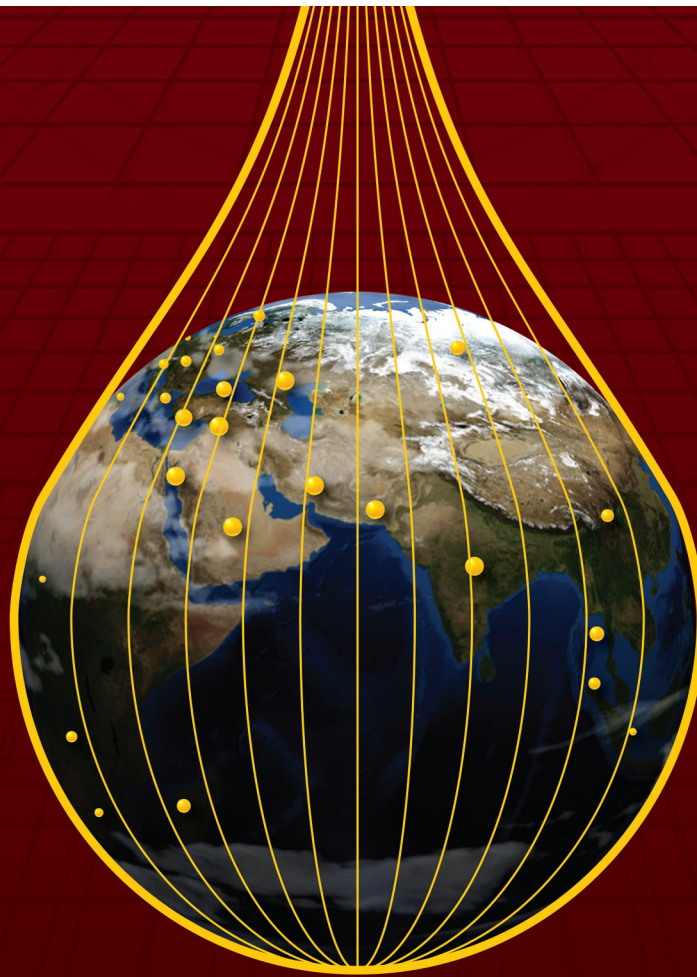


*Technical Nonprofit Organization Serving Industrial
Lubrication & Oil Analysis Professionals Worldwide*



ICML
International Council for Machinery Lubrication



INTRODUCING

ICML 55

*Lubricated Asset
Management Standards*

MLE

*Machinery Lubrication
Engineer Certification*

ICML 55 LUBRICATED ASSET MANAGEMENT STANDARDS

In 2014, when the International Organization for Standardization (ISO) introduced the ISO 55000 “Asset Management” standard, ICML found that the standard’s requirements document (ISO 55001) described only the big-picture aspects of asset management. Even its predecessor, the widely adopted PAS 55 (published by British Standards Institute) had not made any distinction for lubricated assets.

ICML concluded that it would be sensible to develop a lubrication-specific standard in alignment with ISO 55000. We envisioned a document that would lay out a comprehensive framework for organizations to optimize lubricated asset management while working toward ISO 55000 certification. We marshaled our worldwide base of technical contributors to apply their energy and expertise. The result is ICML 55.

