Crude Oil Assay and Characterisation Methods Training Course

OGT-1097 · 5 days · 20 CPD hours · English

OVERVIEW

The **Crude Oil Assay and Characterisation Methods Training Course** provides a comprehensive understanding of crude oil composition, laboratory analysis, quality assessment and petroleum feedstock evaluation. Crude oil varies significantly in its physical, chemical and processing characteristics, making accurate analytical testing and reliable characterisation essential for refining operations, commercial transactions, crude selection and quality control. This professional training course is designed to equip participants with the knowledge and practical skills required to interpret crude oil properties, understand analytical methods and evaluate crude streams for industrial and commercial applications.

As part of the **Quality Control and Product Analysis for Oil & Gas** category, the programme explores the principles, procedures and analytical techniques used to develop, interpret and apply crude oil assay data. Participants will gain an understanding of key crude oil characteristics, including API gravity, sulfur content, density, viscosity, water content, sediment, salt content and boiling-range distribution. The course also introduces the role of laboratory testing, sampling integrity, standardised analytical methods and crude oil evaluation in determining the suitability of feedstocks for different refining processes.

A reliable crude oil assay provides valuable information about the composition, quality and processing potential of crude petroleum. Through detailed analysis of physical properties, chemical characteristics and fraction yields, refinery professionals can assess crude oil behaviour, identify operational challenges and evaluate the economic implications of crude selection. The training explores how laboratory results support crude purchasing decisions, refinery planning, blending strategies, process optimisation and product quality management.

Participants will develop a practical understanding of distillation-based characterisation, including True Boiling Point (TBP) analysis, distillation curves and the interpretation of boiling-range fractions. The course also examines crude oil classification, assay data interpretation, analytical quality assurance and the application of test results to refinery operations. By connecting laboratory procedures with industrial applications, the programme helps participants understand how crude oil characterisation contributes to better feedstock management, reliable quality assessment and operational efficiency.

Delivered through the professional training approach of the **Oil & Gas Training Institute**, this five-day course combines technical instruction, practical analytical discussions, case studies and structured exercises. It is designed to strengthen participants' capabilities in crude oil testing, assay interpretation and crude evaluation, enabling them to make informed technical decisions and contribute more effectively to laboratory, refinery, inspection and petroleum commercial operations.

OBJECTIVES

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

1. **Explain** the fundamental composition, chemical characteristics and classification of crude oil and their influence on crude oil quality and processing behaviour.

2. **Interpret** crude oil physical and chemical properties, including API gravity, density, viscosity, sulfur content, water, sediment and salt concentration.

3. **Apply** appropriate sampling, sample handling, preparation and preservation practices to maintain crude oil sample integrity and analytical reliability.

4. **Identify and evaluate** relevant ASTM and other recognised analytical methods for assessing crude oil quality and characterisation parameters.

5. **Analyse** crude oil distillation data, distillation curves and True Boiling Point (TBP) results to assess boiling-range distribution and fraction yields.

6. **Interpret** assay reports and crude oil analytical data to evaluate feedstock quality, composition and potential refinery processing characteristics.

7. **Assess** the relationship between crude oil properties, refinery processing requirements, product yields, operational constraints and commercial value.

8. **Evaluate** laboratory quality assurance practices, analytical precision, repeatability, measurement reliability and sources of testing uncertainty.

9. **Compare** different crude oil streams using assay data, quality parameters, analytical results and processing considerations.

10. **Develop** practical approaches to applying crude oil characterisation data in quality control, crude selection, refinery planning and operational decision-making.

TRAINING METHODOLOGY

The Crude Oil Assay and Characterisation Methods Training Course uses a structured, technical and application-oriented training methodology to help participants connect laboratory analytical principles with real-world crude oil evaluation and refinery operations.

The programme combines instructor-led learning, analytical discussions, practical interpretation exercises and industry-focused case studies to develop technical competence and professional confidence.

- **Interactive presentations and technical discussions:** Participants explore crude oil composition, assay fundamentals, physical and chemical properties, analytical methods and crude characterisation principles through structured presentations and discussions.

