

# Oil Condition Monitoring Program Tests



Oil condition and lubricants quality monitoring tests.

Intertek international company , Petroleum Quality Control Engineering Section provides a wide range of quality control tests for lubricants and oils , helping protect valuable machinery , power trains , large engines , and other equipment from expensive failure , unplanned downtime and severe damage from contaminated or dirty lubricants.

Oil condition monitoring laboratories work with clients on YEKTA oil & gas private company and test to ASTM, ISO, IP, DIN, in- house, and client methods .

## Lubricants oil condition monitoring tests :

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| Lubricant Tests :                          | Unit              | ASTM        | IP :    | Other:             |
|--------------------------------------------|-------------------|-------------|---------|--------------------|
| Acid Number                                | mgKOH/mg          | D664 , D974 | 177,139 | ISO 6619, ISO 6618 |
| Air Release Test                           |                   | D3427       | 313     | ISO 9120           |
| Appearance                                 |                   | Visual      |         |                    |
| Ash                                        | % wt              | D482        | 4       | ISO 6245           |
| Ash Sulfated Residue                       |                   | D874        | 163     | ISO 3987           |
| Ball Rust Test                             |                   | D6557       |         |                    |
| Base Number                                |                   | D2896,D4739 | 276     | ISO 3771           |
| Blotterspot Test                           |                   |             |         |                    |
| Boiling Range Distribtion                  |                   | D6352       |         |                    |
| Brookfield Viscosity                       |                   | D2983       |         |                    |
| Chlorine (Bomb Method)                     |                   | D808        |         |                    |
| Cloud Point                                | <sup>0</sup> C    | D2500       | 219     | ISO 3015           |
| Color                                      |                   | D1500       | 196     | ISO 2049           |
| Conradson Carbon Residue                   |                   | D4530       | 398     | ISO 10370          |
| Corrosion Bench Test                       |                   | D5968       |         |                    |
| Corrosion Bench Test (HT)                  |                   | D6594       |         |                    |
| Demulsification Number                     |                   | -           | 19      |                    |
| Density 15 <sup>0</sup> C                  | Kg/m <sup>3</sup> | D4052       | 365     | ISO 12185          |
| Emulsion Characteristics of petroleum oils |                   | D1401       |         | ISO 6614           |
| Ferrography PQ – Index                     |                   | -           |         | PQ-Index           |
| Ferrography – Analytical                   |                   | -           |         |                    |
| Flash Point (COC)                          | <sup>0</sup> C    | D92         | 36      | ISO 2592           |
| Flash Point (PM)                           | <sup>0</sup> C    | D93         | 34      | ISO 2719           |

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| Lubricant Tests :                    | Unit           | ASTM        | IP : | Other:                            |
|--------------------------------------|----------------|-------------|------|-----------------------------------|
| Flash Point Setaflash                | <sup>0</sup> C | D3828       | 303  | ISO 3680                          |
| Foaming Characteristics of Lub , oil |                | D892        | 146  |                                   |
| Fuel Dilution                        |                |             | 23   | FTIR                              |
| Fuel Dilution , Fast ,               |                |             |      | Perkin Elmer Method               |
| Gel Index                            |                | D5133       |      |                                   |
| Glycol, GLC, FTIR                    |                | D2982       |      | DIN 51375-1, GC – Headspace, FTIR |
| Glycol Glytek                        |                |             |      |                                   |
| High Temp High Shear Viscosity       |                | D4683,D6616 |      |                                   |
| Infrared Scan                        |                |             |      | FTIR                              |
| Insolube in Pentane                  |                | D893,D4055  |      |                                   |
| Insolube in Toluene                  |                | D893        |      |                                   |
| KRL Tapered Bearing Shear Loss       |                |             |      | CEC-L-45-A-99                     |
| Kurt Orbahn Injector Shear Loss      |                | D6278,D7109 |      | CEC-L-14-A-93                     |
| Metals(additive)                     |                | D6443,D4927 |      |                                   |
| Metals(wear + additive)              |                | D4951,D5185 |      |                                   |
| Millipore Filtration                 |                |             |      | ISO 4405                          |
| Minirotary Viscometer                |                | D4684       |      |                                   |
| Nitration                            |                |             |      | IR 1959/2132                      |
| Nitrogen                             |                | D4629,D5762 |      |                                   |
| NOACK(Selby)                         |                | D5800       |      |                                   |
| Oxidation Induction Time (PDSC)      |                | D6186       |      | CEC-L-85-T-99                     |
| Oxidation test for Lub. Oil          |                | D943        | 48   |                                   |
| Oxidation / Nitration , using FTIR   |                |             |      | In-house, DIN 51453               |

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| Lubricant Tests :                                | Unit | ASTM                 | IP : | Other:                    |
|--------------------------------------------------|------|----------------------|------|---------------------------|
| Particle Count                                   |      |                      |      | ISO 4406,4407,NAS         |
| Particulate matter                               |      | D5452 M              |      |                           |
| PCB's                                            |      |                      |      | IVM 87,DIN<br>51527/BAGA  |
| Peroxide Number                                  |      | D3703                |      |                           |
| Phosphorous                                      |      | D4951                |      |                           |
| Pour Point                                       |      | D97                  | 15   | ISO 3016                  |
| Precipitation Number                             |      | D91                  |      |                           |
| Ramsbottom Carbon Residue                        |      | D524                 | 14   | ISO 4262                  |
| Rotating Pressure Vessel Oxidation Test (RBOT)   |      | D2272                |      |                           |
| Rust Preventing Test (Proc . A or B)             |      | D665                 | 135  | ISO 7120                  |
| Saponification No.                               |      | D94                  | 136  | ISO 6293                  |
| Soot , Soot (TGA)                                |      | D5967                |      | DIN 51452,FTIR,<br>Wilkes |
| Specific Gravity                                 |      | D287,D1298           |      |                           |
| Sulfur                                           |      | D2622,D4294<br>D5453 |      |                           |
| Sulfur (Bomb)                                    |      | D129                 | 61   |                           |
| Thermal Stability of Heat Transfer Fluids        |      | D6743                |      |                           |
| Thermo – Oxidation of Engine Oil Simulation Test |      | D6335,D7097          |      |                           |
| Trace Sediment                                   |      | D2273                |      |                           |
| Viscosity 20 °C – 100 °C                         |      | D445                 | 71   | ISO 3104                  |
| Viscosity Houillon 40 °C – 100 °C                |      |                      |      |                           |
| Viscosity Index                                  |      | D2270                | 226  | ISO 2909                  |
| Volatility of Oils                               |      | D6417                |      |                           |
| Water                                            |      | D95                  | 74   | ISO 3733,BS 4385          |
| Water Karl Fischer                               |      | E1064 M ,<br>D6304   |      |                           |

**Additional testing for Fresh lubes :**

| <b>Description</b>                       | <b>Method</b> |
|------------------------------------------|---------------|
| High Temperature Foaming                 | D6082         |
| Homogeneity & Miscibility                | D6922         |
| Volatility Loss                          | CEC L-40      |
| CCS                                      | D5293         |
| Nitrogen                                 | D3228,D4629   |
| Kinematic viscosity @ - 40 (Brake Fluid) | D 445         |
| Copper Strip Corrosion                   | D130          |
| Chloride                                 | D4929,UOP 779 |