

COURSE OVERVIEW PE0148
Basic Depots Operations & Safety-L1A
(E-Learning Module)

Course Title

Basic Depots Operations & Safety-L1A
 (E-Learning Module)

Course Reference

PE0148

Course Format & Compatibility

SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

Course Duration

30 online contact hours
 (3.0 CEUs/30 PDHs)



Course Description



This E-Learning is designed to provide participants with a detailed and up-to-date overview of basic depots operations and safety-L1A. It covers the oil tankers operation, general precautions onboard and tank truck operations; the storage and dispensing locations, storage tank types and storage tank design; the tank fire protection systems, foam deflector device and emergency response pre-planning and emergency response planning; the prohibited use of fire except in designated areas and control of potential ignition sources; the standard use of private electric appliances and other portable electrical equipment; and the tank truck operations, tank truck design and mandatory accessories/ fittings for tank trucks as per CCOE.

Further, the course will also discuss the ship-to-ship transfer and operational guideline; the pump room inspections and gas detection equipment; the toxic gas detectors, combined function meters, personal monitoring meters and sample lines; the tanker navigation, cargo discharging and loading operations, deck preparations, crew protection and manoeuvring vessel during navigation in ice; the oil pollution control; the use of equipment for oil spill detection and oil pollution mitigation; the precautions during gas-freeing operations; and the pre-entry precautions and safety precaution during oil handling operations for oil tankers.

Moreover, the course will also discuss the bunkering operation and preparation of main engine; the proper use of hand tools; the tank gauging/survey upon completion of loading operations; the guidelines for toxic gases hazards; the crude oil washing procedures, discharging strategy, recording, gas-freeing, bunkering operation and preparation of main engine; the proper disposal for spilled oil and prevention for secondary disaster and maintenance work in pump room; the basic properties of petroleum including vapour pressure, flammability and density of hydrocarbon gases; the chemical and physical characteristics of ethanol and hydrocarbon fuels; and the characteristics of gasoline, pure ethanol and ethanol-blended fuels.

During this interactive course, participants will learn the refinery feedstocks, products properties and specifications; the oil refinery or petroleum refinery processes; the crude oil assay, crude oil properties, distillation analysis types and petroleum products; the gasoline blend stock analyses; the terminal management, compliance, hazard identification and risk management; the terminal operations, pre-arrival communications, mooring and limiting conditions for operations; the routine maintenance; the lifting inspection and maintenance, earthing and bonding practice in the terminal, emergency preparedness and terminal emergency planning; the linked ship/shore emergency shutdown systems for oil and chemical transfers; the proper coordination and communications in managing tanker and terminal interface; and the ESD arrangements and linked ship/shore systems for liquefied gas carries covering philosophy and general requirements, ESD functions and associated safety systems and linked ESD systems.

Course Objectives

The course should serve the following overall learning objectives:-

- Apply and gain a comprehensive knowledge on basic depots operations & safety-L1A
- Coordinate with refinery depots operations systems
- Gain knowledge of advance control system, tanker checklist and operations and products quality management
- Operate oil tankers, general precautions onboard and tank truck operations as well as identify storage and dispensing locations, storage tank types and storage tank design
- Recognize tank fire protection systems, foam deflector device and emergency response pre-planning and emergency response planning
- Prohibit the use of fire except in designated areas and control of potential ignition sources
- Implement the standard use of private electric appliances and other portable electrical equipment
- Apply tank truck operations, tank truck design and mandatory accessories/ fittings for tank trucks as per CCOE
- Perform ship-to-ship transfer and operational guideline and check item for oil tankers

