Proficiency Testing Overview

- Benefits
- Program Offerings
- Registration
- Web Portal
- New Reporting System
Benefits of Proficiency Testing

- Participation helps satisfy laboratory accreditation requirements
- Lab Quality Assurance (QA)
  - Data for monitoring lab strengths and weaknesses
  - Residual sample material useful as internal QA sample
- Internal method comparison
- Discover method sensitivities
- Demonstrate your testing capability to customers
- Test results and associated statistics help ASTM validate test method performance under real world conditions
- Used by sponsoring ASTM committees to improve the test methods
ASTM Proficiency Testing Program (PTP)

- A program designed as a statistical quality control tool enabling participating laboratories to assess their performance in conducting ASTM or other test methods such as: ISO, EN, BSI, UOP, AATCC, etc.

- We provide management and the administrative support:
  - Program registration, data collection and generation of statistical summary reports
  - Using D7915, Generalized Extreme Studentized Deviate (GESD) Technique to Identify Multiple Outliers

- We coordinate the preparation and distribution of test samples
  - Some test samples are prepared by outside contractors

- Our program provides instructions, lab worksheets and electronic data submission, all accessible on the ASTM PTP website portal

PTP's exercising proficiency in over 400 different test methods
Over 90 years of Proficiency Testing Experience

ASTM Proficiency Testing Programs

- Launched in 1929, the program has grown to include different material types
  - Petroleum products
  - Plastics
  - Metals
  - Aromatic Hydrocarbons
  - Additive Manufacturing
  - Insulating fluids
  - Engine coolants
  - Cement/Concrete
  - Rebar
  - Textiles

56 proficiency testing programs involve 2,300 Laboratories and 7,900 units of participation
52% of participation from outside USA

© ASTM International
Cement and Concrete Testing (C01,C09)

- Concrete
- Concrete Masonry Units
- Portland Cement
- Masonry Cement
- Blended Cement
- Pozzolan
- Masonry Mortar
- Rebar (reinforcing steel)
ASTM Proficiency Testing Program Types

Petroleum Products and Lubricants (D02)

- #2 Diesel Fuel
- #6 Fuel Oil
- Automatic Transmission Fluid (ATF)
- Automotive Lubricants Additives
- Aviation Turbine Fuel - (Jet A)
- Aviation Turbine Fuel - (Military F24)
- Base Oil
- Biodiesel
- Biodiesel Blend (B6 to B20)
- Cetane
- Crude Oil
- Engine Oil Lubricants
- Fuel Ethanol
- Gear Oil
- General Gas Oils
- Hydraulic Fluids & Oils Program
- In Service Oil Monitoring Hydraulic Fluids/Oils
- In-Service Diesel Lubricating Oil Monitoring
- Industrial Gear Oil
- Lubricating Grease
- Motor Gasoline
- Naphtha
- Octane Testing
- Petroleum Wax
- Reformulated Gasoline (RFG)
- Turbine Oil
- Ultra-Low Sulfur Diesel Fuel
- White Mineral Oil
ASTM Proficiency Testing Program Types

Metals Testing (E01, E28)
- Mechanical Properties Testing of Metals
- Plain Carbon and Low-Alloy Steel (Chemical Analysis)
- Stainless Steel (Chemical Analysis)
- Aluminum (Chemical Analysis)
- Determination of Gold in Bullion

Plastics Testing (D20)
- Polyethylene Plastics Testing
- Multiple Plastics - Mechanical Properties Testing
- Polypropylene - Mechanical Properties Testing
- Flammability of Plastics Testing
- Thermal Analyses of Plastics
- Elemental Analyses of Plastics
ASTM Proficiency Testing Program Types

Additive Manufacturing (B09, F42, E01)
  – Powder Metallurgy

Aromatic Hydrocarbon Testing (D16)

Aqueous Solution Testing (D15)
  – Engine Coolants
  – Diesel Exhaust Fluids

Electrical Insulating Fluids (D27)
  – Insulation Fluid Quality– In-Service Insulating Fluid
  – Dissolved Gas Analyses

Textiles (D13)
  – Woven Fabric Testing
  – Yarns and Threads
  – Knit Fabrics
Registration

2019 Enrollment is Open

Participation up +6.7% in 2018

- 84 labs enrolled in first year 2000
- 284 labs enrolled in 2017
- 303 labs enrolled in 2018
Bulk Material and Samples

**Different Companies have donated the bulk Crude Oil**

Use 2 drums of bulk crude per cycle.

