

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE
Hydrogen Gas-Measuring Devices (3.39.)
CCR Title 4, §§ 4001 and 4002.9

October 10, 2019

PROPOSED TEXT OF THE REGULATION

The proposed additions to original text are single underlined,
and proposed deletions are ~~single strikethrough~~.

The first 15-day proposed additions are double underlined,
and proposed deletions are ~~double strikethrough~~.

§ 4001. Exceptions.

The following regulations in Handbook 44 are not adopted or incorporated by reference:

1.10. General Code.

G-S.1.2. Remanufactured Devices and Remanufactured Main Elements.

G-T.1. Acceptance Tolerances.

(b) equipment that has been placed in commercial service within the preceding 30 days and is being officially tested for the first time;

(c) equipment that has been returned to commercial service following official rejection for failure to conform to performance requirements and is being officially tested for the first time within 30 days after corrective service;

(d) equipment that is being officially tested for the first time within 30 days after major reconditioning or overhaul;

2.20. Scales.

S.1.8.4. Customer's Indications.

N.3. Minimum Test Weights and Test Loads*.

UR.2.6.1 Vehicle Scales.

UR.3.7. Minimum Load on a Vehicle Scale.

3.30. Liquid-Measuring Devices.

N.4.1.1. Wholesale Devices Equipped With Automatic Temperature Compensating Systems.

3.31. Vehicle-Tank Meters.

UR.2.2. Ticket Printer; Customer Ticket.

3.32. Liquefied Petroleum Gas and Anhydrous Ammonia Liquid-Measuring Devices.

S.2.6. Automatic Temperature Compensation.

N.4.1.1. Automatic Temperature Compensation.

UR.2.3. Vapor Return Line.

3.33. Hydrocarbon Gas Vapor-Measuring Devices.

S.4.3. Temperature Compensation.

3.37. Mass Flow Meters.

S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel.

S.1.3.1.2. Liquefied Natural Gas Used as an Engine Fuel.

S.5.2. Marking of Equivalent Conversion Factors for Compressed Natural Gas.

S.5.3. Marking of Equivalent Conversion Factor for Liquefied Natural Gas.

UR.3.1.1. Marking of Equivalent Conversion Factors for Compressed Natural Gas.

UR.3.1.2. Marking of Equivalent Conversion Factor for Liquefied Natural Gas.

3.39. Hydrogen Gas-Measuring Devices.

Section 3.39. Hydrogen Gas-Measuring Devices - Tentative Code

A.2. Exceptions

(c). Devices used for dispensing a hydrogen gas with a hydrogen fuel index lower than 99.97 % and concentrations of specified impurities that exceed level limits.

A.4. Type Evaluation.

~~N.3. Test Drafts.~~

~~N.4.1. Master Meter (Transfer) Standard Test.~~

~~N.4.2. Gravimetric Tests.~~

~~N.4.3. PVT Pressure Volume Temperature Test.~~

~~N.6.1.1. Repeatability Tests.~~

T.2. Tolerances.

Table T.2.

~~T.3. Repeatability.~~

Appendix D. Definitions for:

Diesel Gallon Equivalent (DGE).

Gasoline Gallon Equivalent (GGE).

Remanufactured Device.

Repaired Device.

Remanufactured Element.

Repaired Element.

Note: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.

§ 4002.9. Hydrogen Gas-Measuring Devices (3.39.)

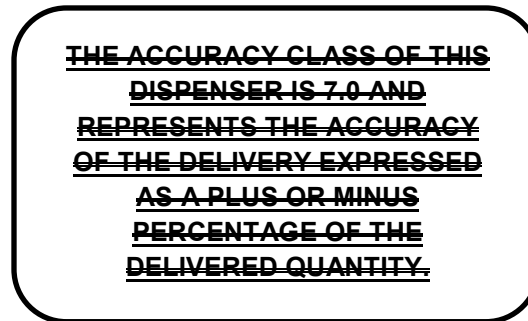
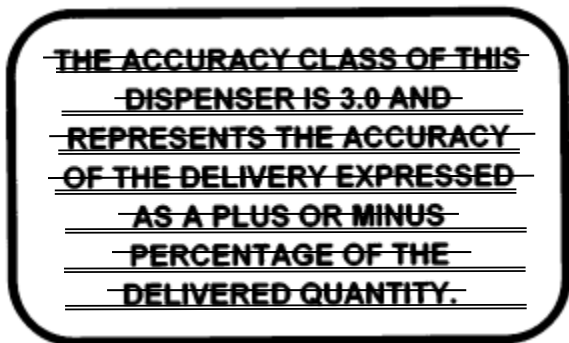
A.4. Type Evaluation. – The National Type Evaluation Program (NTEP) or California Type Evaluation Program (CTEP) will accept for type evaluation only those hydrogen gas-measuring devices that comply with all applicable requirements of this device article.

