



STATE OF WISCONSIN  
Department of Agriculture, Trade and Consumer Protection

Approval# 20150023  
(Renews 20080001)

Bureau of Weights and Measures  
Storage Tank Regulation  
P.O. Box 7837  
Madison, WI 53707-7837

## Wisconsin ATCP 93 Material Approval

Equipment: TLD-1 Line Tightness Tester

Manufacturer: Tanknology  
880 Church Rd.  
Elgin, IL 60123

Expiration of Approval: December 31, 2018

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### **SCOPE OF EVALUATION**

The TLD-1 Line Tightness Tester, manufactured by Tanknology, has been evaluated for use as an annual line tightness test, as specified in **ATCP 93.130** and **93.515(4)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – ATCP 93.

## **DESCRIPTION AND USE**

The Tanknology TLD-1 Line Tightness Tester consists of a product reservoir that is connected to a cylinder of pressurized nitrogen that is used to maintain a constant pressure on the line. Volume changes are monitored on a product reservoir that is graduated in 0.000549 gallon increments.

To conduct a test, the tester is connected to the product line at some convenient location such as at the dispenser. The line is pressurized to 150% of the line normal operating pressure and the volume change in the product reservoir during the pressurization is noted. Excessive volume change indicates that the line may have trapped vapor present. The pressure is maintained at 150% of the line normal operating pressure and the product level is recorded at 10-minute intervals during the test for a minimum of 2 readings for rigid pipe and 3 readings for flexible pipe. Consistent readings (within 0.02 gal/h) must be obtained for two consecutive readings for rigid pipe and three consecutive readings for flexible pipe in order for the test to be considered valid. If the results are not consistent, additional data must be taken. When consistent data is obtained, the test is ended and the leak rate is calculated in gallons per hour (gal/h).

If the volume increases during the testing due to thermal expansion, the increase is measured in the product reservoir. Testing must continue until the thermal expansion has subsided (three consecutive readings with no gains or an increasing leak rate) to assure that the expansion has not masked the presence of a leak.

The TLD-1 Line Tightness Tester may be used on pipes which are typically constructed of steel or fiberglass, or on flexible pipe, containing gasoline, diesel or aviation fuel. The system uses a single test to determine if the 0.05 gal/h threshold has been exceeded.

This system may be used if vapor is trapped in the pipeline. A special test is used to detect the presence of trapped vapor. Vapor is removed if possible since this will usually increase the time required to conduct the test.

## **TESTS AND RESULTS**

The performance of the TLD-1 Line Tightness Tester was evaluated in accordance with the EPA protocol for evaluation of pipeline leak detection systems. When used as a rigid line tightness test, the system is capable of detecting a 0.1 gallon per hour leak with a probability of false alarm (PFA) of 0.5 percent and a probability of detection (PD) of 99.5 percent. When used as a flexible line tightness test, the system is capable of detecting a 0.1 gallon per hour leak with a probability of false alarm (PFA) of 0.3 percent and a probability of detection (PD) of 99.7 percent.

**LIMITATIONS / CONDITIONS OF APPROVAL**

- The Tanknology TLD-1 Line Tightness Tester is approved for use on underground pipeline systems for aboveground and underground storage tank facilities that contain petroleum products. It is approved for use on both rigid and flexible piping.
- The operating instructions and test procedures specified by Tanknology shall be used to conduct all tests.
- Line tester operation shall be verified annually, and calibrated in accordance with manufacturer’s instructions if necessary.
- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- **Mechanical line leak detector must be removed or manually isolated from pipeline for duration of test, or check valve in pump must be manually closed if testing is to be conducted with mechanical line leak detector in place.**
- This test may be performed if trapped vapor is present in the system. There is a special test procedure to check the pipeline for trapped vapor that must be performed prior to the pipeline test.
- The data collection time may be extended due to temperature differentials or trapped vapor until consistent readings are obtained. With the automated design, test data are acquired and recorded by microprocessor.
- Critical performance parameters for the Tanknology TLD-1 Line Tightness Tester:

**Rigid Piping:**

| Parameter   | Value                                    |
|---|--|
| Test Line Pressure  | <b>150% of normal operating pressure</b> |
| Minimum waiting period between last product dispensing and start of data collection | <b>None</b>                              |
| Minimum time for test   | <b>30 minutes</b>                        |
| Total maximum allowable volume of product in any <b>rigid</b> test pipeline         | <b>172 gallons or less</b>               |

**Flexible Piping:**

| Parameter   | Value                                    |
|---|--|
| Test Line Pressure  | <b>150% of normal operating pressure</b> |
| Minimum waiting period between last product dispensing and start of data collection | <b>None</b>                              |
| Minimum time for data collection  | <b>30 minutes</b>                        |
| Total maximum allowable volume of product in any <b>flexible</b> test pipeline      | <b>119.4 gallons or less</b>             |

This approval will be valid through December 31, 2018, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

**DISCLAIMER**

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: December 16, 2015

Reviewed by: Signature on File Date: 12/16/2015  
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 Storage Tank Regulations, Bureau of Weights and Measures

Approved by: Signature on File Date: 12/16/2015  
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