



ICML Machine Lubrication Analyst (MLA) Level II Certification Preparation

*MLA Level I is not required to take MLA Level II Certification Exam



PT. DATA RAYA SOLUSINDO
Licensed Partner of Noria for Indonesia

Practical Oil Analysis

Learn How To Unlock The Full Potential
Of An Oil Analysis Program In
This Intensive Three-Day Course.

**Grand Mercure Hotel
Kemayoran - Jakarta**
22-25 November 2016

You will learn how to:

- ▶ Easily interpret oil analysis reports
- ▶ Squeeze maximum life from lubricants
- ▶ Pull oil samples for optimum results
- ▶ Reduce oil consumption for quick savings

Oil Analysis Offers Far Superior Early Warning Signals
Than Other Maintenance Tools - Even Vibration Analysis.

**Noria does not guarantee results



Reserve your seat now!

visit www.datarayasolusindo.com or Call 021-2921 1657

Who Should Attend?

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

What Industries Will Benefit?

- Aerospace
- Automotive Manufacturing
- Earthmoving
- Food and Beverage
- General Manufacturing
- Lumber and Wood
- Municipal Utilities
- Petrochemical
- Pharmaceuticals
- Power Generation
- Primary Metals
- Process Manufacturing
- Pulp and Paper
- Rubber and Plastic
- Textile
- Transportation

If You Use Any Of These Machines, This Training Is A Must:

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

Expand Your Oil Analysis Skills And Get Better Results ... A Whole Lot Faster!

If yours is like many companies, you may already be winging your way around oil analysis. Perhaps trying to predict failures, or just basing oil drains on your oil analysis report recommendations. 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 Noria's proven strategy for extending machine and lubricant life by up to 10X is the cornerstone of this presentation. You will learn how making small adjustments to lubricant properties can result in huge savings and take your return-on-investment from oil analysis to new levels.

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

How often should I use oil analysis?

Where is the best place to pull an oil sample

What are all these numbers I see on my oil analysis report?

How clean should I keep my oil and what kind of filter should I use?

What are the best costreducing strategies using oil analysis?

What steps can I take to ensure that I get a good oil sample each time?

How do I know if I should occasionally "sweeten" my oil with additives?

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?

How do I determine the remaining useful life of my oil?

What are the five most important things I should look for on my oil analysis report?

Are there any good field tests for oil that don't involve expensive instruments?

How do I determine the remaining useful life of my oil?

Oil Analysis Blunders

Don't Let These Happen to You ...

- A large steel mill wanted to make every machine ready for easy oil sampling. After installing more than 1,200 new oil sampling ports, it began getting strange data on oil analysis reports. After investigating, it found that each of the new sampling ports was installed in the wrong location.
- A company that had been using oil analysis for several years wondered why it was never able to detect pending bearing failures. After a bearing failure shut down production for more than a day, it discovered that the oil analysis tests being conducted were not capable of detecting impending failure. Instead, the tests were designed to identify wrong or degraded lubricants only.

An Arsenal of Knowledge for Your Oil Analysis Program

▶ Develop Rapid-Fire Trouble Shooting Skills!

Oil analysis provides critical early warning information to impending machine failure. Those trained in the language can “crack the code” of even the most complex problems. Knowing how to interpret changing lubricant properties involves a specific sequence of steps that can be easily learned. Get the answers.

▶ Squeeze Maximum Life From Lubricants!

Lubricants and hydraulic fluids can have infinite life when specific operating conditions are stabilized. The rising costs of new lubricants and the disposal costs of used fluids is a directive for change. A proven action plan for extending fluid life is key. Get the answers.

▶ Champion A Company-Wide “Clean Oil” Campaign!

High fluid cleanliness is the lynch pin of a successful proactive maintenance program. But how clean? Which filters? How much life extension can be achieved? Get the answers.

▶ Take Aim On Reactive Maintenance!

On a global scale, maintenance organizations are undergoing a renaissance of change. Gone are the days when maintenance functions centered around corrective repairs and damage control. Today’s battle cry of “condition-based maintenance” has transformed common mechanics and repairmen into high-tech instrument operators and machine diagnosticians. Discover how oil analysis and proactive maintenance are leading the charge.

▶ What’s Different About This Training?

Plenty. For starters, you won’t be listening to someone lecture on textbook theories. Instead, you’ll get a lot of straight-shooting advice from a seasoned professional, an authority on oil analysis and a dynamic speaker with years of experience. This course throws useless trivia out the window, and gets right to the meat of what you need to know. You’ll get the most important, up-to-date information that will be invaluable to your oil analysis program.



Testimonials from our previous attendees..

“For any program looking to start a fluid sampling program, this is the place to start.”

Justin Youtz,
General Dynamics Amphibious Systems

“Excellent combination of introductory and advanced material.”

Ben Staats,
Reliability Engineer, Cariboo Pulp & Paper

“As a vibration analyst, I have a new perspective on how oil analysis detects potential problems long before vibration analysis would identify it.”

Scott Pitre,
United States Navy

“Excellent learning forum. Provided substantial information that will be immediately useful in improving an existing oil analysis program.”

Steve Fox,
Maintenance Engineer, Aera Energy

“I learned more in a few days than I have in the past year. This training has opened up some issues I have in my plant that I would never thought of.”

Burt Jimenez,
Maintenance Planner, Inland Steel

“This course produces instantly usable knowledge, which will definitely result in changes in the way we handle lubricants and lubrication systems.”

Joe Kelly,
Maintenance Engineer, Akzo Nobel

“Easy to understand, very informative and delivered in a professional way.”