- Measure pump room inspections and gas detection equipment
- Identify toxic gas detectors, combined function meters, personal monitoring meters and sample lines
- Carryout tanker navigation, cargo discharging and loading operations, deck preparations, crew protection and manoeuvring vessel during navigation in ice
- Control oil pollution, use equipment for oil spill detection and oil pollution mitigation and apply precautions during gas-freeing operations
- Implement pre-entry precautions, safety precaution during oil handling operations for oil tankers, bunkering operation and preparation of main engine
- Use proper hand tools as well as apply tank gauging / survey upon completion of loading operations
- Review guidelines for toxic gases hazards and employ crude oil washing procedures, discharging strategy, recording, gas-freeing, bunkering operation and preparation of main engine
- Apply proper disposal for spilled oil and prevention for secondary disaster and maintenance work in pump room
- Identify the basic properties of petroleum including vapor pressure, flammability and density of hydrocarbon gases
- Discuss the chemical and physical characteristics of ethanol and hydrocarbon fuels as well as the characteristics of gasoline, pure ethanol and ethanol-blended fuels
- Discuss refinery feedstocks, products properties and specifications as well as oil refinery or petroleum refinery processes
- Identify crude oil as refinery feedstock, primary hydrocarbon molecular types and distribution of compounds
- Recognize crude oil assay, crude oil properties, distillation analysis types and petroleum products
- Describe the sources of product specifications, the characteristics of petroleum products and fuel gas specifications, natural gasoline specifications, aviation gasoline specifications and motor gasoline specifications
- Determine octane numbers, Reid vapor pressure (RVP), alternate RVP-like tests, middle distillates, diesel cetane number, flash point, OSHA flammable liquid, cloud and pour points
- Discuss kerosene, jet fuel and diesel specification including stationary turbine fuel and diesel classes, diesel sulfur content, distillate fuel oil, residual fuel oils and ASTM fuel oil specs
- Compare kerosene, jet, diesel and heating oil and boiling ranges
- Discuss gas oil & town gas, lubricant terminology, lubricants, SAE viscosity specifications, asphalt, petroleum coke and sulfur specifications

- Determine standard conditions of temperature and pressure including standard liquid & gas volumetric flow rates
- Carryout gasoline blend stock analyses, gasoline analyses, RVP procedures, flash point by tag, linear blending rules, temperature corrections to specific gravity and pressure correction
- Apply terminal management, compliance, hazard identification and risk management
- Review operating manual, terminal information and port regulations as well as perform supervision and control, de-manning of berths, checks during cargo handling and training
- Recognize vessel and berth compatibility, maximum draft, maximum displacement, length overall, other criteria and documentation
- Employ terminal operations, pre-arrival communications, mooring and limiting conditions for operations
- Identify ship/shore access, access equipment, ship's gangway, accommodation ladder, provision of ship/shore access, siting of gangways and safety nets
- Carryout routine maintenance and recognize unauthorized persons, persons smoking or intoxicated, double banking, over the tide cargo operations, discharging and loading over the tide and operations where the vessel is not always afloat
- Discuss the generation of pressure surges in pipelines, pressure surges assessment, derivation of total pressure in the system, overall system design and reduction of pressure surge hazard
- Apply pipeline flow control as a static precaution and recognize flow control requirements, controlling loading rates, discharge into shore installations and terminal systems and equipment
- Employ lifting inspection and maintenance, earthing and bonding practice in the terminal, emergency preparedness and terminal emergency planning
- Recognize the linked ship/shore emergency shutdown systems for oil and chemical transfers
- Apply proper coordination and communications in managing tanker and terminal interface
- Identify ESD arrangements and linked ship/shore systems for liquefied gas carries covering philosophy and general requirements, ESD functions and associated safety systems and linked ESD systems

Who Should Attend


This course provides an overview of all significant aspects and considerations of basic depots operations and safety-L1A for engineers and other technical, operational and maintenance staff.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course.

Certificate Accreditations


Certificates are accredited by the following international accreditation organizations: -

-  USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 1-2013 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 1-2013 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

-  British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Fee

As per proposal

Training Methodology

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

Course Contents

- Operation of Oil Tankers and General Precautions Onboard and Tank truck operations
- Storage and Dispensing Locations
- Storage Tank Types
- Storage Tank Design
- Spill Containment
- Tank Fire Protection Systems
- Built in Fire Protection Systems
- Foam Deflector Device
- Emergency Response Pre-planning
- Emergency Response Planning
- Key Considerations
- Working Relationships
- Terminal Size Considerations
- Storage at a Production Facility
- Transloading Sites
- Retail Dispensing Stations
- Retail Fuel Storage
- Most Common Retail Tank Configuration
- Summary
- Activity 5.1: Ethanol in Your Jurisdiction

