GASOLINE / DIESEL BLENDING FOR REFINERS AND TRADERS

This program is designed to provide practical blending know-how that can be used immediately by participants when returning home. Topics include the latest product/blend component specifications (including EPA Tier 3), blending techniques using Ethanol and Biodiesel, buy/no buy decision making, calculating blend gross profits, calculation of non-linear properties, e.g. octanes and RVP, blending optimization/ benefits, and how to fix offspec tanks. Other subjects covered include estimating blendstock prices, gasoline butanizing techniques, ASTM / ISO test methods, on-line analyzers, measuring environmental compliance with EPA models and In-Line Blend Certification. All discussion topics are reinforced by classroom exercises. Note that attendees receive an 800 page course book (pdf), blend component databases, and valuable take-home blending software (also used for hands-on class exercises).

This program will allow participants to interact closely with both the speaker and others in attendance to exchange information on blending techniques. To get the maximum benefit, attendees should bring their own laptop computer with MS Excel 2007 or later + Solver installed in order to run class exercises and blend optimizers.

The program content is designed for those involved in clean product trading, fuels blending, and storage terminal operation. Petroleum refiners, petrochemical and automotive industry personnel as well as those from fuel product testing organizations, instrumentation and automation companies, refined product marketing organizations, and government agencies responsible for fuel regulations will also find this program informative and very useful.

PROGRAM OUTLINE

1. INTRODUCTION TO BLENDING
   • Types of Blending
     + Sequential; Tank to Tank; In-Line Blending
     + Linear vs. Non-Linear Blending

2. SPECIFICATIONS, COMPONENTS, AND ADDITIVES
   • Typical Specs (US, EU, World) for Conventional, RFG, Diesel
   • Blendstock Components and Typical Properties
   • Additives (Octane & Cetane Boosters, Detergents, PP Depressants...) and Dyes
   • Linear/Non-Linear Property Blending
   • Component Interactions and Effects on Specs
3. TYPICAL BLENDING EQUIPMENT AND SOFTWARE
• In-Line Blenders
• On-Line Analyzers (Conventional, NIR, NMR, Raman) for Octane, RVP, Dist, S, Cetane, CP, FP, CFPP, etc. & Typical Performance
• Tank Gauging (Float, Servo, Radar) & Typical Performance
• DCS & Blending Software (Planning, Control, Optimization)

4. HANDS-ON EXERCISES WITH BLENDING TOOLS
• Linear & Non-Linear Gasoline & Diesel Blending Calculators
• Blending LP Gasoline and Diesel Optimizer
• Comparing Linear/Non-Linear/Optimized Results

5. THE BLENDING CONTROL & OPTIMIZATION STEPS
• Types of Optimizers
• Typical Property Correlation Equations for Octane, RVP, Dist, Cetane Index, CP/PP, CFPP, Visc, etc.
• Planning of Blends / Generating Blend Orders
• Executing a Blend / Quality Control
• Blend Documentation

6. BLENDING ECONOMICS
• Blend Component Pricing Methods
• Blend Profit Calculations and Optimization Methods

7. QUALITY ASSURANCE
• Laboratory Measurements
  + ASTM Test Methods for Gasoline and Diesel
• On-Line Analyzers
  + Advantages vs. Single Lab Analysis
  + State-of-the-Art NIR & NMR Analyzers for Blend Control
• Criteria for In-Line Blend Release/Certification
• Dispute Resolution

8. CLEAN FUELS AND ENVIRONMENTAL ISSUES
• EPA Complex (Emissions) Models for Gasoline
• Impacts of USA and EU Regulations
  + Renewable Fuels (RFS2), RIN's/LCFS/Cap&Trade
  + Ethanol Blending, Including New E15 Waiver
  + Sulfur Reduction, Testing, Contamination
  + Bio-Diesel (B2-20) Blending

9. BENEFITS OF IMPROVED BLENDING
• Inventory Reduction
• Quality Giveaway Minimization
• Use of Least Expensive Components
• Tankage Minimization
• Blend Key Performance Indicators

10. OPEN FORUM Q&A SESSION
• Summary of Each Participant Blending Operation
• Exchanging Problems / Handling of Common Problems
PROGRAM SPEAKER

Eric Gildea is a Managing Consultant for Offsites Solutions with Schneider-Electric. He has over 30 years of experience with Bailey Controls/ABB and Foxboro/Invensys/Schneider Electric in the development, implementation, and support of automation, advanced control, optimization, and simulation systems across many industries, but has concentrated on refinery product blending operations for his entire career. He has worked with over 50 refining and terminal sites on offsites scoping/benefits studies, system implementations, and performance monitoring and has reviewed operations at dozens of others. Since 1986, he has worked with Mr. Ara Barsamian on various blending projects. His primary current focus is on applying multi-blend optimization and SQC performance monitoring technologies to maximize the profitability of blending operations. He holds a Bachelor of Chemical Engineering from the University of Delaware and a Master of Science in Systems & Control Engineering from Case Western Reserve University.