# Propane Truck Operator
**Record of Training Curriculum Document**

## Introduction:

This TSSA document defines the required training curriculum content for Propane Truck Operator (PTO) Record of Training programs under Ontario Regulation 215/01(Fuel Industry Certificates). Ontario Training Providers who wish to have their PTO training programs accredited by TSSA must submit training programs that meet with the requirements of this curriculum.

There is no requirement to follow the order of this curriculum unless otherwise noted, provided all of the content and objectives are met.

## Ontario Regulation 215/01

**PTO certificate**

**38.** (1) A person may perform the following functions if the person is the holder of a PTO certificate or is the holder of a record of training issued by an accredited training provider approved by the director that indicates that the person has taken training acceptable to the director:
1. Operate a propane tank truck or a vehicle that tows a cargo liner.
2. Operate propane handling equipment in order to transfer propane to and from tank trucks, cargo liners, filling plants and container refill centres.
3. Fill containers on the premises of end-users.
4. Reactivate an existing customer's equipment in accordance with the manufacturer's lighting instructions in the event of loss of fuel supply. O. Reg. 215/01, s. 38; O. Reg. 253/08, s. 23 (1).

(2) A person referred to in subsection (1) shall not perform initial activation of a new appliance or a newly converted appliance. O. Reg. 253/08, s. 23 (2).
---

**Theory testing may be done by module or at the completion of the course.**

**Estimated minimum total number of hours for program delivery: 10-13 hours.**

**MODULE 1**
**Estimated hours: .5**
**Module Title:** Propane; Properties of the Fuel and Related Hazards

| MODULE – 01 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 01.01 | Identify the properties of propane as a vapour and as a liquid as well as the hazards associated with the fuel. | Identify the properties of propane as a liquid and as a vapour in terms of:<br>· chemical composition (MSDS Information)<br>· calorific value<br>· boiling and freezing points<br>· relative density<br>· physical and identifiable characteristics of both liquid and vapour propane<br>· uses in industry, home heating and transportation for both liquid and vapour propane<br>· expansion between the liquid and vapour states<br>· working pressures for appliances<br>Identify the hazardous potential of propane as a liquid and as a vapour<br>· frostbite and blinding potential<br>· required Personal Protective Equipment for working with propane<br>· first aid measures<br>· sources of ignition and extinguishing fires<br>· carbon monoxide<br>· range of flammability<br>· explosive potential<br>· provide examples of propane related incidents or accidents |
| **01.02** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |

## MODULE 2

**Estimated hours: 1**
**Module Title:** Legislation and Codes

| MODULE – 02 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 02.01 | Identify the applicable sections of the TSS Act. | The TSS Act<br>· Identify the role of TSSA in the Fuels Industry and its jurisdictional authority as per the Act |
| 02.02 | Identify the applicable requirements of Ontario Regulation 215/01. | Identify the scope of the PP0-1 Certificate as per Ontario Regulation 215/01. |
| 02.03 | Identify the applicable requirements of Ontario Regulation 211/01. | · identify requirement for approval<br>· identify the requirements for regulated activities involving propane<br>· identify the duties of an employer<br>· identify the requirements placed upon an ROT holder in the case of an accident or occurrence<br>· identify the requirements placed upon an ROT holder for immediate and non-immediate hazards<br>· identify requirements for propane vehicle operation<br>· identify requirements for propane filling plants and refill centres<br>· identify requirements for propane tank trucks |
| 02.04 | Identify the applicable requirements of the CSA B149.2. | · identify the applicable requirements of the B149.2 Code for Container Storage and Container Filling including all aspects of Container Filling from Bulk Trucks<br>· identify the applicable requirements of the B149.2 Code for Filling Plants and Refill Centres with regard to: “Tank Systems, filling plants and refill centres”<br>· identify the applicable requirements of the B149.2 Code for Filling Plants and Refill Centres with regard to: Tank trucks, tank trailers and cargo liners<br>· identify the applicable requirements of the B149.2 Code for Filling Plants and Refill Centres with regard to Operation, Maintenance and Personnel Training; Operating Procedures, Maintenance Procedures and Documentation procedures<br>· identify the applicable requirements of the B149.2 Code for tank trucks<br>· identify the applicable requirements of the B149.2 Code for equipment and container clearances as well as protection for equipment |

| MODULE – 02 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| | | and containers<br>· identify signage requirements for Auto Dispensers, Filling Plants and Refill centres |
| 02.05 | Identify the applicable requirements of WHMIS and TDG with regard to propane.<br><br>Identify the safety and first aid requirements related to working with propane. | · identify WHMIS and MSDS information regarding propane gas<br>· identify the TDG requirements for the transportation of propane cylinders and propane tank trucks<br>· identify preventative safety measures including Personal Protective Equipment; accident prevention, sources of ignition, leak detection and emergency procedures<br>· identify first aid procedures for propane related injuries, freeze burns, inhalation exposure...etc. |
| **02.06** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |

## MODULE 3

**Estimated hours: .5**
**Module Title:** Propane Bulk Plants and Propane Tanks

| MODULE – 03 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 03.01 | Identify the common types, sizes and components of propane storage tanks.<br><br>Identify the NBIC Supplement 7 requirements for tank inspections. | · identify commonly used tank types and their sizes<br>· identify and describe the construction and component parts of consumer tanks and bulk storage tanks including relief valves, pressure relief valve manifold, rotary liquid level gauge, fixed liquid level gauge, tank pressure gauge, storage tank thermometer and dip tube<br>· identify and describe the valving of consumer and bulk storage tanks including back check and double back check valves, excess flow valves, globe/ball and angle valves<br>· identify and describe Emergency Shut Off Valves, Internal Flow Valves, Internal Safety Control valves with air, nitrogen and fusible link safety systems<br>· identify the required CRN identification number and markings on tanks<br>· identify TDG Regulations for specification tanks vs consumer tanks<br>· identify TDG requirements for the transportation of consumer tanks (under 5% of total volume)<br><br>Review the NBIC Supplement 7 criterion for tank inspection<br>· identify the requirements for tank pressure relief valve inspection and replacement intervals |
| 03.02 | Identify the typical components of a propane bulk plant. | Using pictures, diagrams, video and/or onsite visits identify the typical components and structures within a propane bulk plant, including:<br>· fencing and protection<br>· bulk plant supply tanks<br>· liquid propane piping; vapour propane piping, pumps and compressors<br>· rail car unloading platform and manifold and cargo liner unloading platform and manifold<br>· bulk truck loading platform and manifold (bulkheads)<br>· cylinder docks and filling stations<br>· safety systems and fire extinguishing equipment<br>· alarm systems<br>· required clearances for bulk and filling plant components and operations from the CSA B149.2 Code |
| 03.03 | Identify emergency and safety procedures for filling plants and bulk plants. | Identify and describe typical emergency procedures for filling plants and bulk plants including:<br>- review of RSMP requirements<br>- manual activation of ESV |

| MODULE – 03 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| | | - automatic nitrogen/air and fusible link safety systems<br>- activation of alarms and shut down systems<br>- evacuation procedures<br>- required emergency contacts<br>- required reporting<br>- fire extinguishing procedures<br><br>Identify common maintenance and operating procedures for bulk plants and filling plants. |
| **03.04** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |

## MODULE 4

**Estimated hours: .5**
**Module Title:** Propane Bulk Truck Loading Platforms (Bulkheads)

| MODULE – 04 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 04.01 | Identify the components and purpose of a bulk plant pumping system. | **Identify the operational characteristics of the pump.**<br><br>Using pictures, diagrams and demonstration, identify the following components of a pumping system and explain their purpose:<br><br>· the pumping system; belt drive pumps vs. direct drive pumps<br>· liquid and vapour piping (include colour coding)<br>· the strainer<br>· the bypass valve<br>· the bypass line<br>Identify common pump malfunctions and remedies.<br>Identify unacceptable conditions for pumps and pump operation. |
| 04.02 | Identify the components and purpose of a bulk plant compressor system. | **Identify the operational characteristics of a compressor system.**<br><br>Using pictures, diagrams and demonstration, identify the following components of a propane compressor system and explain their purpose:<br><br>· strainer<br>· inlet pressure gauge and outlet pressure gauge<br>· hydrostatic relief valve<br>· oil pressure gauge/oil dipstick/oil pressure adjustment<br>· liquid trap<br>· four-way directional valve<br>· explosion proof motor<br>Identify common compressor malfunctions and remedies.<br>Identify unacceptable conditions for compressors and compressor operation. |
| 04.03 | Identify the components of a bulk truck loading platform. | Using pictures, diagrams and demonstration, identify the following components of a propane compressor system and explain their purpose:<br>· ISC valves<br>· liquid line<br>· vapour equalization line<br>· bulkheads<br>· hose end shut off valves<br>· ESV's<br>· remote shut off<br>· ground cable<br>· back check valve |

| MODULE – 04 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| | | Identify the requirements for inspection of loading platforms and unacceptable conditions for components. |
| **04.04** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |
| **NB: Bulk Truck Loading Procedures to follow module on Bulk Trucks** | | |

