.2 | 0 | 0.0 | 0.0 | 29 | 8.0 | 6.46 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 10 | 15.1 | 2.9 | 0 | 0.0 | 0.0 | 10 | 2.8 | 2.25 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 5 | 6.9 | 1.3 | 0 | 0.0 | 0.0 | 5 | 1.3 | 1.03 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 2 | 3.0 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.45 |
| 4-METHYL-2-PENTENE | 2 | 2.9 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.44 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 3 | 4.5 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.67 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 2 | 3.0 | 0.6 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.45 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 4 | 6.5 | 1.2 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.98 |
| METHYLCYCLOPENTANE | 1 | 2.0 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.30 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 12 | 17.6 | 3.3 | 0 | 0.0 | 0.0 | 12 | 3.2 | 2.62 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 1 | 1.7 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.25 |
| 2,2,4-TRIMETHYLPENTANE | 27 | 41.2 | 7.8 | 10 | 3.3 | 10.1 | 37 | 10.3 | 8.32 |
| N-HEPTANE | 1 | 1.5 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.22 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 4 | 6.3 | 1.2 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.95 |
| 2,3,4-TRIMETHYLPENTANE | 5 | 7.6 | 1.5 | 0 | 0.0 | 0.0 | 5 | 1.4 | 1.14 |

TABLE Q-1 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 3 | 4.7 | 0.9 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.70 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 1 | 1.9 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.28 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 4 | 5.5 | 1.1 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.83 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 11 | 16.8 | 3.2 | 9 | 3.1 | 9.4 | 20 | 5.6 | 4.53 |
| 2-METHYLOCTANE | 1 | 2.0 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.31 |
| 4-METHYLOCTANE | 1 | 2.0 | 0.4 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.31 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 6 | 9.4 | 1.8 | 0 | 0.0 | 0.0 | 6 | 1.7 | 1.40 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 2 | 3.5 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.52 |
| 2,3-DIMETHYLOCTANE | 2 | 3.5 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.53 |
| O-ETHYLTOLUENE | 1 | 1.7 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.26 |
| 1,2,4-TRIMETHYLBENZENE | 7 | 11.0 | 2.1 | 5 | 1.5 | 4.7 | 12 | 3.3 | 2.66 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 12 | 17.7 | 3.4 | 0 | 0.0 | 0.0 | 12 | 3.3 | 2.64 |
| INDAN(E) | 4 | 5.8 | 1.1 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.87 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 3 | 4.4 | 0.8 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.65 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 5 | 7.0 | 1.3 | 9 | 3.3 | 9.9 | 14 | 3.9 | 3.18 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.1 | 0.05 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-2. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OEM-13

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 67 | 99.6 | 6.5 | 24 | 8.4 | 24.9 | 91 | 25.5 | 7.99 |
| ETHYLENE | 42 | 62.5 | 4.1 | 3 | 1.0 | 2.9 | 45 | 12.5 | 3.92 |
| ETHANE | 13 | 19.8 | 1.3 | 3 | 1.0 | 3.1 | 16 | 4.6 | 1.43 |
| ACETYLENE | 6 | 8.3 | 0.5 | 0 | 0.0 | 0.0 | 6 | 1.5 | 0.49 |
| PROPANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLENE | 35 | 52.5 | 3.4 | 7 | 2.5 | 7.5 | 43 | 11.9 | 3.73 |
| 1,3-BUTADIENE | 4 | 5.8 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.34 |
| ISOBUTANE | 4 | 5.6 | 0.4 | 1 | 0.5 | 1.3 | 5 | 1.4 | 0.45 |
| BUTANE | 59 | 88.7 | 5.8 | 6 | 2.2 | 6.6 | 66 | 18.5 | 5.78 |
| 1-BUTENE | 5 | 8.0 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.5 | 0.47 |
| ISOBUTYLENE | 24 | 36.2 | 2.4 | 2 | 0.8 | 2.3 | 26 | 7.4 | 2.32 |
| CIS-2-BUTENE | 4 | 5.5 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.32 |
| TRANS-2-BUTENE | 4 | 5.6 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.33 |
| BENZENE | 36 | 53.8 | 3.5 | 11 | 3.7 | 11.0 | 47 | 13.1 | 4.11 |
| TOLUENE | 164 | 245.1 | 15.9 | 14 | 4.7 | 13.8 | 178 | 49.8 | 15.59 |
| ISOPENTANE | 73 | 108.3 | 7.0 | 0 | 0.0 | 0.0 | 73 | 20.3 | 6.36 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 18 | 27.5 | 1.8 | 0 | 0.0 | 0.0 | 18 | 5.2 | 1.62 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 4 | 6.5 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.38 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.07 |
| 3-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.07 |
| 4-METHYL-1-PENTENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.07 |
| 2,3-DIMETHYLBUTANE | 10 | 14.5 | 0.9 | 0 | 0.0 | 0.0 | 10 | 2.7 | 0.85 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 7 | 11.0 | 0.7 | 0 | 0.0 | 0.0 | 7 | 2.1 | 0.65 |
| 4-METHYL-2-PENTENE | 7 | 10.7 | 0.7 | 0 | 0.0 | 0.0 | 7 | 2.0 | 0.63 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 9 | 13.6 | 0.9 | 0 | 0.0 | 0.0 | 9 | 2.5 | 0.80 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 8 | 12.1 | 0.8 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.71 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 17 | 25.0 | 1.6 | 0 | 0.0 | 0.0 | 17 | 4.7 | 1.47 |
| METHYLCYCLOPENTANE | 6 | 9.6 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.57 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 47 | 70.1 | 4.6 | 0 | 0.0 | 0.0 | 47 | 13.2 | 4.12 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 6 | 9.1 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.53 |
| 2,2,4-TRIMETHYLPENTANE | 102 | 151.7 | 9.9 | 13 | 4.3 | 12.8 | 114 | 32.0 | 10.02 |
| N-HEPTANE | 4 | 5.4 | 0.3 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.32 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 4 | 6.4 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.37 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 17 | 24.8 | 1.6 | 0 | 0.0 | 0.0 | 17 | 4.7 | 1.46 |
| 2,3,4-TRIMETHYLPENTANE | 20 | 29.6 | 1.9 | 1 | 0.4 | 1.3 | 21 | 5.9 | 1.85 |