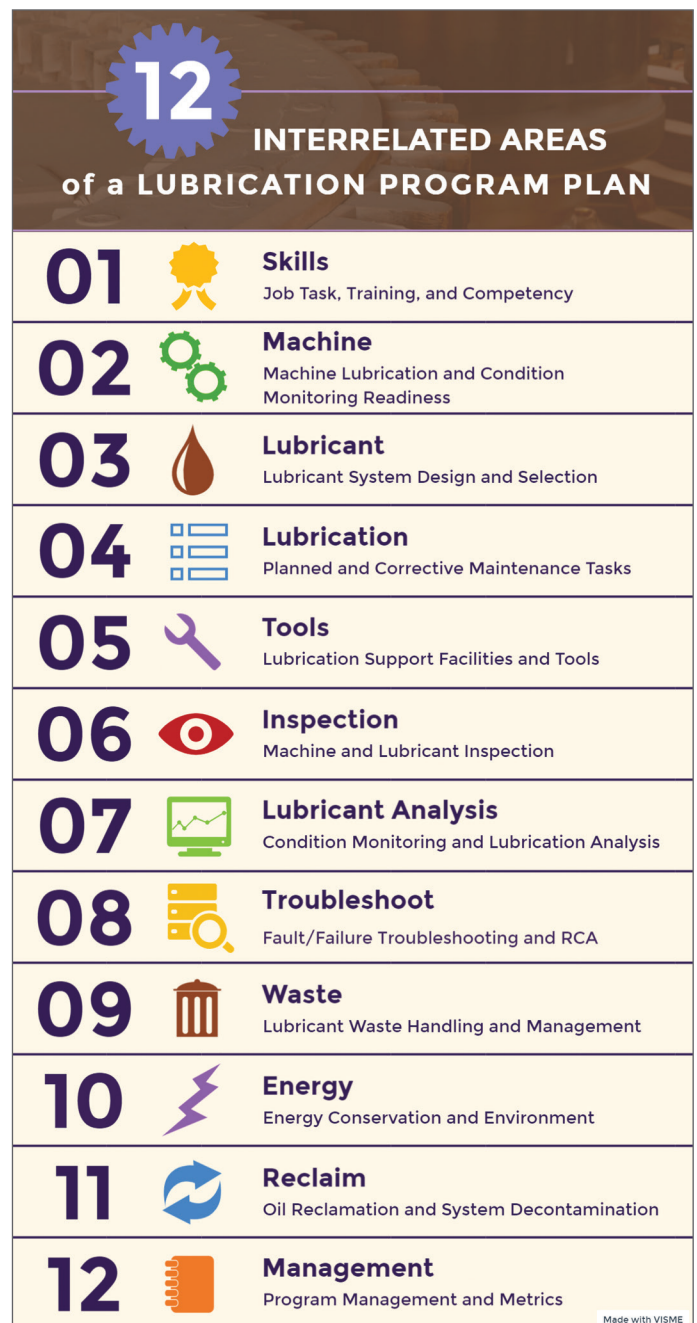
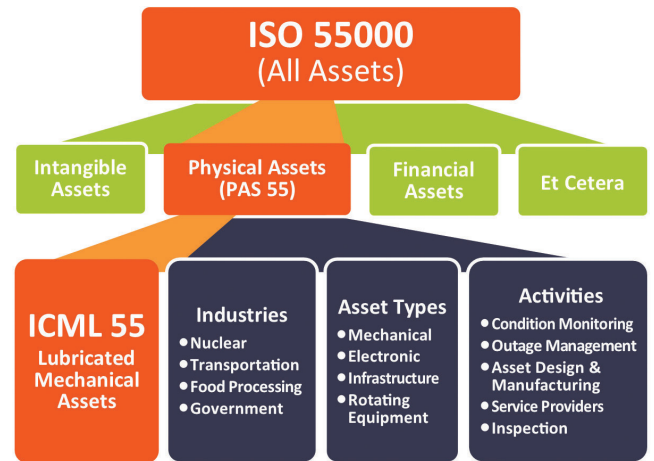
ICML 55 spells out the tactical requirements and guidelines necessary to establish, implement, maintain, and improve consistent lubrication management systems and activities. The first part of the standard is ICML 55.1, “Requirements for the Optimized Lubrication of Mechanical Physical Assets,” which defines twelve interrelated areas to be incorporated into any lubrication program plan.

ICML 55.1 is applicable to any business that owns and manages a substantial base of lubricated mechanical assets. By adopting ICML 55.1 requirements, an organization in pursuit of excellence in lubricated asset management policies, strategies, and plans can achieve its objectives consistently and sustainably over time.

ICML 55.1 does not replace, compete with, or technically conflict with ISO 55001. It is merely an enabling standard, so each section of ICML 55.1 aligns with a corresponding section of ISO 55001.

Organizations can arrange for a qualified ICML 55 auditor to certify their compliance across all twelve areas, thus publicly validating that their lubricated asset management program has achieved optimum performance at the highest levels of machinery reliability.

The ICML 55.1 standards document, “Requirements for the Optimized Lubrication of Mechanical Physical Assets,” can be purchased at www.lubecouncil.org, or by calling the ICML office directly at 918-259-2950. Companion documents will include ICML 55.2, “Guideline for the Optimized Lubrication of Mechanical Physical Assets,” and ICML 55.3, “Auditors’ Standard Practice and Policies Manual.”



MLE - MACHINERY LUBRICATION ENGINEER

Purposely developed alongside the ICML 55 standard is the MLE, our engineering-grade, management-level certification. MLE targets reliability and asset leaders—



with or without engineering degrees—with a strong emphasis in lubrication and oil analysis.