Screening tests (on each drum):
- Density, Sulfur, Vapor Pressure

Results are typical, based on historical results.

Homogeneity check (on 5 random samples):
- Density, Sulfur, Water, Vapor Pressure, Vanadium, Iron

Each sample is within method repeatability.

### Samples distributed by:

SGS North America  
1201 West 8th Street  
Deer Park, TX 77536

### Extra samples available:

Contact Jean Kennedy to order  
jkennedy@astm.org

<table>
<thead>
<tr>
<th>Crude Oil</th>
<th>No. Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1811</td>
<td>17</td>
</tr>
</tbody>
</table>
# Test Methods

## List of Current Test Methods in Crude Oil Program

<table>
<thead>
<tr>
<th>TEST PARAMETERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D8045</td>
<td>Acid Number</td>
</tr>
<tr>
<td>D664</td>
<td>Acid Number - Total</td>
</tr>
<tr>
<td>D6560</td>
<td>Asphaltenes</td>
</tr>
<tr>
<td>D4929</td>
<td>Chloride</td>
</tr>
<tr>
<td>D1298, D5002, D287</td>
<td>Density, Relative Density or API Gravity</td>
</tr>
<tr>
<td>D7169</td>
<td>High Temperature Simulated Distillation</td>
</tr>
<tr>
<td>D5708, D5863</td>
<td>Metals, (Vanadium, Nickel, Iron)</td>
</tr>
<tr>
<td>D4530</td>
<td>Micro Carbon Residue</td>
</tr>
<tr>
<td>D4629, D5762</td>
<td>Nitrogen, Total</td>
</tr>
<tr>
<td>D97, D5853</td>
<td>Pour Point</td>
</tr>
<tr>
<td>D323, D5191, D6377</td>
<td>Reid Vapor Pressure</td>
</tr>
<tr>
<td>D3230, D6470</td>
<td>Salt</td>
</tr>
<tr>
<td>D473, D4807</td>
<td>Sediment</td>
</tr>
<tr>
<td>D2622, D4294</td>
<td>Sulfur</td>
</tr>
<tr>
<td>D7042</td>
<td>Viscosity</td>
</tr>
<tr>
<td>D445</td>
<td>Viscosity, Kinematic</td>
</tr>
<tr>
<td>D4006, D4928, D4377, D4007</td>
<td>Water</td>
</tr>
</tbody>
</table>
Test Methods

Adding Test Methods

Suggested methods are reviewed for acceptability to the program.

Quantity needed for test method is reviewed to verify the addition would not increase sample amount.

Survey sent to gauge interest. Result of survey would determine if test method should be added to the program.

Please contact ASTM PTP to suggest new test methods.

ptp@astm.org
ameacock@astm.org
Reports

Final Reports are distributed to:

- Officers of ASTM Committee D02

Officer Role in PTP2:

- If you do not currently have access to PTP2 and are an ASTM committee officer, contact PTP
- Officer role will give access to download final reports to D02 programs.
### Dashboard - Laboratory