TABLE Q-2 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OEM-13

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 12 | 17.8 | 1.2 | 1 | 0.4 | 1.3 | 13 | 3.7 | 1.16 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 5 | 7.6 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.45 |
| 3-METHYLHEPTANE | 4 | 6.7 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.3 | 0.39 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 5 | 7.2 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.42 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 3 | 4.6 | 0.3 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.27 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 15 | 22.5 | 1.5 | 0 | 0.0 | 0.0 | 15 | 4.2 | 1.32 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 53 | 79.4 | 5.2 | 6 | 2.1 | 6.1 | 59 | 16.6 | 5.20 |
| 2-METHYLOCTANE | 1 | 0.9 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.05 |
| 4-METHYLOCTANE | 1 | 0.9 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.05 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 21 | 30.9 | 2.0 | 0 | 0.0 | 0.0 | 21 | 5.8 | 1.82 |
| NONANE | 2 | 2.6 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.15 |
| TRANS-2-NONENE | 1 | 1.3 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.07 |
| PROPYLBENZENE | 4 | 5.5 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.33 |
| 2,3-DIMETHYLOCTANE | 8 | 11.8 | 0.8 | 0 | 0.0 | 0.0 | 8 | 2.2 | 0.69 |
| O-ETHYLTOLUENE | 4 | 6.2 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.37 |
| 1,2,4-TRIMETHYLBENZENE | 21 | 31.4 | 2.0 | 1 | 0.2 | 0.6 | 22 | 6.1 | 1.90 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 4 | 5.7 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.34 |
| INDAN(E) | 1 | 1.9 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.11 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 2.6 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.15 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 2.8 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.16 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 2 | 2.6 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.15 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 2 | 3.7 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.22 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 11 | 16.6 | 1.1 | 0 | 0.0 | 0.0 | 11 | 3.1 | 0.98 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 19 | 28.7 | 1.9 | 4 | 1.5 | 4.5 | 24 | 6.6 | 2.08 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 5 | 1.3 | 0.41 |
| ACETALDEHYDE | — | — | — | — | — | — | 4 | 1.0 | 0.32 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 3 | 0.8 | 0.24 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-3. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12-2

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 438 | 663.3 | 7.7 | 21 | 7.1 | 39.2 | 458 | 128.8 | 8.00 |
| ETHYLENE | 156 | 235.6 | 2.7 | 0 | 0.0 | 0.0 | 156 | 43.7 | 2.72 |
| ETHANE | 45 | 67.6 | 0.8 | 5 | 1.9 | 10.4 | 50 | 14.1 | 0.87 |
| ACETYLENE | 7 | 10.1 | 0.1 | 0 | 0.0 | 0.0 | 7 | 1.9 | 0.12 |
| PROPANE | 6 | 8.9 | 0.1 | 3 | 1.0 | 5.7 | 9 | 2.5 | 0.15 |
| PROPYLENE | 163 | 247.7 | 2.9 | 0 | 0.0 | 0.0 | 163 | 45.9 | 2.85 |
| 1,3-BUTADIENE | 23 | 35.4 | 0.4 | 0 | 0.0 | 0.0 | 23 | 6.6 | 0.41 |
| ISOBUTANE | 36 | 54.5 | 0.6 | 0 | 0.0 | 0.0 | 36 | 10.1 | 0.63 |
| BUTANE | 598 | 906.7 | 10.6 | 0 | 0.0 | 0.0 | 598 | 168.1 | 10.45 |
| 1-BUTENE | 20 | 30.3 | 0.4 | 0 | 0.0 | 0.0 | 20 | 5.6 | 0.35 |
| ISOBUTYLENE | 112 | 169.2 | 2.0 | 1 | 0.3 | 1.8 | 113 | 31.6 | 1.97 |
| CIS-2-BUTENE | 15 | 22.8 | 0.3 | 0 | 0.0 | 0.0 | 15 | 4.2 | 0.26 |
| TRANS-2-BUTENE | 18 | 27.9 | 0.3 | 0 | 0.0 | 0.0 | 18 | 5.2 | 0.32 |
| BENZENE | 305 | 462.6 | 5.4 | 4 | 1.3 | 7.4 | 309 | 86.8 | 5.40 |
| TOLUENE | 747 | 1131.2 | 13.2 | 2 | 0.7 | 3.7 | 749 | 210.3 | 13.07 |
| ISOPENTANE | 715 | 1083.7 | 12.6 | 1 | 0.4 | 2.3 | 716 | 201.2 | 12.51 |
| 1-PENTENE | 6 | 8.9 | 0.1 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.10 |
| PENTANE | 170 | 257.2 | 3.0 | 0 | 0.0 | 0.0 | 170 | 47.7 | 2.96 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 13 | 19.9 | 0.2 | 0 | 0.0 | 0.0 | 13 | 3.7 | 0.23 |
| TRANS-2-PENTENE | 13 | 19.2 | 0.2 | 0 | 0.0 | 0.0 | 13 | 3.6 | 0.22 |
| CIS-2-PENTENE | 7 | 10.0 | 0.1 | 0 | 0.0 | 0.0 | 7 | 1.8 | 0.11 |
| 2-METHYL-2-BUTENE | 29 | 43.4 | 0.5 | 0 | 0.0 | 0.0 | 29 | 8.0 | 0.50 |
| 2,2-DIMETHYLBUTANE | 19 | 28.3 | 0.3 | 0 | 0.0 | 0.0 | 19 | 5.3 | 0.33 |
| CYCLOPENTENE | 3 | 4.1 | 0.0 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.05 |
| CYCLOPENTANE | 6 | 9.6 | 0.1 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.11 |
| 3-METHYL-1-PENTENE | 6 | 9.6 | 0.1 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.11 |
| 4-METHYL-1-PENTENE | 6 | 9.6 | 0.1 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.11 |
| 2,3-DIMETHYLBUTANE | 78 | 118.5 | 1.4 | 0 | 0.0 | 0.0 | 78 | 22.0 | 1.37 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 57 | 86.3 | 1.0 | 0 | 0.0 | 0.0 | 57 | 16.0 | 1.00 |
| 4-METHYL-2-PENTENE | 56 | 84.3 | 1.0 | 0 | 0.0 | 0.0 | 56 | 15.6 | 0.97 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 65 | 99.0 | 1.2 | 0 | 0.0 | 0.0 | 65 | 18.4 | 1.14 |
| 2-METHYL-1-PENTENE/1-HEXENE | 5 | 7.4 | 0.1 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.09 |
| HEXANE | 56 | 84.5 | 1.0 | 0 | 0.0 | 0.0 | 56 | 15.7 | 0.97 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 103 | 156.6 | 1.8 | 0 | 0.0 | 0.0 | 103 | 29.0 | 1.81 |
| METHYLCYCLOPENTANE | 45 | 68.1 | 0.8 | 0 | 0.0 | 0.0 | 45 | 12.6 | 0.78 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 5 | 7.9 | 0.1 | 0 | 0.0 | 0.0 | 5 | 1.5 | 0.09 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 254 | 384.6 | 4.5 | 0 | 0.0 | 0.0 | 254 | 71.3 | 4.43 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 34 | 51.4 | 0.6 | 0 | 0.0 | 0.0 | 34 | 9.5 | 0.59 |
| 2,2,4-TRIMETHYLPENTANE | 510 | 772.6 | 9.0 | 3 | 0.9 | 4.9 | 512 | 144.0 | 8.95 |
| N-HEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 19 | 28.2 | 0.3 | 0 | 0.0 | 0.0 | 19 | 5.2 | 0.33 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 69 | 105.2 | 1.2 | 0 | 0.0 | 0.0 | 69 | 19.5 | 1.21 |
| 2,3,4-TRIMETHYLPENTANE | 76 | 115.5 | 1.3 | 0 | 0.0 | 0.0 | 76 | 21.4 | 1.33 |

