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Gasoline Specifications, Testing, and Technology Course

14 - 25 Jul 2025
Amsterdam (Netherlands)

Istanbul - Turkey: +90 539 599 12 06
Amman - Jordan: +962 785 666 966
London - UK: +44 748 136 28 02

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Gasoline Specifications, Testing, and Technology Course

Ref.: 15530_313622 **Date:** 14 - 25 Jul 2025 **Location:** Amsterdam (Netherlands) **Fees:** 9500 **Euro**

Introduction:

This extensive class provides broad coverage of the specifications, testing, technology, and regulations related to gasoline. You'll learn about the different types and components of gasoline, octane, volatility, drivability, as well as product quality control throughout the motor gasoline product value chain. The course covers specifications related to gasoline, gasoline additives, oxygenates, the refining process, the quality and distribution of fuels, and much more.

The class is taught in a participatory atmosphere where questions and queries to the instructors and classmates are encouraged throughout the course. In addition to receiving the course presentation and notes workbook, you will also receive a copy of ASTM's manual on Significance of Tests for Petroleum Products, recently updated in 2019. The attendee will receive copies of over 30 ASTM standards, test methods, product specifications, and practices related to gasoline and oxygenates.

Course Objectives:

By the end of this course, participants will be able to:

- Understand the structure and organization of ASTM D4814, Standard Specification for Automotive Spark-Ignition Engine Fuel
- Recall how to interpret test data to determine if gasoline, including Reformulated Gasoline RFG meets the required specifications.
- Recall how compositional variables, refining processes, and additives affect octane and volatility.
- Define how product integrity is maintained throughout the storage and distribution system, from refinery to nozzle.
- Discuss RFG, oxygenates, and ethanol mixtures in gasoline.
- Discuss RFG, mobile source air toxics MSAT requirements, the Federal Renewable Fuel Standard requirements, and other emissions-related fuels regulations.
- Discuss what the petroleum industry is doing now and, in the future, to encourage conservation, reduce emissions, and reduce our carbon footprint.

Targeted Groups:

- Petroleum industry employees
- Laboratory supervisors
- Fuel marketing personnel
- Pipeline company employees
- Engine mfg. and testing personnel
- Anyone involved in the purchase, sale, operations, or distribution of gasoline.

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Targeted Competencies:

By the end of this course, target competencies will be able to:

- Understanding Gasoline Formulations: Participants gain insights into the intricate compositions of gasoline blends, including additives and performance enhancers, to optimize fuel quality and efficiency.
- Mastery of Testing Methodologies: The course equips learners with comprehensive knowledge of standardized testing procedures, allowing them to accurately assess gasoline properties such as octane rating, volatility, and impurity levels.
- Compliance with Regulatory Standards: Attendees learn to navigate regulatory frameworks and ensure adherence to industry standards and environmental regulations governing gasoline production, storage, and distribution.
- Quality Control Proficiency: Through practical exercises, participants develop proficiency in conducting quality control assessments, identifying contaminants, and implementing corrective measures to maintain fuel integrity.
- Interpretation of Test Results: The course enhances participants' ability to interpret test data effectively, enabling them to make informed decisions regarding product quality, process optimization, and regulatory compliance.
- Troubleshooting and Optimization Techniques: Learners acquire skills in troubleshooting common issues related to gasoline specifications and testing, as well as implementing optimization strategies to enhance fuel performance and efficiency.

Course Content:

Unit 1: Gasoline Composition:

- Chemistry, Production, and Refining Processes to make Motor Gasoline MG.
- Blending of components hydrocarbons, oxygenates ethanol and ethers, and others to meet MG Specs octane and volatility.

Unit 2: Spark-Ignition engine overview:

- Carburetor, port fuel injection PFI and direct injection DI.
- Anti-knock index, Octane Number scale, Test methods, and gasoline specs D4814.
- Octane Number Requirement Increase ORI and Enhancers Pb and Mn, MTBE.
- Detergent Requirements for gasoline and Altitude and Climatic Adjustments.

Unit 3: Vapor Pressure:

- Vapor Liquid Ratio Tables 1, 3, and 4 of D4814.
- ASTM Volatility Classes, Vapor Lock, regional and seasonal variation in volatility.
- Distillation D86 and D7345.
- Vapor Pressure test methods D4953, D5191, D5842, D6378.
- Impact of Volatility Regulations.
- Vapor Lock and V/L Ratio.

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Unit 4: Chemistry of Alcohols and Ethers:

- Product Specifications D4806 and D5798.
- Effects of Ethanol and Other Oxygenates when blended into gasoline.
- Effects on Volatility, Evaporative and Exhaust Emissions.

Unit 5: Cold and Hot Starting and Drivability:

- CRC Structure and Organization; Relation to ASTM.
- CRC Drivability Programs.
- Drivability Indices and Equations.

Unit 6: Gasoline Specs D4814 and Test Methods:

- Product Sampling D4057 for testing.
- Metals and Sulfur.
- Copper and Silver corrosion.
- D381 Gum Test and Contamination.

Unit 7: Oxidation Stability and Test Methods:

- Aromatics and Olefins by FIA-1319, SFC, GC.
- Density manual and automatic test methods.

Unit 8: Visual Inspection:

- Phase separation and Water Sensitivity/Tolerance.
- Gasoline Contamination and Filtration.
- Steel Corrosion.
- Sulfates.

Unit 9: Fuel Filtration and Particulate Methods:

- Microbial Contamination and Microbial Induced Corrosion MIC.
- Additives and Their Chemistry.
- Oxidation and Corrosion Inhibitors, Metal Deactivators.

Unit 10: Gasoline Distribution, Pipelines, Rail, Marine, Truck/trailer:

- Terminals, Depots and Storage, Maintenance Product Integrity testing.
- Off-Road and Emergency Use, Extended and Seasonal Storage.
- Small engine issues.

Unit 11: Reformulated Gasoline and Renewable Fuel Standard Requirements:

- EPA and CARB Testing Requirements.
- Emissions and Regulatory Issues - Carbon Monoxide Reduction.

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Registration form on the :
Gasoline Specifications, Testing, and Technology Course

code: 15530 **From:** 14 - 25 Jul 2025 **Venue:** Amsterdam (Netherlands) **Fees:** 9500 **Euro**

Complete & Mail or fax to Mercury Training Center at the address given below

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