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TIARA
Reliability Solution

Certification Series

Oil Analysis level I

Most maintenance programs achieve only 10 percent of the benefits available from oil analysis. Learn how to get the most out of oil analysis by attending these powerful training sessions.

You Will Learn How To:

- Read and understand oil analysis reports
- Tell if you are using the wrong oil
- Squeeze maximum life out of lubricants
- Set optimum oil analysis limits
- Reduce oil consumption for easy, near-term savings

When & Where in 2007:

Level I

- 30 Oct - 1 Nov
Jakarta, Indonesia



+62216455586

Presented by:

NORIA
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Learn the “Best Practices” of Oil Analysis

Who Should Attend?

- All Maintenance Professionals
- Predictive Maintenance Technicians
- Reliability Engineers
- Lubrication Engineers
- Craftsmen and Millwrights
- Equipment Operators
- Maintenance Managers
- Operations Managers
- Vibration Instrument Specialists
- Manufacturing and Industrial Engineers
- Maintenance Supervisors
- Laboratory Analysts

Industries That Will Benefit From These Courses:

- Power Generation
- Petrochemical
- Pulp and Paper
- Primary Metals
- Process Manufacturing
- Automotive Manufacturing
- Transportation
- Earthmoving
- Municipal Utilities
- Aerospace
- General Manufacturing

If You Have Any of the Following Machines, This Training is a Must:

- Gear Boxes
- Hydraulic Systems
- Motor Bearings
- Compressors
- Final Drives
- Diesel Engines
- Paper Machines
- Process Pumps
- Steam Turbines
- Gas Turbines
- Blowers/Fans
- Rolling Mills
- Hydrostatic Transmissions

Expand Your Oil Analysis Skills

And Get Better Results...A Whole Lot Faster !

If you're like many users, you may already be winging your way around oil analysis. You may be using it exclusively to predict catastrophic failures. Or, you may be basing your oil drains on the recommendations of your oil analysis lab. Either way, you probably know there's a lot about oil analysis you haven't mastered ... and you might be wondering what you are missing. Wouldn't you like to know ALL about what oil analysis can do for you? Now you can!

You'll Learn More Than Just Oil Analysis

Extending oil and machine life are two of the primary goals of oil analysis, but analyzing the oil won't make the oil or machine last any longer. That's why Jim Fitch's proven strategy for extending machine and lubricant life by up to 10X is the cornerstone of this presentation. You will learn how to select the right lubricants and filters and how small adjustments to your lubricant properties can result in huge savings. Vibration and Oil Analysis - Learn the strategies of leading maintenance organizations for integrating vibration, reliability-centered maintenance and oil analysis.

Oil Analysis Blunders - Don't Let These Happen To You...

- A large steel mill wanted to get every machine ready for easy oil sampling. After installing more than 1,200 oil sampling ports, it started getting strange data on its oil analysis reports. After investigation, it was found that each of the new sample ports was installed in the wrong location.
- A lubrication technician was in charge of changing filters on several large hydraulic systems. He changed filters only when the differential pressure gauge indicated it was time. He noticed that one of the filters never seemed to need changing because the gauge never moved. After losing a couple of pumps, it was discovered that there was a large hole in the filter, which did not allow the pressure to rise.
- A company performing oil analysis for several years wondered why it was never able to detect bearing faults. After its program was audited, it was discovered that the tests being conducted were not capable of detecting impending failure. Instead, these tests were designed to identify wrong or degraded lubricants only.

What You Get When You Attend: Level I

Course Manual

When you leave the seminar, you'll consider this free course manual indispensable to your job. Each manual includes copies of the seminar slides, worksheets and real-world case studies.



Sample Frequency Generator

Noria's Exclusive Sample Frequency Generator is used in maintenance departments around the world to schedule optimum sampling frequencies.



Life Extension Table

Noria's Life Extension Table will show you how to achieve up to 10X machine life extension for hydraulic system components, diesel engines, rolling element bearings, journal bearings, turbo machinery and gearboxes.

Best Practices for Oil Sampling CD-ROM

The Best Practices for Oil Sampling CD-ROM explains the ins and outs of proper oil sampling. It can be used for training or to generate ideas that can be incorporated into your program.