TABLE Q-3 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-12-2

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 43 | 65.5 | 0.8 | 0 | 0.0 | 0.0 | 43 | 12.1 | 0.76 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 23 | 35.1 | 0.4 | 0 | 0.0 | 0.0 | 23 | 6.5 | 0.40 |
| 3-METHYLHEPTANE | 17 | 25.2 | 0.3 | 0 | 0.0 | 0.0 | 17 | 4.7 | 0.29 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 21 | 31.3 | 0.4 | 0 | 0.0 | 0.0 | 21 | 5.8 | 0.36 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 10 | 15.2 | 0.2 | 0 | 0.0 | 0.0 | 10 | 2.8 | 0.18 |
| 2,3,5-TRIMETHYLHEXANE | 3 | 4.9 | 0.1 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.06 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 4 | 6.0 | 0.1 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.07 |
| ETHYLBENZENE | 36 | 55.0 | 0.6 | 5 | 1.6 | 8.7 | 41 | 11.5 | 0.71 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 119 | 179.7 | 2.1 | 0 | 0.0 | 0.0 | 119 | 33.3 | 2.07 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 2 | 3.0 | 0.0 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.03 |
| 3-METHYLOCTANE | 2 | 3.0 | 0.0 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.03 |
| O-XYLENE | 54 | 81.5 | 0.9 | 8 | 2.9 | 16.0 | 62 | 17.5 | 1.09 |
| NONANE | 3 | 3.9 | 0.0 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.05 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 9 | 13.3 | 0.2 | 0 | 0.0 | 0.0 | 9 | 2.5 | 0.15 |
| 2,3-DIMETHYLOCTANE | 14 | 21.6 | 0.3 | 0 | 0.0 | 0.0 | 14 | 4.0 | 0.25 |
| O-ETHYLTOLUENE | 8 | 12.5 | 0.1 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.14 |
| 1,2,4-TRIMETHYLBENZENE | 31 | 46.3 | 0.5 | 0 | 0.0 | 0.0 | 31 | 8.6 | 0.53 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 6 | 9.4 | 0.1 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.11 |
| INDAN(E) | 2 | 2.4 | 0.0 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.03 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 3.5 | 0.0 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.04 |
| 1-METHYL-3-PROPYLBENZENE | 4 | 6.2 | 0.1 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.07 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 4.8 | 0.1 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.05 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 6.4 | 0.1 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.07 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 1 | 2.1 | 0.0 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.02 |
| 1,3,5-TRIMETHYLBENZENE | 23 | 35.5 | 0.4 | 0 | 0.0 | 0.0 | 23 | 6.6 | 0.41 |
| C7 OLEFINS | 50 | 76.0 | 0.9 | 0 | 0.0 | 0.0 | 50 | 14.1 | 0.88 |
| C8-C9 OLEFINS | 39 | 58.6 | 0.7 | 0 | 0.0 | 0.0 | 39 | 10.9 | 0.68 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 26 | 39.1 | 0.5 | 0 | 0.0 | 0.0 | 26 | 7.3 | 0.45 |
| FORMALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETALDEHYDE | — | — | — | — | — | — | 2 | 0.6 | 0.04 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-4. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-15

