

# OiLibya Technical Assistance Program

**Libya Oil** is focusing on providing its customers the best performance and best efficiency not only from its innovative products/services but also from its technical expertise. We do not only distribute lubricants but we offer a top-notch expertise of lubrication engineering to find out the saving opportunity in every aspect of your maintenance.

Libya Oil is aiming to build a privileged partnership with its customers to support them achieving their objectives and focusing on plant-wide cost reduction:

- Less Unscheduled Downtime
- Less ENERGY Consumption
- Less Machine Replacement Parts
- Less Labor Costs
- Less Purchasing Costs
- Less Lubricant Consumption and Waste
- Increase Productivity Rate of Acceptable Goods
- More Effective Maintenance Control

Here are the most common technical activities and programs that Libya Oil can implement to reach its customers objectives:

| <b>OiLibya Services</b>                    | <b>Service Description</b>  |
|--|---|
| <b>Technical Training</b>                  | <ul style="list-style-type: none"> <li>• Develop Lubrication skills &amp; competencies</li> <li>• Teaching specific lubrication practical skills</li> <li>• Improvement of technical capability &amp; capacity</li> </ul>   |
| <b>OiLibya Diagnostic Services</b>         | <ul style="list-style-type: none"> <li>• Mobile Unit for engine inspection on sight</li> <li>• Consists of engine diagnostics &amp; emission analysis</li> </ul>  |
| <b>Gear Inspection</b>                     | <ul style="list-style-type: none"> <li>• Providing a systematic evaluation &amp; Recording the conditions of gear set on a regular ongoing basis through advanced material: IR heat gun vibration analyzer, stroboscope &amp; camera</li> </ul>                             |
| <b>Contamination Control Program (CCP)</b> | <ul style="list-style-type: none"> <li>• For Hydraulic, Gear &amp; Circulation big systems</li> <li>• Inspection for contamination sources, contamination level assessment, action recommendations &amp; cleanliness levels based on EB &amp; Filtration Process</li> </ul> |
| <b>Used Oil Analysis</b>                   | <ul style="list-style-type: none"> <li>• An effective predictive maintenance program based on condition monitoring through oil analysis determining both machine condition and lubricant conditions</li> </ul>  |

|   |  |
|---|--|
| <b>Plant survey program(Audit plan)</b> | <ul style="list-style-type: none"><li>• Plant survey by equipment linked with EB recommendations (lubricants) and the actual used lubricant</li><li>• Technical recommendations &amp; Lubes chart</li></ul>                  |
| <b>Storage and Handling program</b>     | <ul style="list-style-type: none"><li>• An effective process to preserve product integrity and avoid any mishandling of lubricants</li><li>• Avoid wrong product identification and protect against health hazards</li></ul> |

## **A-Training**

Libya Oil is investing to assure the training its partner's staff in order to develop their lubrication knowledge and capabilities and to make them sensitive on the various aspects of the lubrication. The technicians do need only the right products and lubrication equipment; they also need a strong knowledge about lubricant function, handling, and application to perform their job effectively.

To this end Libya Oil have several advanced modules adapted for lubes training/seminars & clinics such as:

- Lubrication Fundamentals
- Base Oils & Additives
- Oil Specifications
- Engine Lubrication
- Transmission oils
- Hydraulic & Industrial Gear Lubricants
- Compressor and Turbine Oils
- Greases
- Open Gear Products
- Contamination Control Programs
- Handling & Storage Procedures
- How to Reduce Item Numbers
- Others following your Needs

### **Potential benefits could include the following:**

- Increased competency of plant personnel
- Increased equipment life, reliability and availability through effective and efficient lubrication practices
- Application of classroom training to field situations
- Opportunity for plant personnel to learn and exchange useful information, and resolve lubrication related problems

- Plant personnel updated on most current industry knowledge and experience applicable to basic lubrication topics
- Access to a valuable resource of lubrication-related knowledge

## B-Used Oil Analysis Program

OiLibya Used Oil Analysis Program is an advanced preventive maintenance program. It is a fast and simple program intended to guarantee the long-term productivity of your equipment and optimize the value of your investment.

Libya Oil offers to its partners advanced technical reports including comments of the analysis and technical recommendations. This advanced program will lead to:

- Increase equipment availability for production through reduced downtime
- Low cost of ownership due to reduced repair costs by predicting potential problems enabling maintenance planning
- Prevent premature component failure, maximize oil and filter life
- Reduce inventory for replacement/repair/maintenance parts
- Important to maintain a balance of lubricant performance vs. equipment risk

This program is compound by more than 25 ASTM oil test (Libya Oil certified lab):

In addition, Libya Oil will grant its privileged customers an online access to **Prolabys**, software of used oil result management. **Prolabys** is website based solution that will allow a time saving and avoid a potential data loss and assure in addition a better follow-up of the equipment history and statistics. With this software, our partners will also be able to read and edit online their analysis and receive automatic notifications of the results by E-mail.

