



Asphalt/Bitumen Refining Value Chain Essentials: Market, Manufacturing and More

Potential PDH: 16

Description:

Asphalt/Bitumen is a crucial component in the construction and infrastructure industry, primarily used for road pavement, roofing, emulsions, sealants, adhesives, waterproofing and various other industrial applications. Analyzing the asphalt markets involves considering factors such as demand drivers, supply dynamics, pricing trends, regulatory influences, and technological advancements. In this course we will cover various aspects related to the production process, safety protocols, equipment operation, quality control and feedstock selection. Upon completion of this training, participants will be able to:

- Understand the strategic role of asphalt/bitumen in achieving resilient, cost-effective, and sustainable transportation and civil infrastructure.
- Use the material to integrate technical expertise, economic analysis, and environmental considerations, to optimize asphalt formulations to meet evolving performance standards, mitigate environmental impacts, and promote long-term sustainability in the construction industry.
- Utilize concepts of viscometrics and performance-based parameters for risk management assessments to evaluate feedstocks to ensure criteria encompassing technical performance requirements, economic feasibility, environmental sustainability, and regulatory compliance are properly considered.

Outline:

1. Asphalt Market Drivers and Value Chain
 - Key factors and stakeholders
 - World markets
 - Distribution channels
2. Introduction to Asphalt and Refinery Operations:
 - Overview of the refinery and its role in asphalt production
 - Importance of asphalt in the petroleum refining industry
3. Asphalt Feedstock and Raw Materials
 - Types of crude oil suitable for asphalt production
 - Properties of asphalt feedstock
 - Quality control in selecting feedstock
4. Refinery Processes and Equipment Relevant to Asphalt Production
 - Distillation process and asphalt cuts



- Deasphalting
- Air Blowing
 - Overview of the oxidation process for asphalt
 - Techniques for controlling oxidation to achieve desired properties
 - Quality control measures during the oxidation process
- Other residue upgrading techniques
- Modification
 - PMA, PPA

5. Asphalt Grades/Specifications

- Paving
 - Viscosity/Penetration
 - Performance based
- Roofing
- Emulsions
- Other products

6. Asphalt Blending

- Understanding blending operations.
- Importance of blending to achieve desired asphalt properties
- Unit inline blending
- Asphalt blending calculations

7. Quality Control and Testing

- Sampling procedures for asphalt
- Laboratory testing of asphalt properties (penetration, softening point, rheological properties, etc.)
- Statistical process control in asphalt production

8. Environmental and PSM/Safety

- Environmental impact of asphalt production
- Safety protocols for workers and the facility
- Overpressure and underpressure considerations
- Emergency response protocols

9. Asphalt Storage and Transportation

- Storage tank design and maintenance
 - Guidelines and best practices
- Transportation methods for asphalt products
- Quality preservation during storage
- Tank gauging and measurements guidelines

10. Asphalt Loading and Shipping

- Loading and unloading procedures and safety protocols
 - Ship/barge
 - Rail
 - Truck



- Distribution logistics and best practices
- 11. Troubleshooting and Maintenance
 - Identifying common issues in asphalt production
 - Troubleshooting techniques
 - Routine maintenance of production equipment
- 12. Regulatory Compliance
 - Overview of relevant industry standards and regulations
 - Ensuring compliance with environmental and safety regulations
 - Recordkeeping and reporting requirements

Tailor the course content based on the specific technologies and processes used in the refinery, and will incorporate real-world examples and events to enhance the learning experience for participants.

Who Should Attend:

The program is designed to introduce participants to a broad range of asphalt/bitumen value chain segments to gain insight into all aspects – from manufacturing to commercial – which impact the bitumen/asphalt market. The program is ideal for a wide variety of stakeholders from personnel involved in refinery operations, process engineering, plant operations, and technical services to personnel involved in oil movements, supply chain & value chain optimization, trading and marketing, research & development and academia.

Subject Matter Expert (SME):

Ivan Parra Tepedino has over 40 years of experience in Petroleum Refining, Logistic and Marketing. Mr. Parra's experience includes roles in Process and Operations Engineering, Supply & Value Chain Optimization, Trading & Marketing, Planning & Economics, Strategic Planning, Mergers & Acquisitions, C-Suit support assignments and Board Memberships. Commercial experience includes roles as Corporate Manager of 17 Bitumen Terminals, Planning and Scheduling Manager, and General Manager of Crude & Feedstocks Supply and Transportation (Marine, Truck, Rail, Inland and Pipelines).

Mr. Parra Tepedino holds a B.S. in Chemical Engineering, and a BA in Economics from University of Washington in Seattle, WA, an MBA from Virginia Tech's R.B. Pamplin School in Blacksburg, VA. He is a member of the Association of Asphalt Pavement Technologists and has served as Chairman of the Asphalt Institute Technical Advisory Committee, Co-Chairman of the US Transportation Research Board Bitumen Expert Task Group and Founding and former Steering Committee Member of the Asphalt Pavement Alliance.

Keith Aldous has over 40 years of experience in lubes manufacturing and asphalt production. Keith



recently retired from ExxonMobil Research and Engineering where he was the Global Deasphalting and Asphalt Operations Process Engineer. Keith has extensive experience with Group I Lubes Manufacturing and has provided technical insight and support regarding deasphalting, lubes solvent extraction, and dewaxing for ExxonMobil's Worldwide lubes and asphalt operations including opportunity crude selection and operation for lubes and asphalt production