- Operation of Oil Tankers and General Precautions Onboard
- Restriction of Smoking, Other Burning Activities and Naked Lights
- Prohibition of Using Fire Except in Designated Areas and Control of Potential Ignition Sources
- Standards for Use of Private Electric Appliances and other Portable Electrical Equipment
- No Wiring Without Permission
- Closing Portholes and Doors
- Riveted Shoes Prohibited
- Use of Body Electrostatic Discharge Plate
- Control of Personnel in Cargo Tank Deck Areas
- Attention to Visitors
- Precautions When Storing Spontaneously Combustible Materials
- Precautions Against Sparks from Funnel
- Tank Truck Operations
- Tank Truck Design
- Mandatory Accessories/ Fittings for Tanktrucks as per CCOE
- Statutory Approvals
- Activities at TTG
- TT Loading Operations
- Locking Arrangement
- TT Receipt Operation
- POT
- Training to Drivers
- Malpractices
- Contaminated Product
- New Generation TT
- RFD
- Ship-to-Ship Transfer / Operational Guideline and Check Item for Oil Tankers
- Checklist 1 – Pre-Fixture Information (For Each Ship)
- Checklist 2- Before Operations Commence
- For Discharging Ship/ Receiving Ship Checklist 3- Before Run-in and Mooring
- Checklist 4 – Before Cargo Transfer
- Checklist 5 – Before Unmooring

- Measures for Pump Room Inspections & Gas Detection Equipment
- Gas Detection Equipment
- Oxygen Analysers
- Explosimeter
- Tankscope
- Toxic Gas Detectors
- Combined Function Meters
- Personal Monitoring Meters
- Sample Lines
- Tanker Navigation
- Tanker Navigation: Matters that Require Attention at Sea
- Matters that Require Attention While Using Inert Gas System
- During Operation of Inert Gas System (IGS)
- Cargo Discharging Operations
- During Ballast Voyage
- Cargo Loading Operation
- Secondary Venting
- PV (Pressure Vacuum) / HV (High Velocity) Valves
- During Loaded Voyage
- Handling Troubles & Failure of IGS During Discharging / COW Operations
- Other Operations
- Records
- Measures for Freezing Conditions
- Deck Preparations
- Freeze Prevention for Apparatuses
- Life Boats
- Freeze Prevention for Fresh and Sea Water Tanks
- Crew Protection
- Freeze Prevention for Deck Machinery
- Freeze Prevention for Nautical Instruments
- Freeze Prevention in Machinery Space
- Measures for Navigation in Areas Where Ice May be Encountered
- Study of Detour

- Collection of Ice Information
- Preparations for Entering into Ice Sea
- Manoeuvring Vessel During Navigation in Ice
- Preventive Measures Against Icing on Hull
- How to Prepare Your Vessel Prior Navigating in Cold Weather-Required Check Items
- Matters that Require Attention while Carrying-out Soundings
- Housekeeping and Safety in Engine Room-Guideline for Ships
- Oily Contaminated Materials
- Bilges
- Engine Room Workshop
- Special Safety Items for Attention
- Course Recap
- Control for Oil Pollution to a Minimum
- Equipment for Oil Spill Detection
- Equipment for Oil Pollution Mitigation
- Guidelines for Prevention of Oil Pollution Mitigation
- Action by Duty Officer
- Plugging Deck Scupper Plugs
- Tanker Standard Equipment of Prevention of Oil Spillage
- Cargo Tank Level Measuring System and Level Alarm System
- Emergency Hydraulic Hand Pump
- “Software”/Guidelines for Prevention of Oil Spillage
- Operation Guidelines for Cargo / Ballast Valves
- Prevent Erroneous Operation of Valves
- Valve Handling with Avoiding Liquid Hammer
- Securing Indication for Closed Valves
- Prevention of Internal Pressure Increase by Expansion and by Blocking (Solidification)
- Guideline for Pump Room Sea Chest Valve Operation
- Inspection for the Sea-Chest
- Inert Gas System / Scrubber Cooling Pump Operation
- Safe Mooring in Port'Smart Terminal Automation & its Integration with Plant Control