**View of Accepted, Rejected and Partial Statistics Calculated**

**Lab Manager**

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Report</th>
<th>Lab Status</th>
<th>Last Downloaded</th>
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</thead>
<tbody>
<tr>
<td>Carbon Residue</td>
<td>D4830</td>
<td>Numeric</td>
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</tr>
<tr>
<td>Acid Number</td>
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<td>Numeric</td>
<td>Accepted</td>
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<td>Numeric</td>
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<td></td>
</tr>
<tr>
<td>Acid Number</td>
<td>D664</td>
<td>Numeric</td>
<td>Accepted</td>
<td>![Checkmark]</td>
</tr>
<tr>
<td>Density</td>
<td>All</td>
<td>Numeric</td>
<td>Accepted</td>
<td>![Checkmark]</td>
</tr>
<tr>
<td>Density</td>
<td>D1298</td>
<td>Numeric</td>
<td>No Data Submitted</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>D6002</td>
<td>Numeric</td>
<td>Accepted</td>
<td>![Checkmark]</td>
</tr>
<tr>
<td>API Gravity</td>
<td>All</td>
<td>Numeric</td>
<td>No Data Submitted</td>
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<tr>
<td>API Gravity</td>
<td>D287</td>
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<td>No Data Submitted</td>
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</tr>
<tr>
<td>API Gravity</td>
<td>D1298</td>
<td>Numeric</td>
<td>No Data Submitted</td>
<td></td>
</tr>
<tr>
<td>Chloride</td>
<td>All</td>
<td>Numeric</td>
<td>No Data Submitted</td>
<td></td>
</tr>
<tr>
<td>Chloride</td>
<td>D4929-Organic Chloride</td>
<td>Numeric</td>
<td>Rejected</td>
<td>![Cross]</td>
</tr>
<tr>
<td>Sulfur</td>
<td>All</td>
<td>Numeric</td>
<td>Accepted</td>
<td>![Checkmark]</td>
</tr>
<tr>
<td>Sulfur</td>
<td>D2622</td>
<td>Numeric</td>
<td>Accepted</td>
<td>![Checkmark]</td>
</tr>
</tbody>
</table>
# Summary Table

## Results Summary for All Methods

**Crude Oil - CO1807**

<table>
<thead>
<tr>
<th>Measured Property With Conditions</th>
<th>Designation</th>
<th>Units</th>
<th>Conforming Results</th>
<th>Results Used</th>
<th>Average</th>
<th>StdDev</th>
<th>ASTM R</th>
<th>These Data R</th>
<th>Precision Performance</th>
<th>TPI</th>
<th>Anderson Darling</th>
<th>Normal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>API Gravity, Hydrometer, Opaque, at 15 °C</td>
<td>D1298-12b(2017)</td>
<td>°API</td>
<td>65</td>
<td>62</td>
<td>33.20</td>
<td>0.10</td>
<td>0.50</td>
<td>0.27</td>
<td>Better</td>
<td>1.85</td>
<td>0.89</td>
<td>Marginally Normal</td>
</tr>
<tr>
<td>API Gravity, Hydrometer at 60 °F</td>
<td>D287-12b</td>
<td>°API</td>
<td>72</td>
<td>72</td>
<td>33.26</td>
<td>0.11</td>
<td>0.50</td>
<td>0.30</td>
<td>Better</td>
<td>1.68</td>
<td>0.34</td>
<td>Normal</td>
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<tr>
<td>Acid Number</td>
<td>D8045-17</td>
<td>mg KOH/g</td>
<td>13</td>
<td>12</td>
<td>0.133</td>
<td>0.041</td>
<td>0.090</td>
<td>0.114</td>
<td>Consistent</td>
<td>0.79</td>
<td>0.15</td>
<td>Normal</td>
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<tr>
<td>Acid Number, Potentiometric, A</td>
<td>D664-17a</td>
<td>mg KOH/g</td>
<td>142</td>
<td>130</td>
<td>0.1499</td>
<td>0.0362</td>
<td>0.1002</td>
<td></td>
<td></td>
<td>1.29</td>
<td>2.65</td>
<td>Normal</td>
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<tr>
<td>Asphaltene (Heptane Insolubles)</td>
<td>D6560-17</td>
<td>mass %</td>
<td>70</td>
<td>57</td>
<td>0.183</td>
<td>0.137</td>
<td>0.379</td>
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<td></td>
<td>2.65</td>
<td>Not Normal</td>
<td>Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 10%</td>
<td>D7169-16</td>
<td>°C</td>
<td>74</td>
<td>67</td>
<td>146.49</td>
<td>6.50</td>
<td>19.50</td>
<td>18.02</td>
<td>Consistent</td>
<td>1.08</td>
<td>2.34</td>
<td>Not Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 20%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>65</td>
<td>200.89</td>
<td>6.89</td>
<td>13.10</td>
<td>19.07</td>
<td>Worse</td>
<td>0.69</td>
<td>1.08</td>
<td>Marginally Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 30%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>67</td>
<td>247.55</td>
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<td>Worse</td>
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<td>2.32</td>
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<tr>
<td>BP Dist by HT-GC, 40%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>69</td>
<td>291.42</td>
<td>10.92</td>
<td>14.90</td>
<td>30.25</td>
<td>Worse</td>
<td>0.49</td>
<td>2.07</td>
<td>Not Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 5%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>66</td>
<td>113.38</td>
<td>7.63</td>
<td>14.90</td>
<td>21.15</td>
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<td>2.47</td>
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<td>Not Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 50%</td>
<td>D7169-16</td>
<td>°C</td>
<td>74</td>
<td>72</td>
<td>334.39</td>
<td>14.06</td>
<td>14.06</td>
<td>38.94</td>
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<td>2.15</td>
<td>Not Normal</td>
<td>Not Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 60%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>71</td>
<td>383.92</td>
<td>19.49</td>
<td>21.50</td>
<td>53.99</td>
<td>Worse</td>
<td>0.40</td>
<td>2.19</td>
<td>Not Normal</td>
</tr>
<tr>
<td>BP Dist by HT-GC, 70%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>70</td>
<td>441.48</td>
<td>20.47</td>
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<td>56.71</td>
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<td>0.37</td>
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<tr>
<td>BP Dist by HT-GC, 80%</td>
<td>D7169-16</td>
<td>°C</td>
<td>72</td>
<td>69</td>
<td>509.78</td>
<td>26.51</td>
<td>26.51</td>
<td>73.44</td>
<td></td>
<td>1.29</td>
<td>Marginally Normal</td>
<td>Not Normal</td>
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<tr>
<td>BP Dist by HT-GC, 90%</td>
<td>D7169-16</td>
<td>°C</td>
<td>70</td>
<td>69</td>
<td>605.66</td>
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<td>0.96</td>
<td>Marginally Normal</td>
<td>Normal</td>
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<tr>
<td>BP Dist by HT-GC, 95%</td>
<td>D7169-16</td>
<td>°C</td>
<td>60</td>
<td>57</td>
<td>665.11</td>
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<td>93.15</td>
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<td>0.35</td>
<td>Normal</td>
<td>Normal</td>
</tr>
</tbody>
</table>

