

# **Biodiesel Process Control Technician Job Guide**

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**CHAPTER A: PLANT SAFETY REQUIREMENTS**

DO	KNOW	EQUIPMENT USED	SKILLS
<p><b>1 Review/understand plant safety requirements</b></p> <p><b>2 Obtain/maintain/correctly use all PPE</b></p> <p><b>3 Comply with all LO/TO requirements/verify LO/TO is correct</b></p> <p><b>4 Properly use and store process chemicals</b></p> <p><b>5 Properly respond to spilled/leaking process chemicals</b></p> <p><b>6 Review/follow emergency action plan</b></p> <p><b>7 Follow forklift/alternate transportation safety requirements (AT)</b></p> <p><b>8 Follow arch-flash safety requirements</b></p> <p><b>9 Follow fall protection requirements</b></p> <p><b>10 Follow hearing protection requirements</b></p> <p><b>11 Comply with intrinsically safe requirements</b></p> <p><b>12 Correctly use fire extinguishers per approved use requirements</b></p> <p><b>13 Follow all confined space requirements (entry, exit, watch person, emergency retrieval)</b></p> <p><b>14 Comply with hot work requirements</b></p> <p><b>15 Comply with CPR, 1<sup>st</sup> aid/blood borne pathogen requirements</b></p>	<p>Know safety SOPs</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>5Know correct PM schedule/correct PM procedures for PPE</p> <p>Know correct use of all PPE</p> <p>Know correct LO/TO procedures</p> <p>Know to use plant supplied LO/TO/ personal LO/TO equipment</p> <p>Know plant specific plan, SOPs</p> <p>Know to follow prescribed forklift training</p> <p>Know all arch-flash safety SOPs/ required PPE</p> <p>Know how to use fall protection equipment/follow all SOPs</p> <p>Know decibel level requirements for all work areas</p> <p>Know to use appropriate protection per decibel level/time requirements</p> <p>Know work areas that are intrinsically safe/use proper radios, radios, flashlights, tools</p> <p>Know correct fire extinguisher use per training</p> <p>Know to monitor air, use correct PPE, follow safety guidelines</p> <p>20a Know how to use and properly store process chemicals</p> <p>Know all hot work permit requirements</p> <p>Know correct spill reporting</p>	<p>Air monitors</p> <p>All intrinsically safe equipment</p> <p>All PPE</p> <p>Alternate transportation methods</p> <p>Back straps/chain hoists</p> <p>Detection monitors</p> <p>Ear plugs/hearing protection</p> <p>Emergency action plan</p> <p>Fall protection</p> <p>Fire extinguishers</p> <p>First aid kit</p> <p>Fork lift</p> <p>Gloves</p> <p>Harness</p> <p>Housekeeping instructions</p> <p>Intrinsically safe equipment per plant area</p> <p>Locks/tags</p> <p>Permit instructions</p> <p>Permits</p> <p>PPE procedures</p> <p>Retrieval rigs</p> <p>SOP for MCC/arch flash sensitive environments</p> <p>SOPs documentation</p> <p>Spill kits</p> <p>Sprinkler system</p> <p>Fall harness</p> <p>Valves/safety requirements</p> <p>Supply contained breathing apparatus (SCBA)</p> <p>Radios</p> <p>Emergency alarm/paging system</p>	<p>Reading/interpretation skills</p> <p>Observation skills</p> <p>Analytical skills</p> <p>Communication skills</p> <p>Prioritization skills</p>

**CHAPTER A: PLANT SAFETY REQUIREMENTS**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<p><b>16 Ensure plant housekeeping is mandatory</b></p> <p><b>17 Follow correct manual lifting procedures</b></p> <p><b>18 Follow tank walking/step safety requirements (inclement weather)</b></p> <p><b>19 Open/close steam valves per safety requirements</b></p> <p><b>20 Follow inert gas safety requirements</b></p>	<p>procedure</p> <p>Know to follow all CPR training/pathogen training</p> <p>Know how to isolate and cleanup small spills</p> <p>Know to follow plant cleaning SOPs</p> <p>know correct back safety/leg use</p> <p>Know inclement weather increases danger</p> <p>Know inclement weather SOPs/correct footwear</p> <p>Know steam system safety</p> <p>Know/understand H<sub>2</sub>O hammer effects</p> <p>Know nitrogen safety requirements/danger</p>		

