MERCURY

Gasoline Specifications, Testing, and Technology Course

18 – 29 July 2027
Dubai (UAE)



Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

MERCURY

Gasoline Specifications, Testing, and Technology Course

Ref: 15530_313593 **Date:** 18 – 29 July 2027 **Location:** Dubai (UAE) **Fees:** 8500 Euro

Introduction:

This extensive gasoline specifications, testing, and technology course provides broad coverage of the specifications, testing, technology, and regulations related to gasoline. Throughout the motor gasoline and product value chain, Participants learn about gasoline's different types and components: octane, volatility, drivability, and product quality control.

This gasoline specifications, testing, and technology training will cover specifications related to gasoline, gasoline additives, oxygenates, the refining process, the quality and distribution of fuels, and much more. It is taught in a participatory atmosphere, where students are encouraged to ask questions and query the instructors and classmates.

In addition to the gasoline specifications, testing, and technology course presentation and notes workbook, participants will receive a copy of ASTM's manual on the Significance of Tests for Petroleum Products, recently updated in 2019. The attendee will also receive copies of over 30 ASTM standards, test methods, product specifications, and practices related to gasoline and oxygenates. With the advent of new gasoline technology, it is essential to understand how innovations in the field will impact the future of fuel formulations and testing.

This gasoline specifications, testing, and technology course will also touch upon cutting-edge advancements in gasoline technology, exploring how such developments may revolutionize the industry and lead to more sustainable, efficient, and eco-friendly transportation solutions. Participants will be introduced to the latest research and development initiatives, exploring new gasoline technology that could alter the traditional views on fuel specifications, testing, and technology.

Course Objectives:

At the end of this gasoline specifications, testing, and technology 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 fuel regulations.
-

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

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 manufacturing and testing personnel.
- Anyone involved in the purchase, sale, operations, or distribution of gasoline.

Targeted Competencies:

By the end of this gasoline specifications, testing, and technology training, target competencies will be able to:

- Understand Gasoline Formulations.
- Master Testing Methodologies.
- Compliance with Regulatory Standards.
- Quality Control Proficiency.
- Interpretation of Test Results.
- Troubleshooting and Optimization Techniques.

Course Content:

Unit 1: Gasoline Composition:

- Chemistry, Production, and Refining Processes to make Motor Gasoline MG.
- The 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.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

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.

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.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

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.