- Precautions During Gas-Freeing Operations
- Prevent Human Injury
- Atmosphere Control for Tanks & Pipes to be Gas Free
- Prevent for Gas Enter into Accommodation Area
- Care for Gas Free Equipment
- Precautions for Entry After Gas Freeing
- Enclosed Space Procedure
- What is Enclosed Space?
- Permit to Enter
- Masters Permission
- Enclosed Space Entry Permit
- Pre-Entry Precautions (To be Completed by Responsible Person)
- Pre-Entry Checks (To be Completed by Team Leader Entering the Enclosed Space)
- Safety Precaution During Oil Handling Operations for Oil Tankers
- Bunkering Operation
- Preparation of Main Engine
- Measures During Extreme Weather
- Restrictions on Use of Fire, Smoking, and Other General Precautions to the Crew
- General Precautions Confirming Working Area Onboard Oil Tanker
- General Precautions Confirming Working Area Onboard Oil Tanker
- Confirming Working Area
- Anti-Electrostatic Clothes and Shoes for Ship's Crew
- Permission of Hot Work
- Use of Explosion-Proof Type Electric Torch Equipment
- Use of Hand Tools
- Prohibition of Carrying Unnecessary Tools
- Attention to Shock Sparks by Lighter Metals
- Attention to Handling of Aluminium Products
- Attention to Light Metal Shore Ladder
- Lashing of Movable Articles
- Cautions About Ullage Measurement and Sampling
- Maintenance of Fixed Lighting Units
- Lighting in a Marine Terminal



- General Safety Measures Against Oil Pollution Accident
- Working System and Preparation
- Planning for Cargo Oil Operations
- Pre-Safety Meeting
- Effective Communication
- Promote Techniques of Hazard Prediction Training
- Preparation of Watch Schedule & PIC of Oil Transfer Operations
- Have a Complete Meeting Beforehand With Terminal
- Cargo Oil Transfer Check Lists
- Ship / Shore Safety Checklist
- Pre-Arrival Checks
- Transfer of Duty in Conscientious Manner
- Check Operational Conditions and Training of Crew
- Preparations for Loading
- Preparation of the Cargo Plan
- Preparing of Ballast Pumps
- Display of Warning Notices and Signs
- Hose Connection
- Cargo Oil Transfer Meetings with Terminal Representative
- Dry Survey / OBQ survey
- Lining up Pipelines and Valves
- Precautions for Loading Heated Cargo
- Personnel Arrangement at Beginning of Operations
- Onboard Announcement
- Inspection of Cargo Work Equipment and Machinery
- Inert Gas System
- Gas Indicator
- Level Gauges
- Oil Discharge Monitoring and Control System (ODMCS)
- Communication System
- Hydraulic Oil System for Cargo / Ballast Remote Control Valves
- Hydraulic Oil Power System for Deck Machineries
- Regular Inspection / Testing for Cargo Handling Equipment

- Cargo Tank System & Equipment
- Double Hull Operation
- Before Entering for the 1st Discharging Port
- Inspection of Cargo Lines and Tank Washing Lines Before Entering Port
- Measures if a Defect is Observed on Cargo / Ballast Pipes
- Defect Record
- Docking Repair
- Pressure Test of Ballast Lines
- Inspection According to United State Regulations
- Oil Cargo Loading Operations
- Line-Up of the Vent Lines
- Safety Confirmations and Clearance
- Deck Watch and Personnel Arrangement
- Leakage Monitoring System
- Cargo Loading Rates
- De-Ballasting of Segregated Ballast
- Recording During Operations in Tanker Log Book
- Chief Officer's Standing Order
- Trim and Draft
- Topping Off
- Preparation for Topping Off
- Topping Off Operation
- Completion of Loading
- Tank Gauging / Survey Upon Completion of Loading Operations
- Guidelines for Toxic Gases Hazards
- Hydrocarbon Vapors Characteristic of H.C. Vapors
- Toxic Hazards of H.C. Vapors
- Hydrogen Sulfide (H₂S)
- H₂S Gas Concentration
- Precautions for Hydrogen Sulfide (H₂S)
- Benzene
- Mercaptans (Thiol)
- Inert Gas