**CHAPTER B: FEEDSTOCK PRETREATMENT**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Start up process</b> <b>2 Monitor pressures</b> <b>3 Monitor specific gravity</b> <b>4 Monitor flows</b> <b>5 Monitor levels</b> <b>6 Monitor pH</b> <b>7 Monitor temperatures</b> <b>8 Monitor alarms</b> <b>9 Monitor motors</b> <b>10 Monitor lab results</b> <b>11 Adjust auto set points</b> <b>12 Adjust output manually</b> <b>13 Shut down process</b> <b>14 Collect process samples</b>	Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know correct valves to open Know HMI use alarms/trends Know process chemistry Know Process P and IDs/process flow diagrams Know process parameters Know proper temperatures Know correct levels Know SOPs Know proper pH levels Know how equipment works	Filters Flow transmitter Heat exchanger HMI Level transmitter pH meter Pressure transmitter Pumps Static mixer Temperature transmitters Vacuum system Valves Reactor Agitator Control valves Centrafuge Fatty acid stripper Dryer Augers Pneumatic conveyer system Condenser Level switches	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Organization skills Time management skills Trouble-shooting skills Documentation skills Communication skills Root cause analysis skills Prioritization skills Comparing skills Monitoring skills

**CHAPTER C: TRANSFESTERFICATION PROCESS**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Start up process</b> <b>2 Monitor pressures</b> <b>3 Monitor specific gravity</b> <b>4 Monitor flows</b> <b>5 Monitor levels</b> <b>6 Monitor pH</b> <b>7 Monitor temperatures</b> <b>8 Monitor alarms</b> <b>9 Monitor motors</b> <b>10 Monitor lab results</b> <b>11 Adjust auto set points</b> <b>12 Adjust output manually</b> <b>13 Shut down process</b> <b>14 Collect process samples</b>	Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know correct valves to open Know HMI use alarms/trends Know process chemistry Know Process P and IDs/process flow diagrams Know process parameters Know proper temperatures Know correct levels Know SOPs Know proper pH levels Know how equipment works	Filters Flow transmitter Heat exchanger HMI Level transmitter pH meter Pressure transmitter Pumps Static mixer Temperature transmitters Vacuum system Valves Reactor Decanter Agitator Control valves Level switches	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Planning skills Problem-solving skills Trouble-shooting skills Documentation skills Communication skills Root cause analysis skills Prioritization skills Comparing skills Monitoring skills Time management skills

**CHAPTER D: METHYLESTER WASH**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Start up process</b> <b>2 Monitor pressures</b> <b>3 Monitor specific gravity</b> <b>4 Monitor flows</b> <b>5 Monitor levels</b> <b>6 Monitor pH</b> <b>7 Monitor temperatures</b> <b>8 Monitor alarms</b> <b>9 Monitor motors</b> <b>10 Monitor lab results</b> <b>11 Adjust auto set points</b> <b>12 Adjust output manually</b> <b>13 Shut down process</b> <b>14 Collect process samples</b>	Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know HMI use alarms/trends Know process chemistry Know Process P and IDs/process flow diagrams Know parameters	Heat exchanger Level switch HMI Level transmitter Pressure gauge Pressure transmitter Pump Temperature transmitter Valves Water separator Agitator	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Planning skills Problem-solving skills Trouble-shooting skills Documentation skills Communication skills Root cause analysis skills Prioritization skills Comparing skills Monitoring skills Time management skills