October 19, 2018

[www.astm.org](http://www.astm.org)
## Summary of Statistics

**Element, Vanadium, ICPAES, Method B, D5708-15 Procedure B**

<table>
<thead>
<tr>
<th>Summary of Results</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conforming Results</td>
<td>41</td>
</tr>
<tr>
<td>Results Used</td>
<td>37</td>
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<tr>
<td>Average</td>
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<tr>
<td>StdDev</td>
<td>0.7623</td>
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<td>ASTM R</td>
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<td>These Data R</td>
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<tr>
<td>TPI</td>
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<tr>
<td>ADrs Statistic</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data Report**

**Element, Vanadium, ICPAES, Method B by D5708-15 Procedure B (mg/kg)**

**Crude Oil - CO1807**

**Legend**

- NSP: No Statistics Performed; < 6 results submitted, or mixed data set with > 18% non-numeric results, or statistics not calculated as per program review.
- $: Z-Score not calculated
### Individual Lab Results

**Results Table and Z-Scores**

Element, Vanadium, ICPAES, Method B by D5708-15 Procedure B (mg/kg)

**Crude Oil - CO1807**

<table>
<thead>
<tr>
<th>Lab Code</th>
<th>CO1807 Result</th>
<th>Dev</th>
<th>Z 1807</th>
<th>Notes</th>
<th>1803</th>
<th>1711</th>
<th>1707</th>
<th>1703</th>
<th>Z Count</th>
<th>Avg Z</th>
<th>StdDev Z-Score</th>
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<tbody>
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<td>0006</td>
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<td>0.62</td>
<td>NDS</td>
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<td>0.74</td>
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<td>0111</td>
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<td>0.1059</td>
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<td>-1.32</td>
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<td>0.76</td>
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<td>-0.29</td>
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<td>0076</td>
<td>4.70</td>
<td>0.3359</td>
<td>0.73</td>
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<td>0.76</td>
<td>1.94</td>
<td>-0.40</td>
<td>5</td>
<td>0.14</td>
<td>1.63</td>
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<td>0082</td>
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D5708B – Vanadium