Martin Williamson



Martin Williamson has more than 15 years of technical experience with contamination control, onsite analysis, data management, filtration and food-safe lubricants. Martin also operates his own lubrication consulting and contracting firm. Prior to operating his own business, Martin launched and managed the Noria UK office in Chester. During his employment with Noria he was a Senior Technical Consultant and Trainer. He was also a contributing author to Practicing Oil Analysis magazine, Machinery Lubrication magazine and Lube-Tips, in addition to presenting technical papers at various conferences. Some of Martin's former clients include Severn Trent Water, Qatar Gas, Cargill Europe, Thames Water, Nexen Inc., Saudi Electricity Company and Polyflor.

Martin holds a Bachelor of Science degree in (Mechanical) Engineering from the University of Cape Town. In addition, Martin has completed several advanced courses in lubrication and materials technology at the South African Institute of Tribology. Martin also holds the following professional certifications: CMRP, MLA I and MLT I.

Other important skills:

- Field experience in pulp and paper, automotive manufacturing, power generation, steel manufacturing, mining, off-shore platforms, mobile plant and injection molding.
- Establishing fluid cleanliness monitoring and predictive maintenance programs.
- Environmental and Safety Standards
- Contamination Control

Get Answers to These and All Your Questions About Oil Analysis!

- How often should I use oil analysis?
- Where is the best place to get an oil sample?
- What are the benefits and drawbacks of screening oil samples before sending them to my lab?
- How clean should I keep my oil and what type of filter should I use?
- What are all these numbers I see on my oil analysis report?
- How do I know which oil analysis lab is right for me?
- How do I set caution and critical alarms for wear metals and additives?
- What steps can I take to ensure that I get a good sample each time?
- How do I determine the remaining useful life of my oil?
- How do I know if I should occasionally "sweeten" my oil with additives?
- What is the best temperature for trending viscosity?
- What are the secrets to catching bearing faults with wear debris analysis?
- Are there any good field tests for oil that don't involve expensive instruments?
- What are the five most important things I should look for on my oil analysis report?
- What are the best cost-reducing strategies using oil analysis?

Presentation Slides are Full-color and High-quality, Making the Information Easy to Comprehend And Remember.



Join World-class Companies

Join this list of world-class companies in implementing an oil analysis program to reduce costs and unplanned downtime. Some of the many companies benefiting from our seminars include:

3M	Georgia Power
76 Lubricants	Goodyear
Air Products	Great Lakes Chemical
Akzo Nobel	HB Zachry
Alabama Power	Intel
Alcoa	Houston Metro Transit
Allied Signal	International Paper
Alumax	John Deere
Ameren	Koch Industries
Arco	LaFarge Canada
BHP Copper	Lockheed Martin
BP Amoco	Lubrication Engineers
Bristol Myers	Lukens Steel
Boeing	M&M Mars
Boise Cascade	Michelin
Borg Warner	Northern States Power
Cargill	Nova Chemicals
Castrol	Owens Corning
Caterpillar	Oxy Chem
Centralia Mining	Pacific Gas & Electric
Chevron	Peabody Coal
Citgo	Phillips 66
Clopay	PPG Industries
Conoco	Procter & Gamble
Coors	Reliant Energy
Destec Energy	Rio Tinto
Detroit Edison	Seattle Times
Dow Chemical	Seminole Electric
Dow Corning	Shell Oil
Duke Power	Southern Companies
Dupont	Sun Company
Eastman Kodak	Texaco
Eli Lilly	Texas Instruments
Energry	Texas Utilities
ExxonMobil	U.S. Army
First Energy	U.S. Navy
Florida Power	U.S. Postal Service
Ford Motor Co.	Via Rail Canada
Formosa Plastics	Westinghouse
General Motors	Weyerhaeuser
General Electric	Whirlpool
Geneva Steel	Willamette Industries
Georgia Pacific	

Level I - Outline

Introduction to Machinery Lubrication

- Oil formulation and its importance in effective machinery lubrication
- Six key functions of lubricating oils
- Three primary lubrication regimes
- Introduction to base oils and additives
- Choosing the correct base-stock
- Conditions that dictate use of synthetic oils
- Antioxidant additives and their role in oil life
- Dispersants and detergents - the key to controlling soot
- Controlling wear with additive chemistry

