

California Environmental Protection Agency



Vapor Recovery Test Procedure

Proposed TP-204.2

Determination of
One Minute Static Pressure Performance of
Vapor Recovery Systems of
Cargo Tanks

Adopted: April 12, 1996

Amended: [Date of Amendment]

Note: Underlined text is new text.

Sections of the text not shown remain unchanged.

Amended Vapor Recovery Test Procedure TP - 204.2 to read:

**California Environmental Protection Agency
Air Resources Board**

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**Determination of
One Minute Static Pressure Performance of
Vapor Recovery Systems of
Cargo Tanks**

1 APPLICABILITY

Definitions common to all certification and test procedures are in:

**D-200 Definitions for
Certification Procedures and
Test Procedures for
Vapor Recovery Systems**

For the purpose of this procedure, the term "ARB" refers to the State of California Air Resources Board, and the term "ARB Executive Officer" refers to the Executive Officer of the ARB or his or her authorized representative or designate.

1.1 General Applicability

This procedure applies to the determination of the one minute static pressure performance of a vapor recovery system of a cargo tank by fluid mechanical principles. This procedure applies to any vapor emissions associated with the dispensing of any fluid, although it is written to reflect application to the hydrocarbon vapors associated with the dispensing of gasoline.

1.2 Determinations of Compliance and Violation

Determinations of certain modes of compliance with and violation of certification specifications is outlined in § 9.

1.3 Modifications

Modification of this procedure may be necessary for vapors and fluids other than the hydrocarbon vapors associated with the dispensing of gasoline.

Any modification of this method shall be subject to approval by the ARB Executive Officer.

2 PRINCIPLE AND SUMMARY OF TEST PROCEDURE

Upon completion of loading operations at the bulk gasoline distribution facility, the gasoline cargo tank is pressurized, with nitrogen, to 18 inches water column. By using the total cargo tank shell capacity, post-loading headspace volume, and the Ideal Gas Law, a one-minute maximum allowable pressure decay is calculated. The pressure decay is monitored for one minute and compliance is determined by comparison with the maximum allowable calculated value. The leak rate through the cargo tank internal vapor vent valve is similarly obtained.

3 BIASES AND INTERFERENCES

Thermal expansion due to direct sunlight on an exposed cargo tank can bias the results of this test procedure. Keep at least 75% of the length of the vapor space of a cargo tank in shade during testing.

Cargo tank leakage exceeding the nitrogen feed rate precludes the use of this method. Such leakage demonstrates the inability of the cargo tank to meet its performance standard. The minimum nitrogen flowrate shall be calculated as shown in § 12.2, or obtained from Table 5.

Pressure stability may not be achievable, within a reasonable time period, if the tank has been purged with air prior to loading gasoline. This tends to bias this test procedure toward determination of compliance. In such a case, the cargo tank shall be moved to disturb the liquid and saturate the vapor space.

Vapor leaks due to a faulty cargo tank vapor coupler or facility vapor hose coupler inherently shall constitute the violation of the performance standard for any tank subject to this test procedure.

If the load prior to testing is diesel over gasoline, this tends to bias this test procedure toward determination of non-compliance. In such a case, the following steps shall be taken to eliminate this bias:

- (1) The pressure decay portion of the test shall be conducted three times to compensate for the absorption of gasoline vapors into the diesel. For the purpose of this interference, diesel shall be defined as any petroleum distillate with a vapor pressure under 4.0 pounds Reid.

- (2) The first two tests will promote absorption of the gasoline vapors into the diesel to eliminate this bias.