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 211 | 315.1 | 8.9 | 40 | 13.7 | 28.1 | 251 | 70.3 | 9.92 |
| ETHYLENE | 57 | 85.6 | 2.4 | 6 | 1.9 | 3.9 | 63 | 17.6 | 2.48 |
| ETHANE | 17 | 24.9 | 0.7 | 11 | 3.8 | 7.7 | 28 | 7.7 | 1.09 |
| ACETYLENE | 4 | 5.4 | 0.2 | 1 | 0.4 | 0.8 | 5 | 1.4 | 0.19 |
| PROPANE | 1 | 1.9 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.05 |
| PROPYLENE | 25 | 37.4 | 1.1 | 7 | 2.3 | 4.7 | 32 | 8.9 | 1.25 |
| 1,3-BUTADIENE | 6 | 8.7 | 0.2 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.23 |
| ISOBUTANE | 6 | 9.3 | 0.3 | 0 | 0.0 | 0.1 | 6 | 1.8 | 0.25 |
| BUTANE | 244 | 364.6 | 10.3 | 5 | 1.7 | 3.5 | 249 | 69.8 | 9.85 |
| 1-BUTENE | 5 | 7.1 | 0.2 | 1 | 0.3 | 0.7 | 6 | 1.6 | 0.23 |
| ISOBUTYLENE | 11 | 15.8 | 0.4 | 2 | 0.8 | 1.6 | 13 | 3.6 | 0.51 |
| CIS-2-BUTENE | 3 | 4.4 | 0.1 | 1 | 0.2 | 0.5 | 4 | 1.0 | 0.14 |
| TRANS-2-BUTENE | 3 | 5.1 | 0.1 | 1 | 0.2 | 0.5 | 4 | 1.1 | 0.16 |
| BENZENE | 71 | 106.0 | 3.0 | 28 | 9.6 | 19.6 | 99 | 27.7 | 3.91 |
| TOLUENE | 120 | 179.1 | 5.0 | 12 | 4.2 | 8.7 | 132 | 37.1 | 5.23 |
| ISOPENTANE | 251 | 375.3 | 10.6 | 1 | 0.4 | 0.9 | 253 | 70.8 | 9.99 |
| 1-PENTENE | 6 | 9.2 | 0.3 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.24 |
| PENTANE | 169 | 251.7 | 7.1 | 0 | 0.0 | 0.0 | 169 | 47.2 | 6.66 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 5 | 6.8 | 0.2 | 0 | 0.0 | 0.0 | 5 | 1.3 | 0.18 |
| TRANS-2-PENTENE | 17 | 26.0 | 0.7 | 0 | 0.0 | 0.0 | 17 | 4.9 | 0.69 |
| CIS-2-PENTENE | 10 | 14.3 | 0.4 | 0 | 0.0 | 0.0 | 10 | 2.7 | 0.38 |
| 2-METHYL-2-BUTENE | 28 | 41.6 | 1.2 | 0 | 0.0 | 0.0 | 28 | 7.8 | 1.10 |
| 2,2-DIMETHYLBUTANE | 42 | 63.4 | 1.8 | 0 | 0.0 | 0.0 | 42 | 11.9 | 1.68 |
| CYCLOPENTENE | 4 | 6.2 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.16 |
| CYCLOPENTANE | 4 | 5.5 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.15 |
| 3-METHYL-1-PENTENE | 4 | 5.5 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.15 |
| 4-METHYL-1-PENTENE | 4 | 5.5 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.15 |
| 2,3-DIMETHYLBUTANE | 64 | 95.5 | 2.7 | 0 | 0.0 | 0.0 | 64 | 17.9 | 2.53 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 90 | 134.0 | 3.8 | 0 | 0.0 | 0.0 | 90 | 25.1 | 3.55 |
| 4-METHYL-2-PENTENE | 88 | 130.8 | 3.7 | 0 | 0.0 | 0.0 | 88 | 24.5 | 3.46 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 86 | 129.1 | 3.6 | 0 | 0.0 | 0.0 | 86 | 24.2 | 3.42 |
| 2-METHYL-1-PENTENE/1-HEXENE | 6 | 9.2 | 0.3 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.24 |
| HEXANE | 78 | 116.5 | 3.3 | 0 | 0.0 | 0.0 | 78 | 21.9 | 3.09 |
| C6 OLEFINS | 29 | 43.6 | 1.2 | 0 | 0.0 | 0.0 | 29 | 8.2 | 1.15 |
| 2,4-DIMETHYLPENTANE | 32 | 47.7 | 1.3 | 0 | 0.0 | 0.0 | 32 | 8.9 | 1.26 |
| METHYLCYCLOPENTANE | 28 | 42.1 | 1.2 | 0 | 0.0 | 0.0 | 28 | 7.9 | 1.12 |
| CYCLOHEXANE | 4 | 6.2 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.16 |
| METHYLCYCLOPENTENE | 4 | 6.6 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.18 |
| 3-METHYL-1,3-PENTADIENE | 4 | 6.1 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.16 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 82 | 121.7 | 3.4 | 0 | 0.0 | 0.0 | 82 | 22.8 | 3.22 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 36 | 53.3 | 1.5 | 0 | 0.0 | 0.0 | 36 | 10.0 | 1.41 |
| 2,2,4-TRIMETHYLPENTANE | 91 | 136.3 | 3.8 | 0 | 0.1 | 0.2 | 92 | 25.7 | 3.62 |
| N-HEPTANE | 25 | 37.2 | 1.0 | 0 | 0.0 | 0.0 | 25 | 7.0 | 0.99 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 12 | 17.2 | 0.5 | 0 | 0.0 | 0.0 | 12 | 3.2 | 0.46 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 18 | 27.4 | 0.8 | 0 | 0.0 | 0.0 | 18 | 5.1 | 0.73 |
| 2,3,4-TRIMETHYLPENTANE | 17 | 26.1 | 0.7 | 0 | 0.0 | 0.0 | 17 | 4.9 | 0.69 |