- **Laboratory method demonstrations and technical walkthroughs:** The training examines common analytical procedures for determining API gravity, sulfur content, water and sediment, salt content, viscosity and other relevant crude oil parameters. Method selection, test limitations and analytical considerations are discussed.

- **Crude oil assay interpretation exercises:** Participants work with illustrative assay reports and analytical datasets to interpret crude oil properties, boiling-range distributions, fraction yields and quality characteristics.

- **Distillation and TBP analysis workshops:** Practical exercises introduce distillation curve interpretation, TBP data evaluation, boiling-range fraction assessment and the relationship between distillation characteristics and refinery processing.

- **Industry-based case studies:** Participants analyse realistic crude oil quality scenarios involving feedstock selection, blending, crude variability, high-sulfur crude streams and refinery suitability.

- **Group activities and collaborative problem-solving:** Small-group exercises encourage participants to compare analytical results, identify quality concerns, discuss processing implications and recommend appropriate evaluation approaches.

- **Quality assurance and analytical reliability discussions:** The training addresses sampling errors, measurement uncertainty, laboratory quality control, method consistency and the interpretation of analytical results in professional settings.

- **Experience sharing and knowledge exchange:** Participants share technical experiences, discuss industry challenges and explore practical approaches to crude oil characterisation, assay development and quality management.

ORGANISATIONAL IMPACT

Accurate crude oil characterisation is essential for organisations involved in petroleum production, crude oil trading, inspection, laboratory analysis, refining and supply chain management. The course helps organisations improve the use of analytical information, strengthen crude oil quality assessment and make more informed decisions about feedstock selection and processing.

- **Improved crude oil evaluation and feedstock selection:** Organisations can strengthen their ability to evaluate crude oil streams using assay data, physical properties and compositional characteristics, helping identify feedstocks that align with refinery requirements.

- **Enhanced refinery planning and operational efficiency:** Better understanding of crude oil characteristics enables technical teams to anticipate processing challenges, assess product yield potential and support refinery planning based on reliable analytical information.

- **Strengthened quality control and laboratory performance:** Improved knowledge of sampling, testing methods, analytical procedures and quality assurance supports more consistent laboratory practices and dependable

crude oil quality results.

- **Better commercial and procurement decisions:** Reliable assay interpretation helps procurement teams, crude oil buyers, traders and commercial specialists compare crude oil quality, evaluate feedstock characteristics and assess commercial implications.

- **Reduced analytical and operational risks:** Understanding sample integrity, testing limitations, quality variability and analytical uncertainty can help organisations minimise errors in crude oil assessment and reduce the risk of decisions based on unreliable data.

- **Improved blending and crude compatibility assessment:** Participants gain insights into crude oil property differences and how assay information can contribute to blending decisions, feedstock management and processing suitability.

- **More effective technical collaboration:** The course promotes a shared understanding of assay data among laboratory personnel, refinery engineers, operations teams, inspectors, procurement professionals and commercial stakeholders.

- **Stronger technical decision-making:** Organisations can develop more effective approaches to evaluating crude oil characteristics, comparing crude streams and integrating analytical information into operational and strategic decisions.

- **Support for continuous improvement:** The programme encourages the development of improved analytical practices, quality evaluation procedures and technical approaches that support ongoing operational development.

PERSONAL IMPACT

Attending the Crude Oil Assay and Characterisation Methods Training Course can help professionals develop specialised knowledge and practical analytical capabilities relevant to petroleum laboratory work, crude oil quality assessment and refinery operations.

- **Develop specialised crude oil analytical knowledge:** Participants gain a deeper understanding of crude oil composition, classification, physical properties, chemical characteristics and analytical evaluation.

- **Improve assay report interpretation skills:** Professionals become better equipped to interpret crude oil assay reports, distillation data, analytical results and key quality parameters.

- **Strengthen technical problem-solving abilities:** Participants learn to identify crude oil quality variations, understand analytical limitations and assess potential processing implications using relevant data.

- **Build confidence in laboratory and testing responsibilities:** The course strengthens understanding of analytical procedures, sample handling, testing methodologies and quality assurance considerations.

