

# **Biodiesel Laboratory Technician Job Guide**

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**A skills standards document created for**



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# Biodiesel Laboratory Technician Job Guide

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**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>1 Follow lab chemical hygiene plan</b>	<p>Know safety Standard Operating Procedures (SOP)</p> <p>Know location of all safety SOPs</p> <p>Know to attend and participate in all plant safety meetings</p> <p>Know correct storage methods for PPE</p> <p>Know correct use of all PPE</p> <p>Know to monitor air, use correct PPE, follow safety guidelines</p> <p>Know how to use and properly store process chemicals</p> <p>Know correct spill reporting procedure</p> <p>Know how to isolate and cleanup small spills</p> <p>Know compressed gas safety requirements/danger</p> <p>Know to report deviations from safety program to safety supervisors</p> <p>Know Material Safety Data Sheets (MSDS)</p>	<p>OSHA (Occupational Safety Hazard Analysis) compliant Chemical Hygiene Plan</p> <p>Material Safety Data Sheets (MSDS) for all chemicals used for Biodiesel analyses</p> <p>Book of Lab Safety Standard Operating Procedures (SOPs)</p>	<p><b>A Chemical Hygiene Plan</b> addresses the policies, Standard Operating Procedures, etc. that ensure that employees are protected from harm due to chemicals.</p> <p>All laboratories which use chemicals are subject to the OSHA standard titled: <u>Occupational Exposure to Hazardous Chemicals in Laboratories</u>; commonly known as the "Laboratory Safety Standard".</p>
<b>2 Commit to use and enforce the use of all PPE</b>	<p>Know safety SOPs</p> <p>Know location of all safety SOPs</p> <p>Know correct storage methods for PPE</p> <p>Know correct use of all PPE</p> <p>Know to remind operators about using PPE/work procedures</p> <p>Know to report deviations from safety program to safety supervisors</p> <p>Know correct Preventative Maintenance schedule/procedure for PPE</p>	<p>Book of Lab Safety SOPs</p> <p>Preventative Maintenance schedule of Personal Protective Equipment (PPE)</p>	<p>Lab Safety Standard Operating Procedures (SOPs) are documents describing how to perform specific routine safety tasks within the lab.</p>

**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>3 Follow emergency action plan/evacuation procedures</b>	<p>Know safety SOPs                      Know location of all safety SOPs                      Know correct spill reporting procedure                      Know how to isolate and cleanup small spills                      Know how to access plant Emergency Action Plan (E.A.P.)                      Know location of evacuation/invacuation sites                      Know to report deviations from safety program to safety supervisors</p>	<p>Laboratory Safety SOPs                       Emergency Action Plan</p>	<p>A checklist and training for a properly prepared evacuation procedure is available through IBTI.</p>
<b>4 Handle/store all lab chemicals per current good lab practices</b>	<p>Know safety SOPs                      Know location of all safety SOPs                      Know correct storage methods for PPE                      Know correct use of all PPE                      Know to monitor air, use correct PPE, follow safety guidelines                      Know correct spill reporting procedure                      Know how to isolate and cleanup small spills                      Know to remind operators about using PPE/work procedures                      Know to report deviations from safety program to safety supervisors</p>	<p>Laboratory Safety SOPs                       Chemical Hygiene Plan</p>	<p>A Storage Guide for chemicals is needed to minimize the hazards associated with accidentally mixing incompatible chemicals.</p>
<b>5 Follow/enforce housekeeping practices</b>	<p>Know to remove trash waste materials/dispose of properly                      Know to clean all equipment-motors, machinery, electrical controls- of dust                      Know to return tools/equipment to their designated area                      Know to clean spills, dust, leaks promptly                      Know to keep aisles/doorways/stairs clean and clear                      Know to keep area around fire extinguishers clean and clear</p>	<p>Chemical Hygiene Plan                       Applicable SOPs</p>	<p>Fire extinguisher training is available through IBTI.</p>