The requisite exam evaluates an individual's knowledge, understanding, and abilities to provide engineering support to a user lubrication program at a typical industrial plant, whether

serving on staff or as a contractor/consultant. Among other considerations, we designed MLE to verify whether candidates are qualified to:

- Produce action plans that could include changes in machinery design, procedure development, lubricant and hardware selection/implementation/analysis, inspection design, optimization of lubricant PMs, etc.
- Manage lubrication teams, key supplier relations, and staff communications
- Troubleshoot tough problems identified by routine analysis and inspections
- Conduct training and skills remediation

A professional engineering degree is not necessary to earn and hold MLE certification. And while there is no prerequisite to hold any other ICML certifications, candidates will likely find that MLA and MLT training and certification can be helpful as they prepare for MLE. Because the MLE Body of Knowledge is strategically mapped to the twelve interrelated areas of ICML 55, this certification is ideal for those leading institutional compliance with ICML 55.1 as a tactical step toward achieving ISO 55001 certification. Plants that choose to certify or hire MLE personnel can expect them to comprehend ICML 55's framework and ensure that all relevant factors impacting lubricated asset decision-making are adequately considered by key stakeholders.

To become MLE certified, an individual must meet the following requirements:

- Education and/or Experience – At least 5 years' education (post-secondary) or on-the-job training in one or more of the following fields: engineering, mechanical maintenance, maintenance trades, lubrication, oil analysis and/or condition monitoring (mechanical machinery). No other degrees or certifications are required.
- Examination – Successfully pass a written, 150-question, multiple choice examination that tests mastery of our MLE body of knowledge. Candidates have four hours to complete the closed-book exam. A passing score of 70% is required to achieve certification.

MLE - BODY OF KNOWLEDGE (BoK)

The comprehensive MLE BoK is an outline of concepts that one should master in order to pass the exam. Source materials (the Domain of Knowledge) are cross-referenced on our website.

- I. Asset Management, ISO 55000 & ICML 55; Basic Elements (3%)
- II. Machine Reliability; Basic Elements (5%)
- III. Machine Maintenance; Basic Elements (5%)
- IV. Condition-based Maintenance (CBM); Basic Elements (5%)
- V. Tribology, Friction, Wear, and Lubrication Fundamentals; Basic Elements (5%)
- VI. Lubricant Formulation for Machine Types to achieve Optimum Reliability, Energy Consumption, Safety and Environmental Protection; Basic Elements (5%)
- VII. Job- and Task-based Skills/Training related to Lubrication and Reliability by User Organizations (4%)
- VIII. Lubrication Support Facilities needed in Plants and Work Sites (3%)
- IX. Risk Management for Lubricated Machines; Basic Elements (4%)
- X. Optimum Machine Modifications and Features Needed to Achieve and Sustain Reliability Goals (5%)
- XI. Lubricant Selection for Optimum Reliability, Safety, Energy Consumption and Environmental Protection based on Machine Type and Application (4%)
- XII. Lubrication-related Planning, Scheduling and Work Processing (4%)
- XIII. Periodic Lubrication Maintenance Tasks (4%)
- XIV. Inspection of Lubricated Machines for Optimum Reliability, Safety, Environmental Protection and Condition Monitoring (5%)
- XV. Lubricant Analysis and Condition Monitoring for Optimum Reliability Objectives (8%)
- XVI. Fault/Failure Troubleshooting, Root Cause Analysis (RCA) and Remediation (5%)
- XVII. Supplier Compliance/Alignment and Procurement of Services and Products (3%)
- XVIII. Waste and Used Lubricant Management and Environmental Compliance (3%)
- XIX. Energy Conservation and Environmental Protection (3%)
- XX. Health and Safety (3%)
- XXI. Oil Reclamation, Decontamination, De-varnishing & Additive Reconstruction (3%)
- XXII. Lubrication during Standby, Storage and Commissioning (2%)
- XXIII. Program Metrics (5%)
- XXIV. Continuous Improvement (4%)

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The International Council for Machinery Lubrication (ICML) is a vendor-neutral, not-for-profit organization founded to serve global industry as the world-class authority on machinery lubrication that advances the optimization of asset reliability, utilization and costs. ICML is an independently chartered organization consisting of both paid professional staff members and volunteer committees.