Q-Q Plot

Distribution of Results - Q-Q Plot
Element, Vanadium, ICPSAES, Method B by D5708-15 Procedure B
Crude Oil-CO1807

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D5708B – Vanadium

Frequency Histogram

Frequency Histogram - Element, Vanadium, ICPAES, Method B by D5708-15 Procedure B (mg/kg)
Crude Oil - CO1807

Median

Number of Labs

0 2 4 6 8 10 12 14 16

2.306 - 2.895
2.938 - 3.475
3.475 - 4.015
4.015 - 4.555
4.655 - 5.095
5.095 - 5.635
5.635 - 6.175

Element, Vanadium, ICPAES, Method B (mg/kg)
Box and Whiskers for Vanadium Methods
PTP 2.0 Changes

Upcoming developments:

– Sample shipment tracking information will be available when a user logs into the portal. Hopefully by 1Q 2019
– Monthly webinars held for PTP2.0 Portal training – see PTP webpage for schedule and registration.
ASTM Training Programs
Crude Oil

March 2019
Meghan Conan
LMS & Training Content Administrator

www.astm.org
Training Overview

- Benefits
- E-Learning
- Learning Management System
- Live Training
- Webinar Program
Benefits: Learning At Your Own Pace

- Remote Access 24/7
  - Mobile
  - Tablets
  - Laptop
  - Desktop Computers

- Video Demonstrations
- Checklists
- Concept Presentations
- Data Sheets
- Review Quizzes
Benefits: Efficient QC/QA Training Managers

- **Quick & Effortless:**
  - Set Up Process
  - Developing & Updating Training
  - Track User Progress
  - Defining Procedures

- **Convenient Capabilities:**
  - Use Our LMS on Your Platform
Benefits: Options to Meet Your Needs

Formats:

- Text Driven Course with Video
- Audio Driven Course
- E-Seminars
  - A video version of live training class
- Webinars
  - One to three hour training courses on different industry topics
Benefits: Our Audience

- Meets the needs of:
  - Professors
  - Students
  - Technical professionals
  - Laboratory Managers
  - And many others…
Training Programs: E-Learning

• Over 230 courses
• Programs:
  • Petroleum
  • Building & Construction
  • Metals
  • Mechanical Testing
  • Environment
  • Asphalts
Training Packages – Petroleum

ASTM offers over 70 Test Method Training Modules on the following materials:

#2 Diesel Fuel Certificate Program
#6 Fuel Oil Certificate Program
Aviation Turbine Fuel (Jet A)
Base Oil
Biodiesel
Crude Oil
Engine Oil Lubricants
Fuel Ethanol
Motor Gasoline
Reformulated Gas
Ultra-Low Sulfur Diesel
## Training Packages – Petroleum

### ASTM Petroleum Lab Technician Certificate Series

ASTM’s Petroleum Lab Technician series enables lab techs to improve their skills through industry-leading, self-guided, e-learning courses. The courses are a key tool to supplement existing internal lab QA/QC.

### Earn Your Course Certificate

To earn your individual course certificate, you must:
- Successfully complete the course activities and knowledge assessments
- Pass the final exam

Each Certificate includes the name of the course, the standard designation and year date, Certificate issuance date, and your name.

### Designed For

- Lab Technicians
- Field Technicians
- Construction Inspectors
- Quality Control Technicians
- Petroleum Technicians
- Laboratory Managers

### Train With

- Self-guided online modules
- Hands-on video demonstrations
- Step-by-step outlines and procedures
- Glossary of essential terms
- Review quizzes with automated feedback

Course packages available in the following bundles:
- #2 Diesel Fuel Training E-Learning Bundle

### #2 Diesel Fuel Training E-Learning Bundle

All of the following courses are included:
- D86 Distillation
- D93 Flash Point
- D97 Pour Point
- D130 Copper Corrosion
- D189 Carbon Residue
- D445 Viscosity, Kinematic
- D482 Ash
- D524 Carbon Residue
- D664 Acid Number
- D1298 Density
- D2622 Sulfur Content
- D4294 Sulfur Content
- D4530 Carbon Residue
- D6560 Asphaltene