S.5.2. Location of Accuracy Class 2.0, 3.0, 5.0, 7.0, and 10.0 Information: – An additional Accuracy Class statement shall be placed adjacent to the quantity display on the face for the dispenser and shall be conspicuously, legibly, and indelibly marked with a statement such as

“The Accuracy Class of this dispenser is XX.0 and represents the accuracy of the delivery expressed as a plus or minus percentage of the delivered quantity”. The lettering shall be in Helvetica or Arial Bold font type, in all capitals, and no less than 3/16 inch (0.48 cm) in height.

Note: The XX.0 is the Accuracy Class as stated on the ~~certificate of approval~~ NTEP Certificate of Conformance or CTEP Certificate of Approval issued by the ~~California Department of Food and Agriculture after successful type evaluation~~, and is part of the identification information required in paragraph S.5. The rating represents the allowable limits of error expressed as a plus and minus value. ~~For example, a dispenser approved and marked with a 3.07.0 Accuracy Class has an allowable maintenance tolerance in Table T.2, Accuracy Classes and Tolerances for Hydrogen Gas Measuring Devices ranging from plus three (+3) seven (+7) percent to minus three (-3) seven (-7) percent.~~

EXAMPLE:



~~N.3. Test Drafts. — The minimum test shall be one test draft at twice the declared minimum measured quantity and one test draft at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed. (See T.3. Repeatability)~~

~~The test draft shall be made at flows representative of that during normal delivery. The pressure drop between the dispenser and the proving system shall not be greater than that for normal deliveries. The control of the flow (e.g., pipe work or valve(s) size, etc.) shall be such that the flow of the measuring system is maintained within the range specified by the manufacturer.~~

~~N.4.1. Master Meter (Transfer) Standard Test. — When comparing a measuring system with a calibrated transfer standard, the minimum test shall be one test draft at twice the declared minimum measured quantity and one test draft at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed.~~

~~N.4.2. Gravimetric Tests. — The weight of the test drafts shall be equal to at least twice the amount delivered by the device at the declared minimum measured quantity and one test draft~~

~~at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed.~~

~~N.4.3. PVT Pressure Volume Temperature Test. — The minimum test with a calibrated volumetric standard shall be one test draft at twice the declared minimum measured quantity and one test draft at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed.~~

~~N.6.1.1. Repeatability Tests. — Tests for repeatability should include a minimum of three consecutive test drafts of approximately the same size with no less than 1000 scale intervals (divisions), and be conducted under controlled conditions where variations in factors are reduced to minimize the effect on the results obtained.~~

T.2. Tolerances. — The tolerances for hydrogen gas-measuring devices are listed in Table T.2. Accuracy Classes and Tolerances for Hydrogen Gas-Measuring Devices.

Accuracy Class	Application or Commodity Being Measured	Acceptance Tolerance	Maintenance Tolerance
2.0	Hydrogen gas as a vehicle fuel	1.5 %	2.0 %
3.0¹		2.0 %	3.0 %
5.0¹		4.0 %	5.0 %
10.0²		5.0 %	10.0 %

¹~~The tolerance values for Accuracy Classes 3.0 and 5.0 hydrogen gas measured devices are applicable to devices installed prior to January 1, 2020.~~

²~~The tolerance values for Accuracy Classes 10.0 hydrogen gas-measured devices are applicable to devices installed prior to January 1, 2018.~~

<u>Table T.2.</u> <u>Accuracy Classes and Tolerances for Hydrogen Gas-Measuring Devices</u>			
<u>Accuracy Class</u>	<u>Application or Commodity Being Measured</u>	<u>Acceptance Tolerance</u>	<u>Maintenance Tolerance</u>
<u>2.0</u>	<u>Hydrogen gas as a vehicle fuel</u>	<u>1.5 %</u>	<u>2.0 %</u>
<u>3.0</u>		<u>2.0 %</u>	<u>3.0 %</u>
<u>5.0</u>		<u>4.0 %</u>	<u>5.0 %</u>
<u>7.0</u>		<u>5.0 %</u>	<u>7.0 %</u>
<u>10.0</u> ¹		<u>5.0 %</u>	<u>10.0 %</u>
¹ <u>The tolerance values for Accuracy Class 10.0 hydrogen gas-measuring devices are applicable to devices installed prior to January 1, 2018.</u>			

~~T.3. Repeatability. — When multiple tests are conducted at approximately the same flow rate and draft size greater than 1000 scale intervals (divisions), the range of the test results for the flow rate shall not exceed 40% of the absolute value of the maintenance tolerance and the results of each test shall be within the applicable tolerance. See also Section 4002.9 — N.6.1.1. Repeatability Tests.~~

~~T.6. Tolerance. — Minimum Measured Quantity (MMQ). The maximum error applicable to the minimum measured quantity is twice the applicable tolerance in Table T.2. Accuracy Classes and Tolerances for Hydrogen Gas-Measuring Devices.~~

Note: Authority cited: Sections 12027 and 12107, Business and Professions Code. Reference: Section 12107, Business and Professions Code.