Machinery Lubrication & Oil Analysis Fundamentals

Professional Training to Improve Machinery Reliability

Modern production equipment requires sophisticated lubrication management to ensure reliable, safe, and efficient operation. This series of three one-day, vendor-neutral training classes offered by LubeWorks and EPT will provide expert training on current best practices in lubricant management applicable to a wide range of industrial lubricant applications.

TRAINING COURSE SELECTION

- The Basics of Machinery Lubrication and Sampling for Oil Analysis
- Advanced Lubrication and Lubricant Selection
- Problem Solving Through Oil Analysis

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When Results Matter

4772 - 50 AVE SE, Calgary AB T2B 3R4, Canada **T** 403.246.3044 **E** sales@cleanoil.com

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ABOUT YOUR INSTRUCTOR

Bob Scott, LubeWorks

Bob Scott has over 30 years of technical experience working with lubricants, lubrication, and industrial machinery. Bob has been a professional trainer for over 12 years and has co-authored several key publications in the field, including The Practical Handbook of Machinery Lubrication, 4th Edition, 2012. Bob holds a BSc in Chemistry and numerous certifications: Formerly STLE Certified Lubrication Specialist (CLS) and Oil Monitoring Analyst (OMA) Level II. ICML - Machinery Lubrication Technician (MLT) Level II, Machinery Lubrication Analyst (MLA) Level III, Laboratory Lubricant Analyst (LLA) Level I.

Course Titles and Dates

THE BASICS OF MACHINERY LUBRICATION AND SAMPLING FOR OIL ANALYSIS – AN INTRODUCTION

• June 5, 2019: 8:00–5:00

ADVANCED LUBRICATION AND LUBRICANT SELECTION

• October 2, 2019: 8:00–5:00

PROBLEM SOLVING THROUGH OIL ANALYSIS

• November 20, 2019: 8:00–5:00

See detailed course outlines on next page. >>>

COST:

$425 per course, or $1100 for all three. Includes lunch and Course Booklet.
Space is limited to keep classes small and interactive.

COURSE LOCATION:

EPT (FIRST COURSE ONLY)
4772-50th Ave SE
Calgary, Alberta
T2B 3R4

EPT (NEW LOCATION FOR AUGUST 1, 2019)
3900-106 Ave SE, Bay 17
Calgary, Alberta
T2C 5B6

FOR REGISTRATION CONTACT:

Barbara Creighton

EPT
403-450-1760
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FOR COURSE DETAILS:

Bob Scott

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403-247-0556
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THE BASICS OF MACHINERY LUBRICATION AND SAMPLING FOR OIL ANALYSIS – An Introduction

TOPICS

- Reliability and Maintenance
- Functions of a Lubricant
- Finished Oil Composition: Base Oils, Additives
- Why Oil Needs to be Changed. Using oil analysis to predict oil life (ASTM D4378 for turbines)
- Proper Oil Operating Temperature and the Arrhenius equation
- Viscosity
- Oil Films and Surface Roughness
- Types and Function of
  - Journal Bearings
  - Rolling Element Bearings
  - Gears
  - Hydraulic Pumps
- Oil Application Methods
- Leakage (External)
- Engine Oil Classifications (SAE)
- Contamination: Particles & Water
- Contamination Control – Filtration. Filter efficiency vs micron size.
- Storage and Transfer
- Oil Analysis Introduction and Sampling
- Grease
- Grease Application
- Summary

ADVANCED LUBRICATION AND LUBRICANT SELECTION – One Day Course

TOPICS

- Reliability and Maintenance Strategies
- Finished Oil Composition: Base Oil Group Numbers, Synthetics, Additives
- Operating temperature, Oxidation. Filter sparking, Varnish and MPC Testing
- Bearings and Oil Films
- Viscosity
  - Viscosity (Minimums Required)
  - Creating and Using Viscosity–Temperature Charts to Select Oils. How oil operating temperature affects ISO viscosity grade selection.
- Selecting an Industrial Oil based on Test Data
- Contamination: Particles, Cleanliness Codes & Targets, Equipment Life based on Filtration, Filter Efficiency (Beta ratios)
- Contamination: Water, Targets, Equipment Life Extension, Removal
- Aeration – Causes, Treatments, Reservoir residence time, Impact of high and low oil level.
- Storage and Transfer of Lubricants
- Grease (optional, 1-1.5 hours)
  - Types, Properties
  - Selecting a Grease based on Test Data
  - Grease Application
- The Path Forward
- Creating a Plant Lube Manual
- Summary & Appendix

PROBLEM SOLVING THROUGH OIL ANALYSIS – One Day Course

TOPICS

- Introduction
  - Purposes of Oil Analysis (OA)
  - Analysis Options
  - Importance of ASTM test methods, Review ASTM D4378
- Sampling – What to Sample, Hardware, Locations, Tips, Procedure, Frequency
- Interpretation – Reading an Oil Analysis Report
- Example Problems
  - Oil Life - Oxidation and oil breakdown, Over-extended oil drain intervals
  - Varnishing, Filter sparking
  - Particle Contamination
  - Oil Cross-contamination
  - Water Contamination, Demulsibility and Treatment
  - Engine Dirt Contamination

We will discuss how these problems are detected in an OA report and how to deal with them (find a solution) in the field.

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