TABLE Q-4 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-15

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 13 | 19.4 | 0.5 | 0 | 0.0 | 0.0 | 13 | 3.6 | 0.51 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 18 | 26.5 | 0.7 | 0 | 0.0 | 0.0 | 18 | 5.0 | 0.70 |
| 3-METHYLHEPTANE | 16 | 23.9 | 0.7 | 0 | 0.0 | 0.0 | 16 | 4.5 | 0.63 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 6 | 9.3 | 0.3 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.25 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 8 | 12.3 | 0.3 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.33 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 3 | 4.1 | 0.1 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.11 |
| ETHYLBENZENE | 22 | 33.5 | 0.9 | 5 | 1.9 | 3.8 | 28 | 7.8 | 1.10 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 57 | 85.4 | 2.4 | 8 | 2.7 | 5.5 | 65 | 18.2 | 2.57 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 1 | 2.2 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.06 |
| 3-METHYLOCTANE | 1 | 2.2 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.06 |
| O-XYLENE | 21 | 31.4 | 0.9 | 8 | 2.8 | 5.8 | 29 | 8.2 | 1.15 |
| NONANE | 3 | 3.9 | 0.1 | 0 | 0.0 | 0.0 | 3 | 0.7 | 0.10 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 3 | 5.1 | 0.1 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.13 |
| 2,3-DIMETHYLOCTANE | 6 | 8.5 | 0.2 | 2 | 0.8 | 1.6 | 8 | 2.2 | 0.32 |
| O-ETHYLTOLUENE | 4 | 5.4 | 0.2 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.14 |
| 1,2,4-TRIMETHYLBENZENE | 14 | 20.9 | 0.6 | 3 | 0.9 | 1.9 | 17 | 4.7 | 0.66 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 3 | 5.1 | 0.1 | 0 | 0.0 | 0.0 | 3 | 1.0 | 0.13 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 2 | 2.3 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.06 |
| 1-METHYL-3-PROPYLBENZENE | 2 | 2.5 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.5 | 0.06 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 1 | 2.1 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.06 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 2 | 3.5 | 0.1 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.09 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 6 | 8.7 | 0.2 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.23 |
| C7 OLEFINS | 28 | 41.4 | 1.2 | 0 | 0.0 | 0.0 | 28 | 7.8 | 1.10 |
| C8-C9 OLEFINS | 13 | 19.6 | 0.6 | 0 | 0.0 | 0.0 | 13 | 3.7 | 0.52 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 6 | 9.3 | 0.3 | 0 | 0.0 | 0.0 | 6 | 1.8 | 0.25 |
| FORMALDEHYDE | — | — | — | — | — | — | 3 | 0.9 | 0.12 |
| ACETALDEHYDE | — | — | — | — | — | — | 3 | 0.7 | 0.10 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-5. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OEM-14

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 75 | 110.4 | 7.5 | 32 | 10.8 | 20.1 | 107 | 29.6 | 9.06 |
| ETHYLENE | 53 | 78.0 | 5.3 | 4 | 1.2 | 2.2 | 57 | 15.7 | 4.80 |
| ETHANE | 15 | 21.6 | 1.5 | 6 | 2.0 | 3.6 | 20 | 5.7 | 1.73 |
| ACETYLENE | 7 | 10.3 | 0.7 | 0 | 0.0 | 0.0 | 7 | 1.9 | 0.59 |
| PROPANE | 2 | 2.9 | 0.2 | 2 | 0.7 | 1.3 | 4 | 1.1 | 0.34 |
| PROPYLENE | 30 | 44.2 | 3.0 | 0 | 0.0 | 0.0 | 30 | 8.3 | 2.55 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 0 | 0.0 | 0.0 | 0 | 0.2 | 0.3 | 0 | 0.1 | 0.04 |
| BUTANE | 0 | 0.0 | 0.0 | 10 | 3.3 | 6.1 | 10 | 2.7 | 0.81 |
| 1-BUTENE | 0 | 0.5 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.03 |
| ISOBUTYLENE | 1 | 1.4 | 0.1 | 2 | 0.7 | 1.2 | 3 | 0.8 | 0.24 |
| CIS-2-BUTENE | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.5 | 1 | 0.2 | 0.06 |
| TRANS-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.1 | 0 | 0.0 | 0.01 |
| BENZENE | 52 | 76.5 | 5.2 | 16 | 5.3 | 9.9 | 68 | 18.7 | 5.74 |
| TOLUENE | 103 | 151.2 | 10.3 | 10 | 3.5 | 6.5 | 113 | 31.3 | 9.60 |
| ISOPENTANE | 58 | 85.2 | 5.8 | 25 | 8.6 | 16.0 | 83 | 23.0 | 7.06 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 36 | 52.4 | 3.6 | 0 | 0.0 | 0.0 | 36 | 9.9 | 3.03 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 5 | 7.3 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.42 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 9 | 12.5 | 0.9 | 0 | 0.0 | 0.0 | 9 | 2.4 | 0.72 |
| 2,2-DIMETHYLBUTANE | 7 | 10.4 | 0.7 | 0 | 0.0 | 0.0 | 7 | 2.0 | 0.60 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 1 | 1.8 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.10 |
| 3-METHYL-1-PENTENE | 1 | 1.8 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.10 |
| 4-METHYL-1-PENTENE | 1 | 1.8 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.10 |
| 2,3-DIMETHYLBUTANE | 15 | 22.2 | 1.5 | 6 | 2.0 | 3.7 | 21 | 5.8 | 1.78 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 18 | 27.0 | 1.8 | 2 | 0.6 | 1.2 | 20 | 5.6 | 1.72 |
| 4-METHYL-2-PENTENE | 18 | 26.4 | 1.8 | 2 | 0.6 | 1.2 | 20 | 5.5 | 1.68 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 21 | 30.2 | 2.1 | 5 | 1.6 | 2.9 | 25 | 7.0 | 2.13 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 19 | 28.0 | 1.9 | 0 | 0.0 | 0.0 | 19 | 5.3 | 1.62 |
| C6 OLEFINS | 1 | 2.1 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.12 |
| 2,4-DIMETHYLPENTANE | 9 | 12.9 | 0.9 | 1 | 0.2 | 0.4 | 9 | 2.6 | 0.80 |
| METHYLCYCLOPENTANE | 9 | 12.7 | 0.9 | 0 | 0.0 | 0.0 | 9 | 2.4 | 0.73 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 2 | 3.7 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.21 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 26 | 38.6 | 2.6 | 2 | 0.7 | 1.2 | 28 | 7.8 | 2.40 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 12 | 17.0 | 1.2 | 1 | 0.4 | 0.7 | 13 | 3.5 | 1.08 |
| 2,2,4-TRIMETHYLPENTANE | 33 | 48.5 | 3.3 | 4 | 1.3 | 2.4 | 37 | 10.2 | 3.12 |
| N-HEPTANE | 8 | 12.0 | 0.8 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.70 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 5 | 7.7 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.4 | 0.44 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 11 | 15.7 | 1.1 | 0 | 0.0 | 0.0 | 11 | 2.9 | 0.90 |
| 2,3,4-TRIMETHYLPENTANE | 6 | 8.6 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.50 |

