

**BANYUR16**

|  | Whole<br>crude | Butane<br>and<br>Lighter<br>IBP - 60F | Lt.<br>Naphtha<br>C5 - 165F | Hvy<br>Naphtha<br>165 -<br>330F | Kerosene<br>330 -<br>480F | Diesel<br>480 -<br>650F | Vacuum<br>Gas Oil<br>650 -<br>1000F | Vacuum<br>Residue<br>1000F+ |
|--|----------------|---------------------------------------|-----------------------------|---------------------------------|---------------------------|-------------------------|-------------------------------------|-----------------------------|
| Cut volume, %                              | 100.0          | 0.0                                   | 0.8                         | 5.7                             | 13.3                      | 35.4                    | 38.7                                | 6.1                         |
| API Gravity,                               | 32.0           | 113.0                                 | 69.4                        | 46.0                            | 38.2                      | 33.5                    | 30.0                                | 13.3                        |
| Specific Gravity (60/60F),                 | 0.865          | 0.579                                 | 0.704                       | 0.797                           | 0.834                     | 0.857                   | 0.876                               | 0.977                       |
| Carbon, wt %                               | 86.7           | 82.7                                  | 84.0                        | 88.0                            | 86.8                      | 86.8                    | 86.4                                | 86.8                        |
| Hydrogen, wt %                             | 13.0           | 17.3                                  | 16.0                        | 12.0                            | 13.2                      | 12.9                    | 13.2                                | 12.3                        |
| Pour point, F                              | 80.6           |                                       |                             | (105.3)                         | (42.5)                    | 31.0                    | 121.3                               | 123.8                       |
| Neutralization number (TAN), MG/GM         | 0.048          | -                                     | 0.002                       | 0.079                           | 0.039                     | 0.020                   | 0.057                               | 0.139                       |
| Sulfur, wt%                                | 0.305          | 0.003                                 | 0.015                       | 0.034                           | 0.059                     | 0.312                   | 0.330                               | 0.814                       |
| Viscosity at 20C/68F, cSt                  | 55.2           | 0.5                                   | 0.6                         | 0.9                             | 1.9                       | 5.4                     | 44.3                                | 272,939.6                   |
| Viscosity at 40C/104F, cSt                 | 8.9            | 0.4                                   | 0.5                         | 0.7                             | 1.4                       | 3.4                     | 19.2                                | 20,058.6                    |
| Viscosity at 50C/122F, cSt                 | 4.9            | 0.4                                   | 0.5                         | 0.7                             | 1.3                       | 2.8                     | 13.7                                | 7,058.4                     |
| Mercaptan sulfur, ppm                      | 75.0           | 26.1                                  | 96.2                        | 109.7                           | 118.7                     | 30.7                    | 4.0                                 | 0.1                         |
| Nitrogen, ppm                              | 324.8          | -                                     | -                           | 0.0                             | 0.3                       | 28.1                    | 400.0                               | 2,280.3                     |
| CCR, wt%                                   | 1.5            |                                       |                             |                                 |                           |                         | 0.2                                 | 19.9                        |
| N-Heptane Insolubles (C7 Asphaltenes), wt% | 0.2            |                                       |                             |                                 |                           |                         | -                                   | 3.1                         |
| Nickel, ppm                                | 0.2            |                                       |                             |                                 |                           |                         |                                     | 3.2                         |
| Vanadium, ppm                              | 0.2            |                                       |                             |                                 |                           |                         |                                     | 2.3                         |
| Calcium, ppm                               | 4.5            |                                       |                             |                                 |                           |                         |                                     |                             |
| Reid Vapor Pressure (RVP) Whole Crude, psi | 1.2            |                                       |                             |                                 |                           |                         |                                     |                             |
| Hydrogen Sulfide (dissolved), ppm          | -              |                                       |                             |                                 |                           |                         |                                     |                             |
| Salt content, ptb                          | 2.9            |                                       |                             |                                 |                           |                         |                                     |                             |
| Paraffins, vol %                           | 47.3           | 100.0                                 | 79.2                        | 28.7                            | 44.8                      | 47.6                    | 54.6                                | 12.2                        |