**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>6 Maintain laboratory site security</b>	<p>Know how to lock gases</p> <p>Know how to lock hazardous waste</p> <p>Know how to report unregistered visitors</p>	Applicable SOPs	
<b>7 Follow bloodborne pathogen program</b>	<p>Know safety SOPs</p> <p>Know location of all safety SOPs</p> <p>Know correct storage methods for PPE</p> <p>Know correct use of all PPE/first aid kit</p> <p>Know correct spill reporting procedure</p> <p>Know how to isolate and cleanup small spills</p> <p>Know to remind operators about using PPE/work procedures</p> <p>Know how to access plant Emergency Action Plan (E.A.P.)</p> <p>Know to report deviations from safety program to safety supervisors</p>	<p>Bloodborne Pathogen Plan</p> <p>Lab Safety/First Aid SOPs</p>	<p>Hazards associated with Bloodborne pathogens are controlled through the OSHA standard: "Occupational Exposure to Bloodborne Pathogens".</p> <p>Occupational exposure to pathogens such as Hepatitis B and HIV are minimized or eliminated through this standard.</p>
<b>8 Identify incidents/hazards and respond appropriately before they become an accident</b>	<p>Know safety SOPs</p> <p>Know location of all safety SOPs</p> <p>Know to remind operators about using PPE/work procedures</p> <p>Know to report deviations from safety program to safety supervisors</p>	<p>Safety SOPs</p> <p>Job Safety Analysis tool</p>	<p>Job Safety Analysis is the term given to the exercise of identifying risks to health and safety in the workplace, and documenting the control measures taken to manage those risks.</p>
<b>9 Use ergonomically correct work practices/discuss problems with supervisor</b>	<p>Know safety SOPs</p> <p>Know location of all safety SOPs</p> <p>Know to report deviations from safety program to safety supervisors</p>	Safety SOPs	<p>Ergonomic issues should be identified through a Job Safety Analysis.</p>

**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<p><b>10 Communicate with plant operators when collecting samples</b></p>	<p>Know safety SOPs            Know location of all safety SOPs            Know correct use of all PPE            Know correct spill reporting procedure            Know how to isolate and cleanup small spills            Know to remind operators about using PPE/work procedures            Know nitrogen safety requirements/danger            Know to report deviations from safety program to safety supervisors            Know how to properly communicate in person and by radio            Know work areas that are intrinsically safe/use proper radios, flashlights, tools</p>	<p>Safety SOPs             Remote communication equipment as needed</p>	<p>Layout diagram of plant sample collection locations should be included in basic safety training.</p>
<p><b>11 Correctly use all safety devices on lab equipment</b></p>	<p>Know safety SOPs            Know location of all safety SOPs            Know correct Preventative Maintenance (PM) schedule/correct PM procedures for PPE            Know to report deviations from safety program to safety supervisors            Know how to properly communicate in person and by radio</p>	<p>Safety SOPs             Equipment manuals</p>	<p>This information should be available through specific SOPs for each piece of equipment.</p>

**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>12 Follow correct spill/clean-up procedures</b>	Know safety SOPs Know location of all safety SOPs Know correct use of all PPE Know correct spill reporting procedure Know how to isolate and cleanup small spills Know to remind operators about using PPE/work procedures Know how to access plant Emergency Action Plan (E.A.P.) Know location of evacuation/invacuation sites Know to report deviations from safety program to safety supervisors	Chemical Hygiene Plan  Safety SOPs	Spill and clean up procedures should be included in Safety SOPs.
<b>13 Follow chemical waste disposal procedures</b>	Know safety SOPs Know location of all safety SOPs Know correct use of all PPE Know correct spill reporting procedure Know how to isolate and cleanup small spills Know to remind operators about using PPE/work procedures Know to report deviations from safety program to safety supervisors Know to place waste chemicals in approved storage devices	Chemical Hygiene Plan  Safety SOPs	Hazardous Material Training should be done annually. Chemical waste disposal procedures should be included in your Chemical Hygiene Plan. Training is available through IBTI.
<b>14 Follow sharps/broken glass procedures</b>	Know safety SOPs Know location of all safety SOPs Know correct use of all PPE Know to remind operators about using PPE/work procedures Know to report deviations from safety program to safety supervisors Know to place sharps/broken glass in approved containers	Chemical Hygiene Plan  Safety SOPs	Example of procedure for sharps/broken glass available through IBTI. A procedure should be included in your CHP.