## C-Gear Inspection Program

OiLibya Gear Inspection Program is an advanced preventive program which provides means of assessing the condition of critical gears in the industry such as cement plants, sugar industry, general manufacturing plants...

Gears represent an enormous investment in our customer business. Over time, conditions and everyday threats such as overload, misalignment, improper oil temperature, water from coolant leaks or from excessive condensation, and inadequate filtration practices can damage these critical components

It is a Consultative Service designed to provide an ongoing technical service based on systematic evaluation and recording of the condition of gear sets and their lubrication systems.

The Gear Inspection Program will allow our customers to:

- Inspect, report and document the condition of the plant's gears
- Document in each particular case the gear sets condition with the suitable techniques

The benefits of this program include:

- Reducing unscheduled downtime and increasing plant productivity
- Lower maintenance costs and fewer Gear replacements
- Better maintenance control



## D- On-Site Technical Troubleshooting

When your equipment performs below expectations, you need expertise on-site to identify and address such issues as machine overloads, shock loads, misalignment, incorrect temperatures, excessive vibration, and improper drain intervals, among other threats.

Libya Oil field engineers will allow to:

- Provide on-site technical troubleshooting of equipment lubrication and/or mechanical problems
- Have available a wide range of internal and external technical resources to assist in the troubleshooting
- Use current technology tools such as oil analysis, vibration analysis, and infrared temperature scanning...
- Work closely with plant and equipment builder personnel
- Analyze situations within the context of existing maintenance programs and data
- Capitalize on the synergy benefits of using plant personnel

## E- Contamination Analysis and Control Program:

Premature equipment failure is often caused by contamination in lubricant systems. By in fact contamination is one of the most significant contributors of component wear and lubricant degradation. In that context, Libya Oil lubes experts have implemented an advanced contamination analysis and control program to prevent equipment damages and avoid unscheduled downtime.

This service is intended to reduce parts replacement and maintenance expenses and to improve equipment reliability and increase productivity.

Libya Oil engineering staff works closely with plant personnel to identify lubrication systems suffering from frequent contamination (water, particles, harmful contaminants...) then to implement this program which consists of 4 phases:

**Phase 1:** Measure of cleanliness level by quantifying contamination level and class (NAS and ISO norms) through particle counting process. Compare the cleanliness class with OEM limits recommendations.

**Phase 2:** Identify contamination causes and recommend proactive methods to maintain target cleanliness level

**Phase 3:** The objective of this phase is to treat the oil through filtration in order to remove harmful contaminants and to maintain the cleanliness of the system.

#### Phase 4: Periodic contamination monitoring control program.

### F- OilLibya Diagnostic Services

Through its diagnostic services Libya Oil delivers an outstanding service for its B2B customers in different industry such as transport, construction, fleet, quarrying and agriculture segments.

This program is delivering through mobile unit equipped with high tech devices to control engine compression, smokes emission, electric compounds and default controls. This advanced service will allow inspecting, report and documenting the internal conditions of engines (mainly diesel) in order to fix:

- Inappropriate air/fuel ratios
- Fuel injection and turbocharger malfunctions
- Coolant leaks
- Excessive blow-by

#### The benefits of this program are:

- Reduced unscheduled downtime
- Increased productive capacity of the engines
- Lower maintenance labor costs and fewer engine replacement parts
- More effective maintenance control
- Reduced drastically fuel consumption
- Environmental improvements



## **G-Plant Survey Program**

OiLibya Plant Survey Program is consisting of an audit plant in term of lubrication requirements in order to implement a successful lubrication program in addition with best maintenance practices.

During this audit, OiLibya lubes engineers will:

- Conduct an audit of lubricant and lubrication with support of OEM operating manuals related to each equipment
- Review current lubrication practices, identify areas for improvement and communicate the results to local plant
- personnel
- Provide a comprehensive review and documentation of prevailing lubrication practices at the plant
- Apply their engineering and lubrication expertise to your operation
- Identify and record specific “suffering points” or problem
- Compare the results with other “Best-in-Class” operations in the same industry
- Provide written documentation with advanced lubes chart and actions recommendations such as implementing storage and handling policies, used oil analysis program...
- Stress on a strict focus on safety, health, and the environment.

### **The benefits of this service are:**

- Using right lubricant in line with OEM recommendation and in line with current operating conditions.
- More efficient and reliable equipment operation
- Longer equipment life
- Lower equipment maintenance costs
- Improved utilization of lubrication and maintenance staff
- Reducing lubricant items
- Optimized process

## **H-Storage and Handling Program**

An effective proactive maintenance program requires proper storage and handling of lubricants. Protecting your lubricants, and ultimately your equipment, from the harmful effects of contamination and lubricant degradation begins with an advanced plant storage program implementation.

Libya Oil experts can help you design a lubricant storage and handling system that maximizes efficiency and productivity while ensuring that the correct, clean and dry lubricant is properly delivered to the equipment.