**FEE** $1,723

### Aviation Turbine Fuel (Jet A) Training E-Learning Bundle

All of the following courses are included:
- D56 Flash Point
- D86 Distillation
- D130 Copper Corrosion
- D156 Color
- D381 Gum
- D445 Viscosity, Kinematic
- D1298 Density
- D1319 Hydrocarbon Type
- D1325 Smoke Point
- D1840 Naphthalenes
- D2386 Freeze Point
- D2622 Sulfur Content
- D3227 Mercapten Sulfur
- D3241 Thermal Stability
- D3242 Acidity
- D3948 Water Separation
- D4294 Sulfur Content
- D5453 Sulfur Content

**FEE** $2,192

### #6 Fuel Oil E-Learning Bundle

All of the following courses are included:
- D93 Flash Point
- D95 Water by Content by Distillation
- D189 Carbon Residue
- D287 Density
- D445 Viscosity, Kinematic
- D482 Ash

**FEE** $2,975

---

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Training Packages – Petroleum

**Biodiesel E-Learning Bundle**

All of the following courses are included:
- D4294 Sulfur Content
- D4377 Water in Crude Oils
- D4530 Carbon Residue
- D4928 Water
- D5191 Reid Vapor Pressure
- D6560 Asphaltenes

**FEE $2,035**

**Motor Gasoline E-Learning Bundle**

All of the following courses are included:
- D86 Distillation
- D130 Copper Corrosion
- D381 Gum
- D525 Oxidation Stability
- D1298 Density
- D1319 Hydrocarbon Type
- D2622 Sulfur Content
- D3227 Mercaptan Sulfur
- D4294 Sulfur Content
- D4815 Alcohol
- D5191 Reid Vapor Pressure
- D5453 Sulfur Content
- D5599 Oxygenates
- D5769 Benzene, Toluene, C9 Plus Aromatics

**FEE $1,252**

**Engine Oil Lubricants E-Learning Bundle**

All of the following courses are included:
- D92 Flash Point
- D93 Flash Point
- D445 Viscosity, Kinematic
- D482 Ash
- D664 Acid Number
- D874 Carbon Residue
- D974 Acid Number
- D1298 Density
- D4530 Carbon Residue
- D5453 Sulfur Content
- D6679 Lubricity
- D6684 Glycerin
- D7321 Particulate Contamination
- D7501 Filtration, Cold Soak (CSFT)
- D7688 Lubricity

**FEE $2,035**

**Flash Point E-Learning Course Bundle**

The Flash Point bundle includes all of the following courses:
- Flash Point: Sampling and Test Specimens
- Flash Point: Preparation, Verification and Maintenance of Apparatus
- Flash Point: Explanation and Terminology
- Flash Point: Apparatus and Auxiliary Equipment

**FEE $2,192**

**Crude Oil E-Learning Bundle**

All of the following courses are included:
- D445 Viscosity, Kinematic
- D664 Acid Number
- D1298 Density
- D2622 Sulfur Content
- D3230 Salt
- D4006 Water

**FEE $1,096**

**Reformulated Gas E-Learning Bundle**

All of the following courses are included:
- D86 Distillation
- D287 Density
- D381 Gum
- D1298 Density

**FEE $612**
# Training Package – Crude Oil

## Crude Oil

### Individual Courses Offered:

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<td>Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids</td>
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<td>D664</td>
<td>Standard Test Method for Acid Number of Petroleum Products by Potentiometric Titration</td>
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<td>D1298</td>
<td>Standard Test Method for Density, Relative Density or API Gravity of Crude Petroleum</td>
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<td>Standard Test Method Water in Crude Oil by Distillation</td>
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<td>Standard Test Method for Determination Carbon Residue</td>
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<td>Standard Test Method for Water in Crude Oils by Coulometric Karl Fisher Titration</td>
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<td>Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method)</td>
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<td>D6560</td>
<td>Standard Test Method for Determination of Asphaltenes in Crude Petroleum and Products</td>
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Learning Management System
Course Design
Sections 8.1.4 - 8.1.6

10. Perform the vapor pressure determination on the first test specimen withdrawn from a sample container. (Section 8.1.4)
   a. Do not use the remaining sample in the container for a second vapor pressure determination.
      i. If a second determination is necessary, obtain a new sample.