- Health Concerns of Inert Gas
- Oxygen-Deficient Atmosphere
- Course Recap
- Crude Oil Washing Procedures
- Supervision of Crude Oil Washing (COW) Operations
- Discharging Strategy
- Terminal (Refinery) Request
- COW Manual
- Advance Notice in Port
- Safety Measures for Crude Oil Washing Operations
- Pressure Test Before Arrival Port
- Confirming Atmosphere in Tanks to be Crude Oil Washed
- Note
- Communication Equipment
- Suspending Crude Oil Washing
- Prevention of Air Pollution
- Crude Oil Washing Plan
- Personnel Arrangement for Operations
- Points of Crude Oil Washing
- Recording
- Regulations for Reference
- Documents for Reference
- Crude Oil Washing Safety Check Items for Oil Tankers
- Check Items Before Arrival
- Check Items Before Crude Oil Washing Operation
- Check Items After Completion of Crude Oil Washing Operation
- Standard Procedures for Tank Cleaning, Purging and Gas Free Operation for Oil Tankers
- Responsibility
- Gas-Freeing for Cargo Tank Entry
- Gas-Freeing or Purging for the Reception of Cargo
- Safety Precautions
- Non Flammable Atmosphere
- Atmosphere Control During Tank Cleaning Operations





- Inerted Tanks
- Purging with Inert Gas (IG)
- Oxygen Content in Inert Gas for Purging
- For Carrying Out Gas Freeing of The Tank
- Distinct Process
- Forced Air Ventilation
- Completion of Work & Inerting Cargo Tanks
- Measures Against Inert Gas System in Troubles
- Restriction of Carriage and Discharging of Oil and Water Ballast
- Matters that Require Attention while Loading and Discharging Oil and Ballast Water: Restriction of Carriage of Oil and Water Ballast
- Restriction of Carriage of Oil and Water Ballast
- Control of Discharge of Oil or Oily Mixture
- Control of Discharge of Oily Mixture Originating from Cargo Oil from Tankers
- Other Waters than Special Areas
- Purpose of Ballast Water Management System Onboard Cargo Ships
- Bridge Visibility
- Operations During Laden Voyage
- Water and Cargo Oil Measurement
- Vapor Control
- Topping Up Operation
- Cargo Oil Heating
- Cargo Heating Plan
- Line Pressure Test
- Measures for Handling Cargo Oil Having a Flash Point Exceeding 60c
- Safety Precaution During Oil Handling Operations for Oil Tankers
- Bunkering Operation
- Preparation of Main Engine
- Measures During Extreme Weather
- Restrictions on Use of Fire, Smoking, and Other General Precautions to the Crew
- Preparation for Discharge
- Preparation of the Cargo Plan
- Preparation for Cargo Equipment
- Cargo Oil Transfer Check Lists



- Display of Warning Notices and Signs
- Hose Connection
- Ullage Measurement and Cargo Quantity Calculation
- Lining-Up Pipelines and Valves
- Personnel Arrangement at Beginning of Operations
- Onboard Announcement
- Cargo Discharging Operation in Oil Tankers
- Supply of I.G to Cargo Tanks Being Discharged
- Line Up of the IGS
- Safety Confirmations and Clearance
- Deck Watch and Personnel Arrangement
- Starting of Discharge Operation Pumps and Adjusting Internal Pressure of Tanks
- Starting of Cargo Pumps
- Standard Practice for Operating Centrifugal Cargo Pumps
- Precaution While Operating Multi Numbers of Cargo Oil Pumps
- Shutting Down of Cargo Pumps
- Recording During Discharging in Tanker Cargo Log Book
- Chief Officer's Standing Order
- Crude Oil Washing
- Ballasting and De-Ballasting
- Trim and Draft
- Stripping Cargo
- Survey Upon Completion of Discharge from Tanks
- Completion of Discharge
- Stopping Inert Gas System
- Personnel for Cargo Handling
- Principle / Watch Schedule
- Safety Meetings
- Supervision of Operations
- Personnel Arrangement During Cargo Operations
- Duty Schedule
- Course Recap
- Disposal for Spilled Oil and Prevention for Secondary Disaster