TABLE Q-5 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-OEM-14

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 6 | 8.8 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.51 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 10 | 14.6 | 1.0 | 0 | 0.0 | 0.0 | 10 | 2.7 | 0.84 |
| 3-METHYLHEPTANE | 9 | 13.3 | 0.9 | 0 | 0.0 | 0.0 | 9 | 2.5 | 0.77 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 4 | 5.6 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.33 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 6 | 9.3 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.7 | 0.54 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 4 | 6.4 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.37 |
| ETHYLBENZENE | 27 | 40.3 | 2.7 | 3 | 1.1 | 2.1 | 31 | 8.5 | 2.61 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 76 | 111.1 | 7.6 | 5 | 1.7 | 3.2 | 81 | 22.3 | 6.84 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 1 | 2.0 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.12 |
| 3-METHYLOCTANE | 1 | 2.0 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.12 |
| O-XYLENE | 26 | 37.6 | 2.6 | 7 | 2.3 | 4.3 | 32 | 9.0 | 2.75 |
| NONANE | 4 | 5.6 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.33 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 6 | 8.7 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.50 |
| 2,3-DIMETHYLOCTANE | 10 | 14.8 | 1.0 | 5 | 1.8 | 3.4 | 15 | 4.3 | 1.31 |
| O-ETHYLTOLUENE | 7 | 10.0 | 0.7 | 0 | 0.0 | 0.0 | 7 | 1.9 | 0.58 |
| 1,2,4-TRIMETHYLBENZENE | 29 | 42.8 | 2.9 | 5 | 1.6 | 3.0 | 34 | 9.4 | 2.88 |
| ISOBUTYLBENZENE | 5 | 7.7 | 0.5 | 0 | 0.0 | 0.0 | 5 | 1.5 | 0.44 |
| DECANE | 6 | 8.2 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.5 | 0.47 |
| P-CYMENE | 8 | 12.1 | 0.8 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.70 |
| INDAN(E) | 2 | 3.5 | 0.2 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.20 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 6 | 8.7 | 0.6 | 0 | 0.0 | 0.0 | 6 | 1.6 | 0.50 |
| 1-METHYL-3-PROPYLBENZENE | 3 | 5.1 | 0.3 | 0 | 0.0 | 0.0 | 3 | 1.0 | 0.30 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 3 | 4.1 | 0.3 | 0 | 0.0 | 0.0 | 3 | 0.8 | 0.24 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 4 | 6.5 | 0.4 | 0 | 0.0 | 0.0 | 4 | 1.2 | 0.38 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 1 | 1.8 | 0.1 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.10 |
| 1,3,5-TRIMETHYLBENZENE | 10 | 14.8 | 1.0 | 4 | 1.2 | 2.3 | 14 | 3.8 | 1.16 |
| C7 OLEFINS | 8 | 12.0 | 0.8 | 0 | 0.0 | 0.0 | 8 | 2.3 | 0.69 |
| C8-C9 OLEFINS | 26 | 37.6 | 2.6 | 0 | 0.0 | 0.0 | 26 | 7.1 | 2.17 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 21 | 31.3 | 2.1 | 0 | 0.0 | 0.0 | 21 | 5.9 | 1.81 |
| FORMALDEHYDE | — | — | — | — | — | — | 3 | 0.8 | 0.26 |
| ACETALDEHYDE | — | — | — | — | — | — | 3 | 0.8 | 0.25 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 14 | 4.0 | 1.22 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-6. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-26

