Training Course on Lubricants and Specialty Products Manufacturing

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s fast-paced industrial world, lubricants and specialty products play a pivotal role in ensuring machinery performance, equipment longevity, and operational efficiency. With a global shift toward eco-friendly formulations, synthetic lubricants, and advanced additive technologies, professionals need cutting-edge knowledge to stay ahead. Training Course on Lubricants & Specialty Products Manufacturing is designed to equip participants with the latest skills, industry best practices, and scientific insights into the formulation, testing, and manufacturing of industrial, automotive, and specialty lubricants.

Whether you're a formulator, engineer, or technical sales professional, this training covers everything from base oil chemistry and viscosity analysis to tribology, regulatory compliance, and sustainability in product design. Participants will gain practical skills via real-world case studies, interactive sessions, and modular learning formats. This program is ideal for anyone involved in product development, quality assurance, supply chain management, or R&D within the lubricants industry.

Programme Curriculum

Training Course on Lubricants & Specialty Products Manufacturing

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Course Objectives

1. Understand the global trends in lubricant formulations and specialty product development.
2. Analyze the role of base oils, synthetic fluids, and esters in lubricant performance.
3. Master the function and application of lubricant additives and enhancers.
4. Explore tribology fundamentals and how lubricants reduce wear and friction.
5. Evaluate viscosity, oxidation stability, and thermal performance in formulations.
6. Learn blending techniques and manufacturing best practices for specialty products.
7. Comprehend quality control (QC) and standard testing protocols.
8. Examine environmentally friendly lubricants and sustainable product innovation.
9. Understand regulatory frameworks like REACH, GHS, and ISO compliance.
10. Apply market analysis and product positioning in the lubricant industry.
11. Enhance skills in supply chain logistics and raw material sourcing.
12. Discover digital transformation and Industry 4.0 in lubricant production.
13. Analyze case studies on lubricant failures and performance enhancements.

Target Audience

1. Lubricant Formulators
2. Chemical Engineers
3. R&D Scientists
4. Technical Sales Professionals
5. Quality Control/QA Specialists
6. Operations/Manufacturing Managers
7. Supply Chain/Procurement Officers
8. Regulatory Affairs Professionals

Course Duration: 10 days

Course Modules

Module 1: Introduction to Lubricants and Specialty Products

- History and evolution of lubricants
- Classification: automotive, industrial, marine, food-grade
- Functions and applications
- Market overview and industry trends
- Key players and innovation hubs
- **Case Study: Evolution of Synthetic Oils in Automotive Industry**

Module 2: Base Oils and Their Properties

- Types: Group I–V
- Physical and chemical properties
- Base oil selection criteria
- Refining technologies
- API classification standards
- **Case Study: Base Oil Selection for High-Temperature Bearings**

Module 3: Lubricant Additives and Their Functions

- Anti-wear, anti-oxidants, detergents, dispersants
- Synergistic and antagonistic effects
- Additive packages and dosages
- Performance enhancement strategies
- Emerging additive technologies
- **Case Study: Additive Optimization in Hydraulic Fluids**

Module 4: Tribology and Friction Management

- Fundamentals of tribology
- Wear mechanisms
- Surface interaction and film formation
- Testing methods and tools
- Lubrication regimes
- **Case Study: Tribological Testing in Gear Oil Development**

Module 5: Viscosity and Rheology in Lubricant Performance

- Viscosity index and measurement techniques
- Shear stability
- Low-temperature behavior
- Viscosity modifiers
- High-temp applications
- **Case Study: Cold Start Performance of Engine Oils**

Module 6: Blending & Formulation Techniques

- Blending processes: batch, in-line
- Equipment and automation
- Formulation balancing
- Scaling up from lab to production
- Safety and handling practices
- **Case Study: Formulating a Multi-Grade Automotive Oil**

Module 7: Specialty Lubricants: Types and Applications

- Greases, compressor oils, turbine oils
- Food-grade and bio-lubricants
- Metalworking fluids
- Aerospace and defense lubricants
- Water-soluble formulations
- **Case Study: Bio-Lubricant Development for Food Processing Equipment**

Module 8: Quality Control and Testing Standards

- ASTM, ISO, SAE protocols
- Lab instruments and methods
- Sample preparation and storage
- Test result interpretation
- Common pitfalls and troubleshooting
- **Case Study: Root Cause Analysis in Failed Lubricant Batches**

Module 9: Environmental and Regulatory Compliance

- REACH, GHS, TSCA

- SDS and labeling requirements
- Biodegradability standards
- VOC regulations
- Audits and inspections
- **Case Study: Regulatory Compliance in Exporting Lubricants to EU**

Module 10: Manufacturing Operations and Plant Design

- Equipment layout
- Automation and SCADA
- Safety systems and alarms
- Inventory and batch tracking
- Waste reduction strategies
- **Case Study: Lean Manufacturing in Lubricant Plants**

Module 11: Packaging and Storage of Lubricants

- Packaging types and materials
- Bulk vs. retail handling
- Shelf-life management
- Temperature and humidity control
- Labeling and barcoding systems
- **Case Study: Packaging Optimization for High-Viscosity Fluids**

Module 12: Supply Chain and Raw Material Management

- Vendor qualification
- Forecasting and demand planning
- Logistics and warehousing
- Risk mitigation
- Digital procurement systems
- **Case Study: Supply Chain Disruption During Global Oil Crisis**

Module 13: Digitalization and Smart Manufacturing

- IoT and sensor integration
- Predictive maintenance
- Cloud-based production control
- Data analytics and dashboards
- Blockchain in traceability
- **Case Study: Industry 4.0 Implementation in Lubricant Facility**

Module 14: Marketing and Product Positioning

- Target market analysis
- Brand differentiation
- Pricing strategies
- Digital marketing and SEO
- Product launch planning
- **Case Study: Niche Positioning of Eco-Friendly Lubricants**

Module 15: Failure Analysis and Product Improvement

- Common lubricant failures
- Root cause methodology
- Feedback loop from field to lab

- Iterative formulation updates
- Customer support and troubleshooting
- **Case Study: Solving Varnish Formation in Hydraulic Systems**

Training Methodology

- Interactive instructor-led sessions with industry experts
- Hands-on formulation and testing demonstrations
- Real-world case study analysis
- Group discussions and peer collaboration
- Quizzes and post-module assessments
- Access to digital resource materials and references

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

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