- Tanker Standard Equipment for Disposal of Spilled Oil & Secondary Disaster Prevention
- Slop Dump (Surface) Valve Arrangement (Emergency Drains)
- Equipment and Materials for on Deck Oil Spill Clean Up
- Inert Gas System
- How to Report an Emergency
- Measures for Pump Room Entry
- Entry Permit into Enclosed Space
- Entry Control
- Atmosphere Control
- Effective Communication
- Gas Monitoring
- Keep Clean/Clear in Pump Room
- Maintenance Work in Pump Room
- Shipboard Safety Inspection Checklist
- Accommodation-Safety Checklist
- Accommodation-Housekeeping/General Checklist
- Machinery Spaces-Safety Checklist
- Deck Area-Safety Checklist
- Other Areas (Tankers)-Safety & House Keeping Checklist
- Housekeeping and Safety in Engine Room-Guideline for Ships
- Oily Contaminated Materials
- Bilges
- Engine Room Workshop
- Special Safety Items for Attention
- Ships Bunkering Operation-Planning, Preparation, Safety Checks & Confirmation
- Preparation of Bunkering Plan
- Preparation for Bunkering (Prior Arrival Bunkering Port)
- Confirmation at Beginning of Bunkering
- Confirmation at Tank Changeover
- Pre-Bunker Exchange of Information Between Responsible Persons on Ship & Barge/Facility
- Confirmation Prior Commencement & During Bunkering
- Confirmation at Finally Loaded Tank and Completion Of Bunkering



- Additionally, for Tankers & Gas Carriers
- Oil Spill Contingency and Emergency Response Plans
- Qualitative and Quantitative Risk Assessments
- The Marine Risk Assessment Process
- Workshop: Port Charges in the Arabian Gulf States
- Course Recap
- Basic Properties of Petroleum
- Vapour Pressure
- Flammability
- Density of Hydrocarbon Gases
- Chemical and Physical Characteristics of Ethanol and Hydrocarbon Fuels
- Introduction
- Activity 2.1 — Definitions
- Characteristics of Gasoline (A Hydrocarbon)
- Immiscibility — Gasoline / Ethanol
- Characteristics of Pure Ethanol (A Polar Solvent)
- Flash Point Exercise
- Video
- Invisible Flames — Pure Ethanol
- Shot of Ethanol Fire Through Thermal Imaging Camera
- Activity 2.2 — Comparison of Gasoline and Pure Ethanol
- Characteristics of Ethanol-Blended Fuels
- Summary
- Course Recap
- Refinery Feedstocks & Products Properties & Specifications
- Oil Refinery or Petroleum Refinery Processes Overview
- Topics
- Quantity & Quality
- Crude Oil as Refinery Feedstock
- Primary Hydrocarbon Molecular Types
- Example Heterocompounds
- Distribution of Compounds
- Crude Oil Assay





- Crude Oils are Not Created Equal
- Crude Oil Properties
- Distillation Analysis Types
- Crude Oil Assay – Hibernia (from Chevron site)
- Crude Oil Assay – Hibernia (from ExxonMobil site)
- Comparison of Chevron & ExxonMobil Assays
- Crude Oil Assay – Bakken vs. Other Light Crudes
- Crude Oil Assay – Eagle Ford vs. Other Light Crudes
- Products as Defined by their Properties & Specifications
- Petroleum Products
- Sources of Product Specifications
- What Makes Gasoline Gasoline? What Makes Diesel Diesel?
- Characteristics of Petroleum Products
- Fuel Gas Specifications
- Liquefied Petroleum Gas (LPG)
- Natural Gasoline Specifications
- Aviation Gasoline Specifications
- Motor Gasoline Specifications
- Motor Gasoline Volatility Classes (ASTM D 4814-13)
- Other Gasoline Considerations
- What are Octane Numbers?
- What is Reid Vapor Pressure (RVP)?
- What are alternate RVP-like tests?
- Middle Distillates
- Diesel Cetane Number
- What is Flash Point?
- OSHA Flammable Liquid Definitions
- What are Cloud & Pour Points?
- Additional Specifications
- Kerosene Specifications
- Jet Fuel Specifications
- Stationary Turbine Fuel & Diesel Classes
- Diesel Specifications



- Diesel Sulfur Content
- Distillate Fuel Oil
- Residual Fuel Oils
- ASTM Fuel Oil Specs
- Comparison Kerosene / Jet / Diesel / Heating Oil
- Comparison of Boiling Ranges
- Gas Oil & Town Gas
- Lubricant Terminology
- Lubricants
- SAE Viscosity Specifications
- Asphalt
- Petroleum Coke
- Sulfur Specifications
- Summary
- Standard Conditions (Temperature & Pressure)
- Standard Liquid Volume vs. Standard Gas Volume
- Standard Liquid & Gas Volumetric Flow Rates
- Crude Oil Assay – Ten Section Field (Text pg. 416)
- Crude Oil Assay – WTI (from OGJ article)
- SAE 902098 Gasoline Blend Stock Analyses
- SAE 902098 Gasoline Analyses
- ASTM D 323 RVP Procedures
- ASTM D 56 Flash Point by Tag Closed Tester Flash Points Below 60°C (140°F)
- Linear Blending Rules
- How Do We Blend Specific Gravities?
- How Do We Blend API Gravities?
- Temperature Corrections to Specific Gravity
- What if We Want to Estimate Volumetric Shrinkage?
- How Do We Blend Yield Curves?
- How Do We Blend Properties for Individual Fractions?
- How Do We Correct Boiling Point for Pressure?
- Pressure Correction Example
- How Do We Interconvert D86 & TBP Temperatures?