Terry Craswell,
Maintenance Technician, Alberta Pacific Forest

“This class is a true pathway into world-class maintenance.”

Gary Stamper,
Maintenance Superintendent, Meadwestvaco



Enroll today! visit www.datarayasolusindo.com or Call 021-2921 1657

Join This List Of World-class Companies That Have Benefited From Noria Training

3M	Harley-Davidson
Air Products	HB Zachry
Akzo Nobel	Holcim
Alabama Power	Intel
Alcoa	Houston Metro Transit
Ameren	International Paper
Arco	John Deere
BHP Copper	Kinder Morgan
BP Amoco	Koch Industries
Bristol Myers	LaFarge Canada
Boeing	Lockheed Martin
Boise Cascade	Lukens Steel
Borg Warner	M&M Mars
Cargill	MillerCoors
Castrol	Michelin
Caterpillar	Nova Chemicals
Centralia Mining	Owens Corning
Chevron	Oxy Chemical
Citgo	Pacific Gas & Electric
Clipay	Peabody Energy
ConocoPhillips	PPG Industries
Destec Energy	Procter & Gamble
Detroit Edison	Reliant Energy
Dow Chemical	Rio Tinto
Dow Corning	Seattle Times
Duke Power	Seminole Electric
DuPont	Shell Oil
Eastman Kodak	Southern Companies
Eli Lilly	Sun Company
Entergy	Temple-Inland
ExxonMobil	Texaco
First Energy	Texas Instruments
Florida Power	Texas Utilities
Ford Motor Co.	U.S. Army
Formosa Plastics	U.S. Navy
General Electric	U.S. Postal Service
General Motors	Via Rail Canada
Geneva Steel	Westinghouse
Georgia Pacific	Weyerhaeuser
Georgia Power	Whirlpool
Goodyear	Wyeth
Great Lakes Chemical	

Our Approach

We go to great efforts not to overcomplicate the course material. You will leave with the feeling “this isn’t so hard. I can do it”. We won’t overwhelm you or try to impress you with our skill: we want you to be impressed with your own skill by the time you leave.

Our approach and materials are drawn from years of experience in the field. We base our training on a realistic hands-on approach to oil analysis. All of our materials are based on well-documented research and field proven principles.

We continually improve our training courses based on trainee suggestions and feedback. Our goal is to make our courses as “user-friendly” and complete as possible.

Each participant will be given a course note that will both be a manual for use in class and a reference tool outside the class.

Interactive group discussions and practical exercises are included to encourage exchange of ideas.

Participants are also advised to bring their own data and problems to be discussed at training.



Bring Noria’s Training to You

Whether you have 15 or 500 employees in need of training, Noria can offer expert instruction at a time and location that are most convenient for your group. Additionally, Noria can customize any of its courses based on your needs!

Noria provides onsite training for employers wishing to avoid travel time/costs. This can include personalized training with examples from onsite equipment. Our customers have used this option to rotate groups of employees through consecutive one-day trainings and to bring personnel from multiple plants to one onsite training. Noria is committed to providing options that will have the smallest impact on your production.

We can also bring accompanying certification tests on site as part of the course.



Course Outline

World-class Maintenance Philosophies

- Five prevailing features of world-class maintenance programs
- The 80:20 rule for maintenance
- Three successful elements of a CBM program

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 Analysis Fundamentals

- Interpreting the language your oil is speaking
- Prevailing myths about oil analysis
- Common applications for sampling and analysis
- Three categories of oil analysis

Oil Sampling – The Very Best Practices

- 11 elements of a successful oil analysis program
- How clean should sample bottles be?
- How to find the best sampling locations
- Sampling valves and hardware recommendations
- A quick method for optimizing sampling intervals
- The importance of primary and secondary sampling points
- How to properly sample circulating systems
- Safe, effective high-pressure sampling from hydraulic systems
- Best practices for sampling splash, collar and ring-lubricated systems

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

Fault Detection and Wear Particle 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
- 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
- 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 Case Studies Workshop

- Individual and group participation in problem-solving exercises
- Exercises in how to read an oil analysis report

Training to Help You Navigate the Path to Success

With expert instructors, the most up-to-date information and helpful certification preparation, Noria's lubrication and oil analysis training course can provide the practical knowledge and skills to put your career on the fast track. **Your Journey to excellence start here.**

Get Certified!

Level I certification testing will be held on the Friday following the training by the International Council for Machinery Lubrication.

How To Certify

Register the exam online: www.LubeCouncil.org

Which Certifications?

This course is designed to help you prepare for the following ICML certification exams:

- Level II Machine Lubricant Analyst (MLA) Find out more about these ICML exams at: www.LubeCouncil.org

What Is ICML?

The International Council for Machinery Lubrication (ICML) is a vendor-neutral, not-for-profit organization founded to facilitate growth and development of machine lubrication as a technical field of endeavor. Among its various activities, ICML offers skill certification testing for individuals in the fields of machine condition monitoring, lubrication and oil analysis.



Noria Corporation is the world's leading training and consulting organization in industrial lubrication and oil analysis best practices. Noria publishes Machinery Lubrication magazine, Lube-Tips e-newsletter and produces the Reliable Plant Conference and Exhibition. Noria specializes in Lubrication Program Design and Development, Machinery Lubrication Training, Oil Analysis Program Design and Development, Oil Analysis Training Some of our world-class clientele:



JOHN DEERE



MillerCoors™



ALCOA



Holcim



Weyerhaeuser



ExxonMobil



Enroll today! visit www.datarayasolusindo.com or Call 021-2921 1657