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<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>15 Follow/enforce correct use of lab venting equipment</b>	Know safety SOPs Know location of all safety SOPs Know compressed gas safety requirements/danger Know to report deviations from safety program to safety supervisors Know to activate and check venting equipment	Chemical Hygiene Plan  Safety SOPs	Consult with lab venting equipment vendor. Instructions for correct use of lab venting equipment should be included in your Laboratory SOPs.
<b>16 Follow confined space permitting procedures</b>	Know safety SOPs Know location of all safety SOPs Know correct use of all PPE Know plant specific plan, SOPs Know nitrogen safety requirements/danger Know to report deviations from safety program to safety supervisors	Safety SOPs  Confined Space Permitting and Entry Procedure if applicable	Confined Space Entry Training is available through IBTI.
<b>17 Use correct Lock Out/Tag Out procedures</b>	Know safety SOPs Know location of all safety SOPs Know correct Lock Out/Tag Out procedures Know plant specific plan, SOPs Know to report deviations from safety program to safety supervisors	Safety SOPs  Lock Out/Tag Out Procedure if applicable	Training is available for Lock Out/Tag-Out courses through IBTI
<b>18 Test emergency eyewash station/shower per schedule</b>	Know safety SOPs Know location of all safety SOPs Know to report deviations from safety program to safety supervisors Know plant specific plan/SOPs	Safety SOPs	Should have a schedule for checking functionality of eyewash stations visible on each station, and a trained person monitoring them.

**CHAPTER A: FOLLOW ALL LAB SAFETY PROCEDURES**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>19 Use fire extinguishers correctly</b>	Know safety SOPs Know location of all safety SOPs Know correct use of all PPE Know plant specific plan, SOPs Know correct fire extinguisher use per training Know how to access plant E.A.P. Know location of evacuation/invacuation sites Know to report deviations from safety program to safety supervisors	Safety SOPs	Should have a schedule for checking fire extinguisher functionality visible on each station, and certified person checking this.
<b>20 Demonstrate correct use of respirator</b>	Know safety SOPs Know correct storage methods for PPE Know correct PM schedule/correct PM procedures for PPE Know correct use of all PPE Know to monitor air, use correct PPE, follow safety guidelines Know to remind operators about using PPE/work procedures Know how to access plant E.A.P. Know location of evacuation/invacuation sites Know nitrogen safety requirements/danger Know to report deviations from safety program to safety supervisors	Safety SOPs	Respirator training for applicable hazards available through IBTI.
<b>21 Participate in all plant safety meetings</b>	Know schedule Know to ask questions as needed	Chemical Hygiene Plan Safety SOPs Schedule for training to meet OSHA and internal standards	Established by Plant Safety Director

**CHAPTER B: PERFORM LAB TESTS**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>CONFIDENTIAL</b>			
<p><b>1 Perform flash point test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know preventative maintenance (PM) procedures            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM specs            Know Quality Control (QC) req per BQ 9000            Know to complete QC check on flashpoint test equipment            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 93</p> <p>Pensky Martens Closed Cup Apparatus or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Reference ASTM D 6751, which is the <b>Standard specification for biodiesel fuel (B100) bland stock for Distillate fuels.</b></p> <p>Prepared by the <b>Association of Standards and Testing Materials (ASTM).</b></p> <p>BQ 9000 training for all methods is available through IBTI.</p>

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<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>CONFIDENTIAL</b>			
<p><b>2 Perform total acid number test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know preventative maintenance (PM) procedures            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM specs            Know QC req per BQ 9000            Know equipment PM procedures            Know basic laboratory skills/procedures</p>	<p>Auto titrator, and associated apparatus</p> <p>Work Instructions per ASTM method D 664</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Specific lab skills needed for this method include measurement of liquids (weight/density, volume) and understanding of solution normalization.</p>

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<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>CONFIDENTIAL</b>			
<p><b>3 Perform cloud point test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM reporting procedures            Know company specs            Know QC per BQ9000            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 2500</p> <p>Equipment DR 10 or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Work Instructions should include safety notes associated with that specific procedure.</p> <p>Need to read a thermometer and accurately measure liquids</p>

**CHAPTER B: PERFORM LAB TESTS**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>CONFIDENTIAL</b>			
<p><b>4 Perform biodiesel density test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM report procedures            Know company specs            Know QC per BQ 9000            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 445-Kinematic Viscosity</p> <p>Equipment used:            Viscometer or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Be able to read a thermometer and hydrometer and measure liquid volumes</p>

**CHAPTER B: PERFORM LAB TESTS**

DO	KNOW	RESOURCES	COMMENTS
<b>CONFIDENTIAL</b>			
<p><b>5 Perform water and sediment test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM specs            Know QC per BQ 9000            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 2709</p> <p>Equipment Centrifuge or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Background training on centrifugation principles</p>
<p><b>6 Perform free and total glycerin test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM specs            Know QC per BQ 9000            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 6584</p> <p>Equipment Gas Chromatograph (GC) or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Suggested training:</p> <ol style="list-style-type: none"> <li>1.A short course on chromatography</li> <li>2.Vendor training on GC software for technicians</li> <li>3. Emphasis on the importance of sample preparation, with examples to show significant problems to process control when standard procedures are not followed.</li> </ol>

