DEPARTMENT OF FOOD AND AGRICULTURE
PROPOSED AMENDMENT OF THE REGULATIONS

Title 4, Division 9, Chapter 6. Article 8
Specifications for Hydrogen Gas Used In
Internal Combustion Engines and Fuel Cells

INITIAL STATEMENT OF REASONS

Background

The overall mission of weights and measures is to preserve and maintain the standards of measurements essential in providing a basis of value comparison for the consumer and fair competition for industry.

The California Oil Substitution Act was enacted in 1931 (Stats 1931, Chapter 609). The provisions of that legislation are found in the Business and Professions Code (BPC), Division 5, Chapters 14(Petroleum), 14.5 (Service Stations) and 15 (Automotive Products). The Department of Food and Agriculture (Department) Division of Measurement Standards (Division) was given the responsibility for establishing and enforcing the quality standards for gasoline, diesel fuel, and alternative engine fuels sold in California. Products, produced and offered for sale, are sampled and tested in the Program's laboratories to verify that they meet the quality, performance and drivability standards established in state law as well as advertising and labeling of products. The principle task of the Petroleum Products Program is to regulate and enforce the advertising, labeling and quality specifications for motor oils, engine fuels, engine coolants and alternative fuels.

Senate Bill 76 (Stats 2005, Chapter 91) defined hydrogen as a motor vehicle fuel in BPC Division, Chapter 14, Section 13401 and required the Department, with the concurrence of the State Air Resources Board, to adopt standards by regulation for hydrogen fuel used both in fuel cells and internal combustion engines until a development organization accredited by the American National Standards Institute (ANSI) formally adopts standards. SAE International, an ANSI-accredited standards developer, has since completed and published its Surface Vehicle Standard J2719 - "*Hydrogen Fuel Quality for Fuel Cell Vehicles"* specification for hydrogen in September 2011.

Description of the Public Problem, Administrative Requirements, or Other Conditions or Circumstances the Regulations are Intended to Address

The Department is authorized by BPC Section 12027 to make such regulations as are necessary for the purpose of carrying out the provisions of Division 5.

Additionally, the Department is required to take regulatory action to implement the provisions of BPC Section 13446 to adopt by reference the latest standards

established by the ANSI-accredited standards development organization for hydrogen fuel. SAE International Surface Vehicle Standard J2719 "*Specification for Hydrogen Fuel Quality for Fuel Cell Vehicles"* addresses hydrogen used for both fuel cells and internal combustion engines.

Benefits of the Regulation

The benefits of this regulation to the safety of California motorists are the Department's continued testing to ensure the quality of hydrogen fuel necessary to operate a motor vehicle so that their vehicles will operate properly.

California motorists will be assured that the fuel used in motor vehicles will not impair the engine or fuel cell requiring a costly repair. According to the California Fuel Cell Partnership, by 2016 California should have 68 hydrogen stations throughout the state to serve more than 50,000 fuel cell vehicles.

Economic Impact Assessment/Results

Adoption of the proposed regulations will not have a significant statewide adverse economic impact affecting those businesses required to abide by the fuel quality specifications. The Department has determined that this regulation will have no effect on small business. The Department has made an initial determination that the proposed regulations will not have a statewide impact on businesses as they were already using an equivalent interim standard which mirrors the one promulgated by SAE International.

The Department has made an assessment that the proposed regulation will not: (1) create jobs within California; (2) create new businesses within California; or (3) affect the expansion of businesses currently doing business within California. This regulation will have no economic impact because the standard being adopted by reference is essentially the same as the interim regulation. Companies producing hydrogen for fuel purposes are already following the SAE International standard J2719.

Estimated Cost or Savings to Public Agencies or Affected Private Individuals or Entities

The Department has initially determined that this proposal does not impose a mandate on local agencies or school districts.

The Department has also determined that no savings or increased costs to any State agency, no reimbursable costs or savings under Part 7 (commencing with Section 17500) of Division 8 of the Government Code to local agencies or school districts, no nondiscretionary costs or savings to local agencies or school districts, and no costs or savings in federal funding to the State will result from this action.

The Department has initially determined that the proposed action will not have a significant adverse economic impact on housing costs.

The Department is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

Federal Regulations

The proposed regulations are not in conflict with any federal regulations contained in the Code of Federal Regulations. Moreover, the proposed regulations are not mandated by federal law or regulation.

Specific Purpose of the Regulation

Necessity

Existing law, BPC 13446, requires the Department to establish specifications for hydrogen fuels for use in internal combustion engines and fuel cells in motor vehicles. The Department adopted interim specifications for hydrogen fuel quality in 2008. In 2011, SAE International published Surface Vehicle Standard J2719 "*Specification for Hydrogen Fuel Quality for Fuel Cell Vehicles."* It is necessary that the Department update its regulations through the adoption by reference of the most recent standard.

Clarity and Consistency

The regulations propose to change the title of the article to make it uniform with language in the BPC and more clearly identify its purpose. Several definitions were modified to make them more clear and precise.

Specific Purpose – By Section

Chapter 6, Article 8. Hydrogen Fuel

This regulation proposes changing the title of the article to make it uniform with language in the BPC and clarify its purpose.

4180. Definitions Used in This Article

This regulation proposes to revise the definitions for Fuel Cell, Internal Combustion Engine, and Hydrogen Fuel to make them more clear and precise as to their purpose. To facilitate trade on a national and international level by promoting uniformity, these changes would align California regulations and definitions with those in SAE International J2719 adopted by the National Conference on Weights and Measures. Without uniformity, hydrogen gas quality may vary among the states and product imported into California may damage a

vehicle's fuel cell, thus requiring costly repairs. These model regulations are published in National Institute of Standards and Technology Handbook130 "Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality."

4181. Specifications- Hydrogen Fuel Used in Fuel Cells and Internal Combustion Engines

This regulation proposes to change the section title to make it uniform with language in the BPC. The BPC requires that the specifications for hydrogen fuels for use in internal combustion engines and fuel cells in motor vehicles be adopted by reference from an American National Standards Institute (ANSI) accredited standards development organization. The proposed regulation references SAE International's J2719, "Hydrogen Fuel Quality for Fuel Cell Vehicles" which was finalized in September 2011.

Alternatives Considered

The Department must determine that no reasonable alternative it considered or that has otherwise been identified and brought its attention would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

If the Department chooses to do nothing, it would be in violation of BPC 13446, which requires the adoption of standard specifications for hydrogen fuels for use in internal combustion engines and fuel cells in motor vehicles are adopted by reference from an American National Standards Institute (ANSI) accredited standards development organization.

Another option would require statutory changes to adopt the interim standard found in present regulations. This option would require one or more years to complete and would make California specifications inconsistent with national and international standards.

Through promulgation of regulations, the Department can adopt by reference the latest standard published by SAE International. Doing so allows the Department to stay abreast of best practices and standards for the industry. The Department believes that this is the best solution.

Technical, Theoretical, and/or Empirical Study, Reports or Documents

The Division of Measurement Standards relied on the following documents in drafting the regulatory language of this proposal:

- *SAE International Surface Vehicle Standard J2719*, dated September 2011
- *ISO Hydrogen Fuel – Product Specification* – "Part 2: PEM fuel cell applications for road vehicles", ISO/DIS 14687-2:2012
- "A California Road Map: The Commercialization of Hydrogen Fuel Cell Vehicles", California Fuel Cell Partnership, June 2012
- National Institute of Standards and Technology *Handbook 130, Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality*, "Uniform Engine Fuels and Automotive Lubricants Regulation", 2013