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 68 | 99.6 | 32.2 | 41 | 14.1 | 22.4 | 109 | 30.3 | 27.30 |
| ETHYLENE | 4 | 6.4 | 2.1 | 16 | 5.5 | 8.7 | 20 | 5.6 | 5.09 |
| ETHANE | 9 | 13.2 | 4.3 | 5 | 1.7 | 2.8 | 14 | 3.9 | 3.52 |
| ACETYLENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPANE | 1 | 1.4 | 0.4 | 1 | 0.4 | 0.7 | 2 | 0.6 | 0.54 |
| PROPYLENE | 4 | 5.4 | 1.8 | 0 | 0.0 | 0.0 | 4 | 1.0 | 0.92 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 1 | 1.0 | 0.3 | 0 | 0.1 | 0.1 | 1 | 0.3 | 0.24 |
| BUTANE | 9 | 12.7 | 4.1 | 8 | 2.7 | 4.3 | 17 | 4.6 | 4.15 |
| 1-BUTENE | 1 | 0.9 | 0.3 | 0 | 0.0 | 0.0 | 1 | 0.2 | 0.15 |
| ISOBUTYLENE | 1 | 2.0 | 0.6 | 1 | 0.5 | 0.7 | 3 | 0.7 | 0.67 |
| CIS-2-BUTENE | 0 | 0.4 | 0.1 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.07 |
| TRANS-2-BUTENE | 1 | 0.9 | 0.3 | 1 | 0.2 | 0.3 | 1 | 0.3 | 0.31 |
| BENZENE | 10 | 14.7 | 4.8 | 48 | 16.6 | 26.3 | 58 | 16.3 | 14.65 |
| TOLUENE | 24 | 35.1 | 11.4 | 14 | 4.7 | 7.5 | 38 | 10.5 | 9.42 |
| ISOPENTANE | 11 | 16.0 | 5.2 | 8 | 2.8 | 4.4 | 19 | 5.3 | 4.74 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 5 | 6.7 | 2.2 | 0 | 0.0 | 0.0 | 5 | 1.3 | 1.14 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 2 | 2.8 | 0.9 | 1 | 0.4 | 0.6 | 3 | 0.8 | 0.74 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 1 | 1.5 | 0.5 | 1 | 0.3 | 0.4 | 2 | 0.5 | 0.46 |
| 4-METHYL-2-PENTENE | 1 | 1.5 | 0.5 | 1 | 0.3 | 0.4 | 2 | 0.5 | 0.45 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 1 | 2.1 | 0.7 | 3 | 0.9 | 1.4 | 4 | 1.1 | 1.01 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 3 | 4.9 | 1.6 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.84 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 2 | 3.3 | 1.1 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.56 |
| METHYLCYCLOPENTANE | 1 | 1.6 | 0.5 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.27 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 6 | 8.8 | 2.8 | 10 | 3.3 | 5.3 | 16 | 4.4 | 3.93 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYLPENTANE | 11 | 16.8 | 5.4 | 10 | 3.5 | 5.6 | 22 | 6.0 | 5.43 |
| N-HEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 3 | 4.2 | 1.4 | 4 | 1.2 | 1.9 | 6 | 1.8 | 1.60 |

TABLE Q-6 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-26

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 2 | 3.1 | 1.0 | 4 | 1.2 | 1.9 | 6 | 1.6 | 1.42 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 3 | 4.7 | 1.5 | 3 | 0.9 | 1.5 | 6 | 1.6 | 1.49 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 8 | 12.2 | 3.9 | 5 | 1.7 | 2.7 | 13 | 3.7 | 3.32 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 4 | 6.1 | 2.0 | 0 | 0.0 | 0.0 | 4 | 1.2 | 1.04 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 1 | 1.9 | 0.6 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.32 |
| 2,3-DIMETHYLOCTANE | 1 | 2.0 | 0.6 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.34 |
| O-ETHYLTOLUENE | 1 | 2.0 | 0.7 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.35 |
| 1,2,4-TRIMETHYLBENZENE | 2 | 3.2 | 1.0 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.55 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 3 | 4.6 | 1.5 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.78 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 4 | 5.5 | 1.8 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.95 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| FORMALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETALDEHYDE | — | — | — | — | — | — | 3 | 0.9 | 0.80 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 2 | 0.5 | 0.43 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

## TABLE Q-7. COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-27

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| METHANE | 59 | 86.7 | 27.7 | 39 | 13.4 | 22.2 | 98 | 27.4 | 24.95 |
| ETHYLENE | 8 | 11.4 | 3.6 | 10 | 3.3 | 5.5 | 17 | 4.9 | 4.44 |
| ETHANE | 11 | 16.6 | 5.3 | 5 | 1.9 | 3.1 | 17 | 4.7 | 4.26 |
| ACETYLENE | 0 | 0.3 | 0.1 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.06 |
| PROPANE | 0 | 0.4 | 0.1 | 0 | 0.0 | 0.0 | 0 | 0.1 | 0.06 |
| PROPYLENE | 5 | 7.6 | 2.4 | 3 | 1.1 | 1.8 | 8 | 2.3 | 2.14 |
| 1,3-BUTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOBUTANE | 0 | 0.2 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.03 |
| BUTANE | 14 | 20.4 | 6.5 | 6 | 2.1 | 3.5 | 20 | 5.6 | 5.12 |
| 1-BUTENE | 1 | 1.8 | 0.6 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.31 |
| ISOBUTYLENE | 3 | 3.8 | 1.2 | 2 | 0.7 | 1.1 | 4 | 1.2 | 1.14 |
| CIS-2-BUTENE | 0 | 0.6 | 0.2 | 0 | 0.1 | 0.2 | 1 | 0.2 | 0.19 |
| TRANS-2-BUTENE | 1 | 1.3 | 0.4 | 0 | 0.1 | 0.2 | 1 | 0.3 | 0.30 |
| BENZENE | 12 | 17.6 | 5.6 | 21 | 7.2 | 11.9 | 33 | 9.2 | 8.36 |
| TOLUENE | 23 | 34.0 | 10.9 | 18 | 6.2 | 10.2 | 41 | 11.5 | 10.45 |
| ISOPENTANE | 3 | 3.8 | 1.2 | 16 | 5.4 | 8.9 | 18 | 5.1 | 4.64 |
| 1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PENTANE | 1 | 1.4 | 0.5 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.25 |
| 2-METHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ISOPRENE(2-METHYL-1,3-BUTADIENE) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CIS-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYL-2-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2-DIMETHYLBUTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| CYCLOPENTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLBUTANE | 4 | 5.5 | 1.7 | 6 | 2.2 | 3.7 | 10 | 2.8 | 2.59 |
| 2,3-DIMETHYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLPENTANE | 2 | 2.7 | 0.8 | 2 | 0.6 | 1.1 | 4 | 1.0 | 0.93 |
| 4-METHYL-2-PENTENE | 2 | 2.6 | 0.8 | 2 | 0.6 | 1.0 | 4 | 1.0 | 0.91 |
| MTBE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLPENTANE | 1 | 1.2 | 0.4 | 1 | 0.2 | 0.3 | 1 | 0.4 | 0.35 |
| 2-METHYL-1-PENTENE/1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| HEXANE | 2 | 2.8 | 0.9 | 5 | 1.8 | 3.0 | 7 | 2.0 | 1.84 |
| C6 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLPENTANE | 2 | 2.4 | 0.8 | 4 | 1.2 | 2.0 | 5 | 1.4 | 1.32 |
| METHYLCYCLOPENTANE | 1 | 1.0 | 0.3 | 2 | 0.6 | 1.1 | 3 | 0.7 | 0.66 |
| CYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOPENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYL-1,3-PENTADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3-DIMETHYLPENTANE/2-METHYLHEXANE | 3 | 4.1 | 1.3 | 4 | 1.3 | 2.2 | 7 | 1.8 | 1.68 |
| CYCLOHEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 5-METHYL-2-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLHEXANE | 2 | 2.9 | 0.9 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.51 |
| 2,2,4-TRIMETHYLPENTANE | 4 | 5.5 | 1.7 | 3 | 1.0 | 1.7 | 7 | 1.9 | 1.72 |
| N-HEPTANE | 2 | 2.4 | 0.8 | 3 | 0.9 | 1.5 | 4 | 1.2 | 1.07 |
| 2,4,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,4-TRIMETHYL-1-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| METHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4,4-TRIMETHYL-2-PENTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4/2-5-DIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,4-TRIMETHYLPENTANE | 1 | 2.2 | 0.7 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.38 |