- Interconvert D86 & TBP Temperatures
- How Do We Interconvert D86 & TBP Temperatures?
- How Do We Interconvert D1160 & TBP Temperatures?
- Interconvert D1160 & TBP Temperatures
- How Do We Interconvert D2887 & TBP Temperatures?
- D86 Conversion Example
- D-86 vs TBP Temperatures
- How Do We Correlate Yield to Boiling Point?
- How Do We Use the Probability Form?
- “Linearized” Distillation Yield Curves
- Incremental vs. Cumulative Yield
- How Do We Blend Distillation Curves?
- Distillation Curve Blend Example
- How Do We Estimate Light Ends from Yield Curve?
- Light Ends Example
- How Do We Estimate Other Properties of Fractions?
- What Happens When We Change Cut Points?
- Revised Cut Points – Example #1
- Revised Cut Points – Example #2
- Revised Cut Points – Example #3
- Can We Estimate Gravity Curve When None Given?
- How Do We Blend Watson K Factor?
- What is the Average Boiling Point for a Mixture?
- Estimate Average Boiling Points from Distillation Curve
- How Do We Blend Heating Values?
- Vapor Pressure Calculations
- How Do We Blend RVPs?
- RVP & TVP – API Technical Data Book Methods
- Other Correlations
- How Do We Blend Octane Numbers?
- Non-Linear Octane Blending Formula
- Gasoline Blending Sample Problem
- What is Driveability Index (DI)?





- How can We Estimate Flash Point?
- How Do We Estimate & Blend Cetane Index?
- How are Octane & Cetane Numbers Related?
- How Do We Convert SUS Viscosity?
- How do We Adjust Viscosity for Temperature?
- Viscosity vs. Temperature Example
- How Do We Blend Viscosities?
- ASTM D 7152 Viscosity Blending
- Viscosity Blending Example
- Solid & Near-Solid Formation: Pour Point, Cloud Point, & Freezing Point
- How are the Carbon Residues Related?
- New Vanadium Compounds Identified in Heavy Venezuelan Crude Oil
- Terminal Management and Organisation
- Compliance
- Hazard Identification and Risk Management
- Operating Manual
- Terminal Information and Port Regulations
- Supervision and Control
- De-manning of Berths
- Checks During Cargo Handling
- Training
- Vessel and Berth Compatibility
- Maximum Draft
- Maximum Displacement
- Length Overall (LOA)
- Other Criteria
- Documentation
- Terminal Operations
- Pre - Arrival Communications
- Mooring
- Limiting Conditions for Operations
- Ship/Shore Access
- Access Equipment



- Ship's Gangway
- Accommodation Ladder
- Provision of Ship/Shore Access
- Siting of Gangways
- Safety Nets
- Routine Maintenance
- Unauthorized Persons
- Persons Smoking Or intoxicated
- Double Banking
- Over-The-Tide Cargo Operations
- Discharging Over the Tide
- Loading Over the Tide
- Operations Where the Vessel is Not Always Afloat
- Generation of Pressure Surges in Pipelines
- Assessment of Pressure Surges
- Effective Valve Closure Time
- Derivation of Total Pressure in the System
- Overall System Design
- Reduction of Pressure Surge Hazard
- Pipeline Flow Control as a Static Precaution
- Flow Control Requirements
- Controlling Loading Rates
- Discharge into Shore Installations
- Terminal Systems and Equipment
- Siting of Electrical Equipment
- Fendering
- Fender Operating Limits for Berthing
- Lifting Equipment
- Inspection and Maintenance
- Lighting
- Ship/Shore Electrical Isolation
- Ship to Shore Electric Currents
- Sea Islands



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