- **Improve professional decision-making:** Participants develop the ability to evaluate crude oil streams, compare quality characteristics and make informed recommendations based on assay information.

- **Enhance refinery and process understanding:** Professionals gain insights into how crude oil characteristics affect refinery operations, processing requirements, fraction yields and product quality.

- **Expand interdisciplinary knowledge:** The course helps laboratory professionals, engineers, inspectors, traders and procurement specialists understand the technical relationships between crude oil analysis and wider petroleum operations.

- **Support career progression:** Enhanced knowledge of crude oil testing, characterisation, quality control and evaluation can strengthen professional capabilities and support development in laboratory, refinery, inspection and petroleum analytical roles.

- **Apply technical knowledge to workplace challenges:** Participants can use their learning to improve analytical interpretation, discuss crude oil quality issues and contribute to technical evaluations in their organisations.

WHO SHOULD ATTEND

The Crude Oil Assay and Characterisation Methods Training Course is designed for professionals who work with crude oil analysis, quality control, refinery feedstocks, petroleum inspection, crude oil procurement and laboratory testing.

- **Crude Oil Laboratory Technicians and Analysts:** Professionals responsible for crude oil testing, analytical measurements, laboratory procedures and assay data preparation.

- **Petroleum and Analytical Chemists:** Chemists seeking to strengthen their understanding of crude oil composition, analytical methodologies, quality assessment and characterisation techniques.

- **Refinery Process Engineers:** Engineers who evaluate crude oil properties, processing characteristics, refinery feedstock suitability and potential operational implications.

- **Refinery Operations Personnel:** Operations professionals who want to understand how crude oil characteristics, distillation profiles and quality parameters affect refinery operations.

- **Quality Control and Quality Assurance Professionals:** Specialists involved in crude oil inspection, analytical quality control, laboratory procedures, testing reliability and compliance with relevant standards.

- **Crude Oil Inspection and Measurement Specialists:** Professionals engaged in crude oil sampling, cargo inspection, quality determination, laboratory analysis and reporting.

- **Petroleum Production and Operations Engineers:** Professionals seeking a better understanding of crude oil quality variations, analytical evaluation and the relationship between production characteristics and downstream requirements.

- **Crude Oil Traders and Commercial Specialists:** Professionals involved in crude oil purchasing, selling, trading, contracts, feedstock evaluation and quality-related commercial decisions.

- **Procurement and Supply Chain Professionals:** Specialists responsible for selecting crude oil feedstocks, managing supplier relationships and evaluating crude quality information.

- **Blending and Feedstock Management Specialists:** Professionals involved in crude oil blending, feedstock optimisation, quality assessment and refinery feedstock management.

- **Technical Consultants and Petroleum Industry Advisors:** Consultants supporting crude oil evaluation, analytical testing, refinery planning, petroleum quality management and technical decision-making.

- **Managers and Supervisors in Oil and Gas Laboratories:** Managers responsible for laboratory performance, analytical procedures, technical teams, testing quality and operational reliability.

COURSE OUTLINE

Fundamentals of Crude Oil Composition, Properties and Classification

Crude Oil Sampling, Laboratory Testing and Analytical Methods

Distillation Analysis, TBP Characterisation and Assay Development

Comprehensive Crude Oil Assay Interpretation and Refinery Evaluation

Advanced Crude Oil Characterisation, Quality Management and Practical Applications

SCHEDULED DATES

Dates	Venue	Format	Fee
01 - 05 Feb 2027	Abu Dhabi, United Arab Emirates	In person	On request
01 - 05 Feb 2027	Abuja, Nigeria	In person	On request
01 - 05 Feb 2027	Accra, Ghana	In person	On request
01 - 05 Feb 2027	Addis Ababa, Ethiopia	In person	On request
01 - 05 Feb 2027	Al Ain, United Arab Emirates	In person	On request
01 - 05 Feb 2027	Al Khobar, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Alberta, Canada	In person	On request
01 - 05 Feb 2027	AlUla, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Amman, Jordan	In person	On request
01 - 05 Feb 2027	Amsterdam, The Netherlands	In person	On request
01 - 05 Feb 2027	Athens, Greece	In person	On request
01 - 05 Feb 2027	Baku, Azerbaijan	In person	On request
01 - 05 Feb 2027	Barcelona, Spain	In person	On request