TABLE Q-7 (CONT'D). COLD-START HYDROCARBON SPECIATION FOR THE TOYOTA CELICA, TEST NO. CS-VAH-27

| COMPOUND | BAG 1A | | | BAG 1B | | | BAG 1 TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % | MG | MG/MI | WEIGHT % |
| 2,3,3-TRIMETHYLPENTANE | 1 | 1.6 | 0.5 | 0 | 0.0 | 0.0 | 1 | 0.3 | 0.29 |
| 2-METHYL-3-HEPTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3,5,5-TRIMETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-/4-METHYLHEPTANE | 2 | 2.9 | 0.9 | 0 | 0.0 | 0.0 | 2 | 0.6 | 0.51 |
| 3-METHYLHEPTANE | 1 | 2.0 | 0.6 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.35 |
| 2,5-DIMETHYL-1,5-HEXADIENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,2,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-ETHYL-1-HEXENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-CIS-4-DIMETHYLCYCLOHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| OCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,3,5-TRIMETHYLHEXANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,4-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2,5/3,5-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| ETHYLBENZENE | 5 | 7.3 | 2.3 | 6 | 2.1 | 3.4 | 11 | 3.1 | 2.80 |
| 2,3-DIMETHYLHEPTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-XYLENE/M-XYLENE | 13 | 19.2 | 6.1 | 10 | 3.3 | 5.5 | 23 | 6.3 | 5.78 |
| 2-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 3-METHYLOCTANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-XYLENE | 5 | 8.0 | 2.6 | 5 | 1.6 | 2.6 | 10 | 2.8 | 2.53 |
| NONANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| TRANS-2-NONENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| PROPYLBENZENE | 1 | 2.1 | 0.7 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.36 |
| 2,3-DIMETHYLOCTANE | 3 | 4.7 | 1.5 | 0 | 0.0 | 0.0 | 3 | 0.9 | 0.82 |
| O-ETHYLTOLUENE | 1 | 1.9 | 0.6 | 0 | 0.0 | 0.0 | 1 | 0.4 | 0.33 |
| 1,2,4-TRIMETHYLBENZENE | 6 | 9.2 | 2.9 | 4 | 1.5 | 2.4 | 11 | 2.9 | 2.68 |
| ISOBUTYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| DECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| P-CYMENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| INDAN(E) | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 4-PHENYL-1-BUTENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| M-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1-METHYL-3-PROPYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| N-BUTYLBENZENE/P-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| O-DIETHYLBENZENE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 2-METHYLDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| BICYCLOPENTYL | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| UNDECANE | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| 1,3,5-TRIMETHYLBENZENE | 2 | 3.6 | 1.1 | 0 | 0.0 | 0.0 | 2 | 0.7 | 0.62 |
| C7 OLEFINS | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.00 |
| C8-C9 OLEFINS | 4 | 5.6 | 1.8 | 0 | 0.0 | 0.0 | 4 | 1.1 | 0.97 |
| C9-C11 PARAFFINS, OLEFINS, AROMATICS | 2 | 2.3 | 0.7 | 0 | 0.0 | 0.0 | 2 | 0.4 | 0.40 |
| FORMALDEHYDE | — | — | — | — | — | — | 0 | 0.1 | 0.10 |
| ACETALDEHYDE | — | — | — | — | — | — | 2 | 0.4 | 0.38 |
| ACROLEIN | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ACETONE | — | — | — | — | — | — | 2 | 0.5 | 0.44 |
| PROPIONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| CROTONALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| ISOBUTYRALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| METHYL ETHYL KETONE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| BENZALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |
| HEXANALDEHYDE | — | — | — | — | — | — | 0 | 0.0 | 0.00 |

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