| Naphthenes, vol %                          | 22.5           | -                                     | 20.8                        | 24.3                            | 24.1                      | 25.1                    | 20.7                                | 14.5                        |
| Aromatics (FIA), vol %                     | 30.2           | -                                     | -                           | 47.0                            | 31.0                      | 27.3                    | 24.7                                | 73.4                        |
| Distillation type, TBP                     |                |                                       |                             |                                 |                           |                         |                                     |                             |
| IBP, F                                     | 151.5          |                                       | 68.7                        | 166.4                           | 331.8                     | 481.1                   | 650.9                               | 1,000.8                     |
| 5 vol%, F                                  | 290.1          |                                       | 81.3                        | 177.1                           | 347.4                     | 490.9                   | 659.6                               | 1,008.4                     |
| 10 vol%, F                                 | 400.0          |                                       | 101.0                       | 187.6                           | 363.0                     | 501.2                   | 669.4                               | 1,017.2                     |
| 20 vol%, F                                 | 481.5          |                                       | 124.9                       | 205.9                           | 387.6                     | 520.2                   | 690.0                               | 1,036.4                     |
| 30 vol%, F                                 | 535.8          |                                       | 132.8                       | 222.4                           | 405.6                     | 537.7                   | 712.0                               | 1,058.3                     |
| 40 vol%, F                                 | 580.7          |                                       | 139.1                       | 237.9                           | 419.9                     | 554.0                   | 735.9                               | 1,083.5                     |
| 50 vol%, F                                 | 625.3          |                                       | 144.3                       | 253.2                           | 432.0                     | 569.7                   | 762.1                               | 1,113.4                     |
| 60 vol%, F                                 | 674.3          |                                       | 149.3                       | 268.3                           | 442.9                     | 585.2                   | 791.6                               | 1,149.8                     |
| 70 vol%, F                                 | 731.6          |                                       | 153.5                       | 283.6                           | 453.0                     | 600.7                   | 825.7                               | 1,196.1                     |
| 80 vol%, F                                 | 805.0          |                                       | 157.7                       | 299.0                           | 462.4                     | 616.6                   | 866.9                               | 1,258.6                     |
| 90 vol%, F                                 | 920.4          |                                       | 161.4                       | 314.5                           | 471.4                     | 633.0                   | 920.5                               | 1,349.5                     |
| 95 vol%, F                                 | 1,033.2        |                                       | 163.2                       | 322.3                           | 475.7                     | 641.4                   | 955.4                               | 1,411.7                     |
| EP, F                                      | 1,370.8        |                                       | 164.8                       | 329.2                           | 479.6                     | 649.1                   | 994.9                               | 1,497.4                     |
| Freeze point, F                            |                |                                       |                             | (93.7)                          | (30.3)                    | 43.2                    |                                     |                             |
| Smoke point, mm                            |                |                                       |                             | 23.4                            | 18.3                      | 14.3                    |                                     |                             |
| Naphthalenes (D1840), vol%                 |                |                                       |                             |                                 | 9.1                       | 15.4                    |                                     |                             |
| Viscosity at 100C/212F, cSt                | 0.9            | 0.3                                   | 0.3                         | 0.4                             | 0.8                       | 1.4                     | 4.1                                 | 204.2                       |
| Viscosity at 150C/302F, cSt                | 0.4            | 0.2                                   | 0.3                         | 0.3                             | 0.5                       | 0.9                     | 2.0                                 | 29.5                        |
| Cetane Index 1990 (D4737),                 |                |                                       |                             | 14.4                            | 37.4                      | 52.8                    |                                     |                             |
| Cloud point, F                             |                |                                       |                             | (101.0)                         | (35.7)                    | 36.7                    |                                     |                             |
| Aniline pt, F                              |                |                                       |                             |                                 | 122.4                     | 161.3                   | 214.4                               |                             |