

# Oil Analysis Packages

TECHENOMICS your Condition Monitoring Partners

Techenomics International

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Oil Analysis is the analytical results of a lubricants property, suspended contaminants and wear debris. Oil Analysis is performed during routine Preventative Maintenance to provide meaningful and accurate information on lubricants and the machine condition. Oil analysis is the best tool to penetrate into the working heart of the equipment to reveal vital information about its condition and performance.

Techenomics laboratories are capable of analyzing many different types of lubricants (both petrol and diesel engines) from mining companies, power stations, agricultural machinery, paper mills, offshore, marine, road and rail freight companies. Techenomics has the ability to analyze these lubricants by numerous testing methods and procedures, from ASTM standards to in-house testing methods, all of which produce accurate and high quality results to help in diagnosing the performance and characteristics of the lubricant as well as the machinery health.

Investigations and reporting of the lubricants fundamentals and ability to perform its duties are evaluated by the laboratory chemists, these results and comments are then viewed by the chief chemist before being evaluated by the mechanical failure analyze team. Once all parties have agreed with the outcome and commentary in the report, it is then sent to the client via email and then uploaded to the Online Blue Oceans Software that allows clients to view historical data anytime they like. Emergency testing can be reported on within one working day from the receipt of the sample, at a minimum of 1 hour to a maximum of 16 hours.

Oil Analysis, if used correctly, can provide maintenance personnel with the ability to improve availability rates on equipment, lower downtime and save extraordinary amounts of money that could be used on other maintenance requirements.



Blue Oceans Software



Techenomics specialises in providing oil analysis services, and specialty lubricants to the mining industry.



By implementing a regular magnetic plug inspection program you will have a very low cost, effective and immediate early warning condition monitoring tool.



Techenomics filtration services can assist companies with the design and installation of a range of fuel and oil filtration solutions.

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It is a known fact that when there is a problem, almost 80 to 90% of the time, the oil carries details and early warning signs of potential problems or failures; this is generally why companies have their oils analyzed. Just as the oil carries the information, so too does the coolant, grease and fuels, they all carry tell tale signs of potential problems or issues within compartments that can easily be rectified or corrected should you have the lubricant analyzed.

The advantage of using Techenomics to analyze your lubricants, is that Techenomics provide solutions, that is solutions that are associated or in conjunction with Oil Analysis. Techenomics analyze the sample just as the other laboratories, but it's what Techenomics do with the data interpretation that stands out from the rest. To evaluate the sample, Techenomics combine both the laboratory chemists and the maintenance engineers knowledge to evaluate each and every sample, this combination of experience provides our clients with highly detailed insight information into the sample results that could prevent future failures or component damage from occurring. The skill base that lies within Techenomics teams are well in access of more than 300 years of combined technical experience, this has an effect on the sample process, this has an effect on the outcome of the sample and plays a large part in providing knowledge and information to preventative maintenance personnel that is looking at reducing downtime on their equipment and trying to achieve a higher and more effective availability rate.



Online Client Viewer



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## Oil Test Package

| TESTS   | TECHNIQUE                            | STANDARD        |
|---|--------------------------------------|-----------------|
| Wear metals & additives<br>(Pb, Fe, Cr, Al, Ni, Cu, Sn, Si, Na, B, Mg, Ca, P, Zn) | Rotating Disk Electrode Spectrometer | ASTM D6595      |
| Oxidation, Sulphation, Nitration and Glycol                                       | FTIR                                 | ASTM D7418      |
| Low level water, % water, quantitative water                                      | Crackle, Hatch and Karl Fischer      | ASTM D6034      |
| Hydraulic Cleanliness   | Laser Particle Counter               | ISO 4006        |
| Viscosity   | Spectro Visc Viscometer              | ASTM D445       |
| PQ90  | Ferrous Debris Analyser              | N/A             |
| Quantitative Fuel %   | Flash Tester                         | ASTM D3828      |
| TBN / TAN   | Total Base & Acid Number             | ASTM 2896 / 664 |



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## Fuel Test Package

| TESTS                            | STANDARD                 |
|----------------------------------|--------------------------|
| Elements(Al,Fe,Cu,Pb,Si,Mg,Ca,P) | ASTM D5185               |
| Distillation                     | ASTM D86                 |
| Cetane Index(Calculated)         | ASTM D4737               |
| Appearance                       | ASTM D4176               |
| Colour                           | ASTM D1500               |
| Copper Corrosion                 | ASTM D130                |
| Density                          | ASTM D4052/(ASTM D 1298) |
| Flash Point                      | ASTM D93                 |
| Acidity                          | ASTM D664                |
| Viscosity                        | ASTM D445                |
| Water & Sediment                 | ASTM D2709/(ASTM D 473)  |



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## Coolant Test Package

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|---|--------------------------------------|-----------------|
| Wear metals & additives<br>(Pb, Fe, Cr, Al, Ni, Cu, Sn, Si, Na, B, Mg, Ca, P, Zn) | Rotating Disk Electrode Spectrometer | ASTM D6595      |
| Ethylene Glycol %/Freeze point (°c)   | Refractometer                        | N/A             |
| Molybdate   | Test Strips                          | ISO 4006        |
| pH  | Test Strips/pH Meter                 | ASTM D445/D1287 |
| Nitrate   | Test Strips                          | N/A             |
| Colour  | Manual Human Eye                     | N/A             |
| Appearance  | Manual Human Eye                     | N/A             |
| Odour   | Manual Human Odour                   | N/A             |
| Reserve Alkalinity  | Titration                            | ASTM D1121      |
| Freeze Point  | Refractometer                        | ASTM D3321      |
| Density   | Hydrometer                           | ASTM D1122      |
| Boiling Point   | Heating                              | ASTM D1120      |



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## Grease Test Package

| TESTS  | STANDARD   |
|--|------------|
| Wear metals ,Contaminants & Additives<br>(Pb,Fe,Cr,Al,Ni,Cu,Sn,Si,Na,B,Mg,Ca,P,Zn) | ASTM D6595 |
| PQ90   | N/A        |
| Microscopic Analysis   | N/A        |
| Water Content  | ASTM D6304 |



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## Transformer Test Package

| TEST                | METHOD      |
|---------------------|-------------|
| Dielectric Strength | IEC 156     |
| Total Acid Number   | ASTM D 974  |
| Water Content       | ASTM D 6304 |
| Flash Point         | ASTM D 93   |



Online Client Viewer

## Turbine Test Package

| TESTS  | STANDARDS     |
|--|---------------|
| Viscosity  | ASTM D445     |
| Wear metals ,Contaminants & Additives<br>(Pb,Fe,Cr,Al,Ni,Cu,Sn,Si,Na,B,Mg,Ca,P,Zn) | ASTM D6595    |
| Oxidation,Sulphation,Nitration,Glycol  | ASTM D7418    |
| Moisture By KF   | ASTM D6304    |
| Hydraulic Cleanliness  | ISO 4006      |
| TBN/TAN  | ASTM 2896/664 |



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