Dates	Venue	Format	Fee
01 - 05 Feb 2027	Berlin, Germany	In person	On request
01 - 05 Feb 2027	Boston, USA	In person	On request
01 - 05 Feb 2027	Brussels, Belgium	In person	On request
01 - 05 Feb 2027	Budapest, Hungary	In person	On request
01 - 05 Feb 2027	Cairo, Egypt	In person	On request
01 - 05 Feb 2027	Cape Town, South Africa	In person	On request
01 - 05 Feb 2027	Casablanca, Morocco	In person	On request
01 - 05 Feb 2027	Dammam, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Dhahran, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Doha, Qatar	In person	On request
01 - 05 Feb 2027	Dubai, United Arab Emirates	In person	On request
01 - 05 Feb 2027	Edinburgh, United Kingdom	In person	On request
01 - 05 Feb 2027	Edmonton, Canada	In person	On request
01 - 05 Feb 2027	Frankfurt, Germany	In person	On request
01 - 05 Feb 2027	Geneva, Switzerland	In person	On request
01 - 05 Feb 2027	Houston, USA	In person	On request
01 - 05 Feb 2027	Istanbul, Turkey	In person	On request
01 - 05 Feb 2027	Jakarta, Indonesia	In person	On request
01 - 05 Feb 2027	Jeddah, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Jubail, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Khamis Mushait, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Kigali, Rwanda	In person	On request
01 - 05 Feb 2027	Kuala Lumpur, Malaysia	In person	On request
01 - 05 Feb 2027	Lisbon, Portugal	In person	On request
01 - 05 Feb 2027	Liverpool, United Kingdom	In person	On request
01 - 05 Feb 2027	London, United Kingdom	In person	On request

Dates	Venue	Format	Fee
01 - 05 Feb 2027	Los Angeles, USA	In person	On request
01 - 05 Feb 2027	Luanda, Angola	In person	On request
01 - 05 Feb 2027	Madrid, Spain	In person	On request
01 - 05 Feb 2027	Manama, Bahrain	In person	On request
01 - 05 Feb 2027	Marbella, Spain	In person	On request
01 - 05 Feb 2027	Marrakech, Morocco	In person	On request
01 - 05 Feb 2027	Miami, USA	In person	On request
01 - 05 Feb 2027	Milan, Italy	In person	On request
01 - 05 Feb 2027	Munich, Germany	In person	On request
01 - 05 Feb 2027	Muscat, Oman	In person	On request
01 - 05 Feb 2027	Nairobi, Kenya	In person	On request
01 - 05 Feb 2027	New York, USA	In person	On request
01 - 05 Feb 2027	Nice, France	In person	On request
01 - 05 Feb 2027	Oslo, Norway	In person	On request
01 - 05 Feb 2027	Paris, France	In person	On request
01 - 05 Feb 2027	Port Louis, Mauritius	In person	On request
01 - 05 Feb 2027	Prague, Czech Republic	In person	On request
01 - 05 Feb 2027	Pretoria, South Africa	In person	On request
01 - 05 Feb 2027	Riyadh, Saudi Arabia	In person	On request
01 - 05 Feb 2027	Rome, Italy	In person	On request
01 - 05 Feb 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
01 - 05 Feb 2027	Sharm El Sheikh, Egypt	In person	On request
01 - 05 Feb 2027	Singapore, Singapore	In person	On request
01 - 05 Feb 2027	Stockholm, Sweden	In person	On request
01 - 05 Feb 2027	Tokyo, Japan	In person	On request
01 - 05 Feb 2027	Toronto, Canada	In person	On request

Dates	Venue	Format	Fee
01 - 05 Feb 2027	Tromso, Norway	In person	On request
01 - 05 Feb 2027	Vienna, Austria	In person	On request
01 - 05 Feb 2027	Zagreb, Croatia	In person	On request
01 - 05 Feb 2027	Zurich, Switzerland	In person	On request
01 - 05 Feb 2027	Online, Virtual	Online	On request

CERTIFICATE