American Petroleum Institute

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Federal Trade Commission
Office of the Secretary
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Delivered electronically to: electronicfilings@ftc.gov

Subject: Petition for Rulemaking to Amend 16 CFR 306.0, 306.5, and 306.13

Introduction

Consistent with the requirements of 16 CFR 1.31, the American Petroleum Institute (API)[1] submits the following petition for rulemaking to amend certain Federal Trade Commission (FTC) regulations of 16 CFR Part 306 to allow spectroscopic methods to be used as an alternative for determining octane, consistent with recently amended ASTM International (ASTM) specifications. This allowance would improve reliability, provide refiners with improved control of gasoline blending, and ensure consistency with ASTM approved test methods, specifications, and practices.

Background

FTC first developed octane rating regulations in 1979[2] as directed by the Petroleum Marketing Practices Act (PMPA). The regulations of 16 CFR Part 306, entitled "Automotive Fuel Ratings, Certification, and Posting," govern octane measurement, transfer document requirements, and pump labeling. According to 16 CFR 306.0, the automotive fuel rating for gasoline is defined as the "octane rating" that is defined as "the rating of the anti-knock characteristics of a grade or type of gasoline as determined by dividing by 2 the sum of the research octane number plus the motor octane number." Further, as required by 16 CFR 306.5, refiners must determine the automotive fuel rating for gasoline in accordance with either ASTM standard test methods D2699 (Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel) and D2700 (Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel), or D2885 (Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique). The latter test method was allowed for use by FTC in its 2011 amendments to Part 306.[3]

In 2014, FTC proposed a change to allow infrared (IR) certification of octane; however, support for change was not universal. IR certification was not finalized at that time due to the following concerns: i) IR testing is an indirect method

[1] The American Petroleum Institute represents all segments of America's natural gas and oil industry, which supports more than ten million U.S. jobs and is backed by a growing grassroots movement of millions of Americans. Our nearly 600 members produce, process and distribute the majority of the nation's energy, and participate in API Energy Excellence, which is accelerating environmental and safety progress by fostering new technologies and transparent reporting. API was formed in 1919 as a standards-setting organization and has developed more than 700 standards to enhance operational and environmental safety, efficiency, and sustainability.

[2] 44 FR 19143, March 30, 1979. (https://archives.federalregister.gov/issue_slice/1979/3/30/19143-19171.pdf)

[3] 76 FR 19684, April 8, 2011. (https://www.govinfo.gov/content/pkg/FR-2011-04-08/pdf/2011-8097.pdf)

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that was not endorsed for octane certification by ASTM; and ii) IR testing was not considered as standardized as ASTM test methods D2699, D2700, and D2885. When the rulemaking was finalized in 2016[4], FTC did not include IR certification as an alternative to certification by ASTM test methods D2699/2700 or D2885.

Since that rulemaking was finalized, these concerns have been addressed. A new ASTM standard practice recognizing Infrared and Raman spectroscopies for certification has been established. In 2020, ASTM D8340, "*Standard Practice for Performance-Based Qualification of Spectroscopic Analyzer Systems*," was published, and it was incorporated into ASTM D4814, "*Standard Specification for Automotive Spark-Ignition Engine Fuel*," in 2022. As such, ASTM D4814 now allows for octane and other specification parameters to be predicted by a multivariate spectroscopic test method conforming to ASTM D8340.[5] ASTM D8340 requires validation of the spectroscopic methods to be done weekly or every five batches/blends, whichever is the more frequent, to assure that spectroscopic methods are predicting octane ratings consistent with the referee methods. The U.S. Environmental Protection Agency (EPA) also expanded acceptance of alternative test methods, and EPA's regulations currently allow regulated entities to request approval to use an updated version of a referee procedure for qualifying other alternative procedures. (*See* 40 CFR 1090.1360.)

Recommended Changes

We are requesting that FTC promulgate a rulemaking to amend 16 CFR Part 306 to allow spectroscopic methods to be used as an alternative for determining octane, recognizing the establishment of ASTM D8340 and its incorporation into ASTM D4814. ASTM D2699 and D2700 would remain the referee methods. This request asks the FTC to update its regulations to align with the new ASTM methods that allow the use of D8340 by adding it as an option to certify octane in addition to the existing options in 16 CFR 306.5 (and associated changes to §§ 306.0 and 306.13). We request the allowance of ASTM D8340 for the following reasons: i) the results are correlated with ASTM D2699, D2700, and/or (R+M)/2; ii) existing test methods ASTM D2699 and D2700 would still be used as referee methods for enforcement; and iii) existing test method ASTM D2885 would still be allowed.

The FTC regulations currently allow for on-line certification by engine via ASTM D2885. As both FTC and ASTM (in specification ASTM D4814) currently allow on-line analyzers (engines) via ASTM D2885 for octane, acceptance of on-line spectroscopy conforming to ASTM D8340 should also be allowed. Amending the regulations to allow for the utilization of the ASTM D8340 compliance on-line spectroscopic method would not be a deviation from the philosophy previously utilized to approve ASTM D2885, and would have the following benefits:

- Improved control of gasoline blending.
- Cycle times for on-line engines are typically longer (2-8 times) than those of spectroscopic analyzers – this allows for more measurements to be observed using spectroscopic analyzers over the course of the batch of gasoline as it is being blended, providing even greater control of the fuel.
- Greater reliability.

