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

May 31, 2019

PROPOSED TEXT OF THE REGULATIONS

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

§ 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.

S.5.2. Location of Accuracy Class ~~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 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 ~~3.0~~ 7.0 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:

~~THE ACCURACY CLASS OF THIS DISPENSER IS 3.0 AND REPRESENTS THE ACCURACY OF THE DELIVERY EXPRESSED AS A PLUS OR MINUS PERCENTAGE OF THE DELIVERED QUANTITY.~~

THE ACCURACY CLASS OF THIS DISPENSER IS 7.0 AND REPRESENTS THE ACCURACY OF THE DELIVERY EXPRESSED AS A PLUS OR MINUS PERCENTAGE OF THE DELIVERED QUANTITY.

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.

~~**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 %**~~
~~**3.0 [1]**~~		~~**2.0 %**~~	~~**3.0 %**~~
~~**5.0 [1]**~~		~~**4.0 %**~~	~~**5.0 %**~~
~~**10.0 [2]**~~		~~**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.~~

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

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 ~~Measures~~ 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.