Oil Sampling - The Very Best Practices

- Six steps to reliable and easy oil sampling
- How to find the best sampling location
- Sampling splash-, collar- and ring-lubricated systems
- How to sample circulating systems
- Safe, effective high-pressure sampling from hydraulic systems
- Using primary and secondary sampling points
- A quick method for optimizing sampling intervals
- How clean should sample bottles be?
- Sampling valves and hardware recommendations

Fundamentals of Friction and Machine Wear

- Four primary sources of friction in lubricated machinery
- The 10 wear mechanisms that reduce machine life
- The most common wear modes in plain, rolling element and thrust bearings
- Understanding gear wear
- Understanding wear in hydraulic systems

Machine Fault Detection and Debris Analysis

- How wear metals are measured using RDE and ICP spectrometers
- Measuring larger particles with Rotrode Filter spectroscopy
- Using ferrous density to determine the severity of a wear problem
- Using analytical ferrography for advanced fault detection
- Using ferrography for root cause analysis

Fluid Properties Analysis

- Four common root causes of oil degradation
- Recognizing and controlling oil oxidation

- Monitoring lubricant degradation using acid number
- Monitoring lubricant health using FTIR
- Determining oil life using RPVOT
- Recognizing and controlling thermal failure
- How to recognize additive depletion or degradation
- Using paper chromatography (blotter spot test) to detect additive and base oil degradation
- Four ways to detect the addition of wrong oil

Contamination Control and Proactive Maintenance

- Seven common contaminants
- Oil cleanliness and oil life extension benefits
- Using the ISO Solid Contamination Code
- Proactive maintenance in three easy steps
- Case studies for proactive maintenance
- Oil filter and breather recommendations
- Portable filtration carts - three ways to use them
- Setting targets for oil cleanliness
- Detecting and controlling moisture contamination
- Selecting moisture removal/filtration methods
- The effects of heat on lubricants
- Controlling air entrainment and foam
- Glycol contamination
- Dealing with soot
- Understanding fuel contamination

Instrument Free On-site Tests

- How to inspect vents and breathers
- Tips for effective sight glass inspection
- Getting valuable information from used filters
- Inspecting reservoirs for clues about lube trouble
- Scenting lubricants to find problems
- Getting visual clues from the oil sample before mailing it out
- Getting into particle analysis for under \$100
- Turn your kitchen blender into a test for demulsibility and foam tendency
- Screening for water with a simple hot plate
- How an unwanted business card can reveal oil degradation

Interactive Workshop

- Individual and group participation in problem-solving exercises
- Exercises in how to read an oil analysis report
- ICML MLA Level I flashcard review session

Registration

Level I: US \$1,800

1. Please Enroll Me For the Following Course

Level I

- 30 Oct - 1 Nov (Jakarta, Indonesia)

2. Name of Attendee (Please Print)

If registering more than one person, please photocopy this form.

1. Mr./Ms. _____
Position _____

3. Company Information (Please Print)

Organization _____
Address _____
Mail Stop _____
City _____ State/Prov _____
Zip/Postal Code _____ Country _____
Phone _____ Fax _____
E-mail Address _____

4. Method of Payment

- Check payable to Noria Corporation is enclosed.

Charge to: Purchase Order Wire Transfer

Wire transfer instructions: BANK HAGAKITA, cab. Mangga Dua
Mal Mangga Dua Blok RM/14, Jl. Mangga Dua Raya,
Jakarta 10620
A/C: 19-08-80003-2 (USD)
Beneficiary's name: PT. TIARA VIBRASINDO PRATAMA

When & Where in 2007:

30 Oct - 1 Nov

NOVOTEL HOTEL, Jalan Gunung Sahari
Raya No 1, JAKARTA, Indonesia 14420

3 Ways to Register for Oil Analysis I



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Email:
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Registration Information

The fee for either Oil Analysis I is US\$1,800. You may cancel your registration prior to the course date or send a substitute. Notice given 0-15 days prior to training schedule, 50 % of price will be applied.

Your course fee provides you the best training around, a comprehensive course manual, a free package of training materials, lunch each day and refreshments. Program hours are 8:00 a.m. to 5:00 p.m.

For fast registration call +62216455586 between 8:00 a.m. and 5:00 p.m. Monday through Friday. To fax your registration, fax to +62216454967. Our fax line is open 24 hours a day, 7 days a week. We will send a confirmation of your registration. If your reservation doesn't arrive by the program date, then see the registrar at the seminar who will process your registration on the spot.

For fast easy registration call + 62216455586

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