11. Protect samples from excessive temperatures prior to testing. (Section 8.1.5)
    a. This can be accomplished by storage in an appropriate ice bath or refrigerator.

12. Do not test samples stored in leaky containers. (Section 8.1.6)
    a. Discard and obtain a new sample if leaks are detected.
Course Design

Petroleum ASTM D5191

8.1.5
The pressure transducer shall have a minimum accuracy of ____ kPa.

- ±0.2
- ±0.4
- ±0.6
- ±0.8
Course Revisions: Updates to Content

• ASTM
  • Internal notifications
  • Review of redlines
  • Update to sections/title
  • Review of LMS content
  • Assessment of edits needed

• Lab/SME
  • SME review of revisions
  • ASTM revises from notes
  • SME 2nd review *(if needed)*
Course Versioning

Changes to the ASTM Standard

ASTM D97-17b Standard Test Method for Pour Point of Petroleum Products
Course (1 class)
This test method covers and is intended for use on any petroleum product. A procedure suitable for black specimens, cylinder stock, and non-distillate fuel oil is described in 8.8. The cloud point procedure formerly part of this test method now appears as ...

ASTM D97-16 Standard Test Method for Pour Point of Petroleum Products
Course (1 class)
This test method covers and is intended for use on any petroleum product. A procedure suitable for black specimens, cylinder stock, and non-distillate fuel oil is described in 8.8. The cloud point procedure formerly part of this test method now appears as ...

ASTM D97-15 Standard Test Method for Pour Point of Petroleum Products
Course (1 class)
This test method covers and is intended for use on any petroleum product. A procedure suitable for black specimens, cylinder stock, and non-distillate fuel oil is described in 8.8. The cloud point procedure formerly part of this test method now appears as ...

View credits

VIEW CLASSES

ENROLL

ENROLL
Identifying Sections for Video

**ASTM**
- Have visual representation
- Training relevance
- Feasible
- Send section list to SME

**Lab/SME**
- Test method capability
- Section relevance
- Section capability (M/Auto)
- Test time requirements

---

**PROCEDURE A**

11. Procedure

11.1 Manual Apparatus:
11.1.1 Ensure that the sample container is filled to the volume capacity requirement specified in 8.2. Fill the test cup with the sample in the container. Fill the bottom of the test cup. The test cup shall be at least half full but not too much more than the volume capacity requirement specified in 8.2.

**PROCEDURE B**

12. Procedure

12.1 Manual Apparatus:
12.1.1 Ensure that the sample container is filled to the volume capacity requirement specified in 8.2. Fill the test cup with the sample in the container. Fill the bottom of the test cup.

**ANNEXES**

(Mandatory Information)

A1. APPARATUS SPECIFICATIONS

The apparatus, gas heated, is made of brass, or other nonrusting material, and shall conform to the requirements:

A1.1.2.3 Flame-Ignition Device (Fig. A1.4) shall have a tip width of 0.027 to 0.031 in. (0.07 to 0.08 mm) and shall be in the position of the cup in the range of the cup is a desirable feature. The cup shall be heavy enough so as to prevent the apparatus from falling over.

---

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Live Training

- Conducted at various locations around the world
- Early bird discounts are offered
- Register online (www.astm.org)
- Locations are listed with the date ranges
- Ranges from 1-3 days (depending on the course)
- Recommended up to 30 attendees
- Fees include:
  - ASTM test methods being taught
  - Course notes
  - Case studies
  - Certificate of completion
  - Continuing Education Units and/or Professional Development Hours
Value Added: Webinars

Webinar Series

- Training from your home or office
- 45 minute interactive workshops
- 15 minute Q&A sessions

- Register Online
Value Added

Accreditation

• IACET accreditation
• ICC preferred provider
• AIA preferred provider

Credits

• Continuing Education Unit (CEU)
• Professional Development Hour (PDH)

For Example:
• CEUs .1 or 1 PDH

Certificates

• Must have a passing grade of 80% or higher
Thank you
Questions / Discussion

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