**CHAPTER B: PERFORM LAB TESTS**

DO	KNOW	RESOURCES	COMMENTS
<b>CONFIDENTIAL</b>			
<p><b>7 Perform oxidative stability test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know ASTM specs            Know QC per BQ 9000            Know basic laboratory skills/procedures</p>	<p><b>Work Instructions per ASTM method D 2274</b></p> <p>British Standard Test: EN 14112</p> <p>Equipment Oxidation Cell or other approved apparatus</p> <p>Quality System Manual (eg.BQ 9000)</p>	<p>Safety training on procedures for use of gas cylinders, hazardous material training (permissible exposure limits (PEL), volatiles, fume hood use, toxicity, etc-should be covered in CHP), separation by filtration; sample prep is very important.</p>
<p><b>8 Perform moisture test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know basic laboratory skills/procedures</p>	<p>In process Work Instruction for moisture analysis using Karl-Fischer titration</p>	

**CHAPTER B: PERFORM LAB TESTS**

DO	KNOW	RESOURCES	COMMENTS
<b>CONFIDENTIAL</b>			
<p><b>9 Perform visual inspection test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know BQ 9000 spec            Know QC BQ 9000 spec            Know basic laboratory skills/procedures</p>	<p>Work Instructions per ASTM method D 4176</p> <p>Comparative photo-chart standard or other approved information</p> <p>Quality System Manual (ex. BQ 9000)</p>	<p>visual perception, and ability to compare sample against standard</p>
<p><b>10 Perform cold soak filtration test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know customer spec            Know basic laboratory skills/procedures</p>	<p>ASTM D6371 Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels</p>	<p>This test is required for exporting fuel and may be needed to meet customer specifications</p> <p>Need to measure liquid volumes accurately and read a stopwatch.</p>

**CHAPTER B: PERFORM LAB TESTS**

<b>DO</b>	<b>KNOW</b>	<b>RESOURCES</b>	<b>COMMENTS</b>
<b>CONFIDENTIAL</b>			
<p><b>11 Perform feedstock metals test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs            Know basic laboratory skills/procedures</p>	<p>This is plant specific.</p> <p>ASTM D 6751 refers to the British Standard            Testing method: EN 14538</p>	<p>Common method used for this analysis is an inductively coupled plasma optical emissions test.</p>
<p><b>12 Perform feedstock moisture test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs            Know how to measure liquid mass</p>	<p>This is plant specific.</p>	<p>Common instruments used: Halogen moisture balance, gravity oven, or Karl-Fischer titration. Training available through IBTI for these instruments.</p>

**CHAPTER B: PERFORM LAB TESTS**

DO	KNOW	RESOURCES	COMMENTS
<b>CONFIDENTIAL</b>			
<p><b>13 Perform feedstock fatty acid test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs (in-house)            Know how to measure liquid x mass</p>	<p>This is plant specific.</p> <p>May refer to Work Instructions for Total Acids per ASTM method D 664</p>	<p>Typically a titration is done for this test.</p>
<p><b>14 Perform sodium methylate concentration/moisture test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs            Know how to measure liquid x mass</p>	<p>This is plant specific.</p> <p>ASTM D6751 refers to British Standard : Methanol Content Test &lt;0.2% -EN14110</p>	<p>A Karl-Fischer titration is typically done for the moisture test.</p>

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DO	KNOW	RESOURCES	COMMENTS
<b>CONFIDENTIAL</b>			
<p><b>15 Perform methanol moisture test</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs (in-house)            Know how to measure liquid x mass</p>	<p>This is plant specific.</p>	<p>Typically done by Karl-Fischer titration.</p>
<p><b>16 Perform process water testing/waste H<sub>2</sub>O testing</b></p>	<p>Know core testing knowledge            Know method/work instructions            Know correct use of equipment            Know correct PPE to use            Know sampling requirements            Know how/when to use MSDS            Know spreadsheet software use            Know all lab safety requirements            Know actions to take when test fails (per company requirements)            Know correct waste disposal method            Know PM procedure            Know fitness for duty requirements            Know basic chemistry (college level of general chemistry)</p> <p>Know company specs (in-house)            Know EPA requirements            Know how to measure liquid x mass</p>	<p>This is plant specific or determined by local regulations.</p>	<p>Typically 5-day Biological Oxygen Demand (BOD) analyses are done on waste H<sub>2</sub>O samples</p>