**CHAPTER E: GLYCERIN PRODUCTION**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Start up process</b> <b>2 Monitor pressures</b> <b>3 Monitor specific gravity</b> <b>4 Monitor flows</b> <b>5 Monitor levels</b> <b>6 Monitor pH</b> <b>7 Monitor temperatures</b> <b>8 Monitor alarms</b> <b>9 Monitor motors</b> <b>10 Monitor lab results</b> <b>11 Adjust auto set points</b> <b>12 Adjust output manually</b> <b>13 Shut down process</b> <b>14 Collect process samples</b>	Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know correct valves to open Know HMI use alarms/trends Know process chemistry Know Process P and IDs/process flow diagrams Know to monitor temperature Know to monitor pressure Know proper pH level	Condenser Decanter Flow transmitter HMI Level transmitter Manual valves Pressure transmitter Pump Control valves Vacuum system Flow transmitter Temperature transmitter Stripper column Alarms Heat exchanger Level switches pH meters	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Planning skills Problem-solving skills Trouble-shooting skills Documentation skills Communication skills Root cause analysis skills Prioritization skills Comparing skills Monitoring skills Time management skills

**CHAPTER F: METHANOL/WATER RECOVERY**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Start up process</b> <b>2 Monitor pressures</b> <b>3 Monitor specific gravity</b> <b>4 Monitor flows</b> <b>5 Monitor levels</b> <b>6 Monitor pH</b> <b>7 Monitor temperatures</b> <b>8 Monitor alarms</b> <b>9 Monitor motors</b> <b>10 Monitor lab results</b> <b>11 Adjust auto set points</b> <b>12 Adjust output manually</b> <b>13 Shut down process</b> <b>14 Collect process samples</b>	Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know correct valves to open Know HMI use alarms/trends Know process chemistry Know Process P and IDs/process flow diagrams Know process parameters Know proper temperatures Know correct levels Know SOPs Know proper pH levels Know how equipment works	Condenser Control valve Flow transmitter Heat exchangers HMI Level transmitter Manual valves Pressure transmitter Pumps Vacuum system Visual site glass Stripper column Rectifier Level switches	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Planning skills Problem-solving skills Trouble-shooting skills Documentation skills Communication skills Root cause analysis skills Prioritization skills Comparing skills Monitoring skills Time management skills

**CHAPTER G: LAB RESPONSIBILITIES**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<p><b>1 Perform test on Biodiesel</b>  <b>2 Perform test on feed stock</b>  <b>3 Perform test on glycerin</b>  <b>4 Perform test on methanol</b>  <b>5 Calibrate basic lab equipment</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 basic chemistry</p> <p>Know ASTM specs            Know company specs            Know equipment PM procedures            Know how to measure liquid x mass            Know QC per BQ 9000</p>	<p>Basic lab equipment per lab test work instructions</p>	<p>Lab skills            Computer skills            Reading/interpretation skills            Communication skills            Evaluating skills            Basic math skills            Time management skills</p>

**CHAPTER H: SUPPORT SYSTEMS**

<b>DO</b>	<b>KNOW</b>	<b>EQUIPMENT USED</b>	<b>SKILLS</b>
<b>1 Monitor boiler</b> <b>2 Monitor cooling systems</b> <b>3 Monitor air compressor</b> <b>4 Monitor waste H<sub>2</sub>O system</b> <b>5 Monitor emission control devices</b> <b>6 Monitor nitrogen system</b> <b>7 Monitor fresh H<sub>2</sub>O system</b> <b>8 Assist maintenance</b> <b>9 Maintain equipment</b> <b>10 Perform housekeeping</b> <b>11 Replenish Chemical supplies</b> <b>12 Perform walk-through</b> <b>13 Start up utilities</b> <b>14 Shut down utilities</b> <b>15 Adjust utilities</b>	Know SOPs Know when to take plant process out of "Auto" make adjustment/return to "Auto" Know HMI use alarms/trends Know Process P and IDs/process flow diagrams Know proper temperatures Know correct levels Know how equipment works Know utility parameters	Boilers Cooling system Air compressors Waste H <sub>2</sub> O system Emission control devices Nitrogen system Forklift Gauges Alarms Flashlight Radio Basic hand tools	Reading/interpretation skills Observation skills Analytical skills Computer skills HMI skills Basic math skills Organizational skills Problem-solving skills Trouble-shooting skills Evaluating skills Communication skills Root cause analysis skills Driving/operating machinery