## MODULE 5

**Estimated hours: .5**
**Module Title:** Propane Bulk Trucks

| MODULE – 05 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 05.01 | Identify the design and components of typical propane bulk trucks and cargo liners as well as the inspection requirements for bulk trucks. | Using pictures, diagrams and demonstration, identify the following components of propane bulk trucks, and explain their purpose, maintenance and inspection requirements:<br>· the truck tank (typical sizes, construction, mounting, relief valves, compliance with CSA B620 standards; ASME data plate)<br>· rotary gauge, pressure gauge, fixed liquid level gauge, float gauge, tank thermometer<br>· liquid withdrawal connection and required valving<br>· vapour equalizing connection and required valving<br>· PTO System<br>· hydraulic pump drive system<br>· delivery hoses<br>· liquid metering equipment<br>· chock blocks<br>· TDG signage<br>· emergency shutdown systems<br>· vehicle circle check requirements<br>· identify typical operation and maintenance requirements for bulk trucks |

## MODULE 6

**Estimated hours: 2-3**
**Module Title:** Propane Bulk Truck Loading at Bulk Plants

| MODULE – 06 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 06.01 | Identify bulk plant vehicle safety rules. | · identify and describe bulk plant hazards<br>· identify vehicular sources of ignition and required clearances<br>· identify bulk truck parking procedures (chock blocks, parking brake)<br>· identify bulk plant PPE requirements |
| 06.02 | Identify bulk truck loading procedures. | **Using written instructions, pictures, diagrams and demonstration, and/or video, identify the step by step procedures for bulk truck filling at a loading platform. The procedural instruction should include the following items:**<br>· loading rack, ESV, tank connection and hose inspection, bulk tank temperature and volume checks<br>· attaching and inspecting the ground cable<br>· leak checking connections<br>· setting the rotary gauge<br>· opening the bleed valve<br>· pump and compressor checks and operation<br>· proper connection of hoses<br>· constant monitoring requirement<br>· tightening of connections in the event of a leak<br>· how to determine when the tank is full<br>· stop fill and closing procedures<br>· TDG signage<br>· documentation<br>· identification of emergency procedures during filing operations |
| **06.03** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |
| **PRACTICAL** | | |
| 06.04 | Demonstrate the proper procedures for bulk truck loading. | Demonstrate the procedure for loading platform inspection.<br><br>Demonstrate the procedure for bulk truck operation and inspection.<br><br>Demonstrate bulk truck loading procedures. |
| 06.05 | Practical testing | Students shall be tested on the demonstration of procedures for loading platform inspections, bulk truck/cargo liner operation and inspection.<br><br>Students shall be tested on the demonstration of bulk truck/cargo liner loading procedures. |

## MODULE 7

**Estimated hours: 1**
**Module Title:** Consumer Tank and Cylinder Installations

| MODULE – 07 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 07.01 | Identify commonly used consumer tank and cylinder types, components and required markings and inspection requirements. | · identify commonly used cylinder types and sizes noting which types can be filled from a bulk truck and which cannot<br>· identify and describe the construction and component parts of cylinders including valve types, relief valves, fixed liquid level gauge, dip tube<br>· identify the required Transport Canada date code and markings on cylinders and the requirement for 10 year recertification<br>· identify the requirements for cylinder and inspection<br>· identify commonly used consumer tank types and their sizes<br>· identify and describe the construction and component parts of consumer tanks valve types, relief valves, fixed liquid level gauge, dip tube<br>· identify the required CRN identification number and markings on tanks<br>· identify the requirements for tank inspection |
| 07.02 | Identify the applicable sections of the CSA B149.2 Code for the Installation of Above Ground Consumer Tanks and Cylinders | · identify the maximum permitted filling density of tanks and cylinders<br>· identify the B149.2 Code requirements for Consumer Tank and Cylinder Installations with regard to the following:<br>  · clearances to property lines and building walls<br>  · clearances to building openings and sources of ignition<br>  · tank protection against vehicular impact<br>  · installation of regulators and regulator vent discharge clearances.<br>  · clearances to combustible liquids<br>  · cylinder and tank base (firm and level)<br>  · requirements for manifolded tank and cylinder systems |
| 07.03 | Identify the applicable sections of Ontario Regulation 211/01 for the Installation of Above Ground Tanks and Cylinders. | · identify, using examples, the differences between immediate and non-immediate hazards with regard to consumer tank and cylinder installations.<br>· identify the requirements for reporting of unacceptable conditions<br>· identify the giving of notice requirements for immediate and non-immediate hazards.<br>· identify the terms of the requirement to discontinue fuel supply in the case of hazardous conditions |
| 07.04 | Identify the CSA B149.2 Code for the Installation of Under Ground Consumer Tanks and Cylinders. | Identify B149.2 requirements for:<br>· cathodic protection of underground tanks<br>· corrosion protection monitoring<br>· dielectric isolation of underground tank piping and fittings |

| MODULE – 07 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| | | · dome/ housing of connections<br>· installation clearances of underground tanks<br>· underground tank relief valve discharge piping |
| **07.05** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |

## MODULE 8

**Estimated hours: 2-3**
**Module Title:** Filling Procedures for Propane Consumer Tank and Cylinder Installations

| MODULE – 08 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 08.01 | Identify safe filling procedures for consumer tanks and cylinders. | Using written instructions, pictures, diagrams and demonstration and/or video, identify the step by step procedures for consumer container filling, including the following:<br>· safe vehicle parking<br>· identification of hazards<br>· procedures to follow and identification of possible hazards if the consumer containers were empty upon arrival<br>· inspection of consumer tank/cylinder installation<br>· inspection of bulk truck equipment<br>· PTO engagement<br>· ISC valve opening<br>· inspection of container fill valve and gasket<br>· ensuring secure connection of filler valve<br>· operating remote control<br>· opening the fixed liquid level gauge (spit valve)<br>· identifying the when a container is filled by spit valve white fog<br>· closing all valves (and remote) and disconnecting filler valve<br>· visual inspection for leaks<br>· TDG reporting requirements<br>· meter product ticket requirements<br>· restoring hoses and vehicle safety checks prior to departure |
| **08.02** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |
| **PRACTICAL** | | |
| 08.03 | Practical demonstration<br><br>Practical testing | Instructors shall demonstrate procedures for consumer container filling from bulk trucks.<br><br>Candidates shall be tested on the demonstration of procedures for consumer container filling from bulk trucks. |

## MODULE 9

**Estimated hours: 2-3**
**Module Title:** Reactivation of Customer Equipment

| MODULE – 09 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| 09.01 | Identify cautions with regard to relighting consumer appliances. | · identify common, visually identifiable, immediate hazards and reporting requirements with regard to consumer heating appliances and **caution candidates not to relight appliances if any hazard is present, is suspected, or if unsure**<br>· identify venting failure hazards and how to recognize them<br>· identify gas leak hazards and how to recognize them<br>· identify proper flame characteristics for operating gas burners<br>· identify potential electrical hazards associated with gas fired appliances<br>· caution candidates that the ROT does not allow for the relighting of all possible types of consumer appliances; PTO ROT holders may only attempt to relight appliance types that they have been trained to relight<br>· identify the requirement to have the appliance inspected by a certified Gas Technician in case any type of hazard is suspected<br>· caution candidates that the purging of appliances does not fall under the scope of the ROT; if an appliance cannot be relit after 2 attempts at the ignition sequence, the ROT holder should discontinue relighting operations, shut off the fuel supply at the appliance shut off valve and inform the customer that a certified Gas Technician is required to relight the appliance. |
| 09.02 | Identify examples of common consumer heating appliances. | Using real equipment, pictures, diagrams and/or video, describe examples of common residential heating appliances or appliances specific to the needs of the client (candidate's field of operation if applicable), noting the following components:<br>· appliance gas shut off valve<br>· electrical supply shut off to the appliance<br>· operating control for the appliance |
| 09.03 | Identify lighting instructions and emergency shut-down procedures. | Using copies of certified manufacturer's literature for a given appliance, identify the lighting procedures for various appliance types, including appliances with manual pilot ignition systems and appliances with electronic ignition<br><br>Using pictures, diagrams and/or video, describe common emergency shut-down procedures for appliances, including both gas and electrical cut off as applicable. |
| **09.04** | **THEORY TESTING** | **Candidates shall perform a written theory test with core elements of each learning objective represented in the test.**<br><br>**The testing may be separated into modules** |

| MODULE – 09 | ENABLING OBJECTIVES<br>*The student will be able to:* | THEORY \| CONTENT |
|---|---|---|
| | **PRACTICAL** | |
| 09.05 | Practical demonstration<br><br>Practical testing | Instructors shall demonstrate the procedures for inspection, lighting and emergency shut-down of a consumer appliance.<br><br>Candidates shall be tested on the demonstration of procedures for inspection, lighting and emergency shut-down of a consumer appliance. |