Additionally, we recommend that when a final rule is issued, FTC should update all of ASTM standards incorporated by reference in §306.13 to the latest published version of the standards. For the recommended changes to the regulatory text shown below, a placeholder of "XX" is used to indicate that the latest version of each specification should be

[4] 81 FR 2054, January 14, 2016. (https://www.govinfo.gov/content/pkg/FR-2016-01-14/pdf/2015-32972.pdf)
[5] Excerpt from ASTM D4814 section 7.1: "*The requirements of this specification shall be determined in accordance with the methods listed in 7.1 or predicted by the application of a multivariate spectroscopic test method conforming to Practice D8340 as described in 7.2.*"

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incorporated by reference; in the case of § 306.13(6), the 2022 version or newer must be incorporated, as this is the year that ASTM D8340 was accepted into specification ASTM D4814.

Justification for Rulemaking Outside of the Retrospective Review Process

As the regulations were last updated in 2016, we anticipate that FTC will begin the next 10-year retrospective review process on these regulations within the next two to three years. However, we believe that timely revision to allow the use of spectroscopic methods would be in the best interest of fuel producers, state and federal regulators, and the public as a whole.

Approving spectroscopic methods in ASTM D8340 would provide alternative methods for fuel producers. ASTM D2699 and D2700 would remain the referee methods; this amendment would simply allow for an alternative method. ASTM D8340 incorporates multiple requirements for maintaining control of the boundaries on the analyzers' performance to ensure the system operates consistently, and this would provide producers with greater control and reliability. Specifically, ASTM D8340 would ensure reliability by requiring validation of the method, utilizing ASTM D6122, "*Standard Practice for Validation of the Performance of Multivariate Online, At-Line, Field and Laboratory Infrared Spectrophotometer, and Raman Spectrometer Based Analyzer Systems*:"

- Validation is required to show agreement between the Primary Test Methods (PTM) – that is ASTM D2699, D2700, and/or (R+M)/2 – to the predicted test method result obtained by the spectroscopic method qualified under ASTM D8340.
- Initial and continuous validation of the spectroscopic method is required under the provisions of ASTM D6122.
- ASTM D8340 practice requires validation weekly or every five batches/blends, whichever is more frequent, of the spectroscopic method. Specification ASTM D4814, section 7.2.3, requires results agree within ASTM D6122 local validation limits or reproducibility of the PTM.

Further, approving spectroscopic methods in ASTM D8340 would be seamless to FTC, as we are simply requesting the allowance to utilize spectroscopic methods as an alternative, not require their use. The standard was approved through ASTM's voluntary consensus board process. Although the standard has been approved by and published by ASTM, those who would like to use the methods conforming to ASTM D8340 would not be able to do so under the current 16 CFR Part 306 regulations and would have to contact FTC individually with regard to use of the standard. Amending the regulations to be consistent with the ASTM standards would negate the need for such inquiries. Additionally, some state regulators are already utilizing spectroscopy to monitor compliance; however, as these spectroscopy systems may not be compliant with ASTM D8340, results may vary. Express allowance of spectroscopic methods conforming to ASTM D8340 in the regulations would help to ensure compliance and consistency.

Recommended Regulatory Text Amendments

We recommend the following changes to the regulatory text at 16 CFR Part 306:

§ 306.0 Definitions

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(a) ***Octane rating*** means the rating of the anti-knock characteristics of a grade or type of gasoline as determined by dividing by 2 the sum of the research octane number plus the motor octane number ((R+M)/2 or AKI).

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(b) ***Research octane number, ~~and~~ motor octane number, and/or AKI.*** These terms have the meanings given such terms in the specifications of ASTM D4814-XX ~~15a~~, Standard Specification for Automotive Spark-Ignition Engine Fuel, (incorporated by reference, see § 306.13) and, with respect to any grade or type of gasoline, are determined in accordance with one of the ~~following~~ test methods or protocols~~:~~ identified in §306.5(a) or direct correlation to AKI by a spectroscopic test method conforming to D8340-XX, Standard Practice for Performance-Based Qualification of Spectroscopic Analyzer Systems.

~~(1) ASTM D2699-15a, Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel, and ASTM D2700-14, Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel, (both incorporated by reference, see § 306.13) or~~

~~(2) ASTM D2885-13, Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique, (incorporated by reference, see § 306.13).~~

* * * * *

(p) ***Antiknock Index (AKI)*** has the same meaning as octane rating, as defined in paragraph (a) of this section.

§ 306.5 Automotive fuel rating.

If you are a refiner, importer, or producer, you must determine the automotive fuel rating of all automotive fuel. You can determine the automotive fuel rating yourself or through a testing lab.

(a) To determine the automotive fuel rating of gasoline, add the research octane number and the motor octane number and divide by two, as explained by ASTM D4814–XX ~~15a~~, Standard Specifications for Automotive Spark-Ignition Engine Fuel, (incorporated by reference, see § 306.13). To determine the research octane and motor octane numbers, you may do any ~~one~~ of the following:

(1) Use ASTM D2699–23a ~~15a~~, Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel (incorporated by reference, see § 306.13), to determine the research octane number, and ASTM D2700–23a ~~14~~, Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel (incorporated by reference, see § 306.13), to determine the motor octane number. ~~; or~~

(2) Use the test method set forth in ASTM D2885–21 ~~13~~, Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique (incorporated by reference, see § 306.13).

(3) Use a spectroscopy method that conforms to ASTM D8340-XX, Standard Practice for Performance-Based Qualification of Spectroscopic Analyzer Systems. Determining the automotive fuel rating directly through ASTM D8340-XX is permitted (incorporated by reference, see § 306.13).

§ 306.13 Incorporation by reference.

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(3) ASTM D2699–XX ~~15a~~, Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel, published November 2015; IBR approved for §§ 306.0(b) and 306.5(a).

(4) ASTM D2700–XX ~~14~~, Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel, published November 2014; IBR approved for §§ 306.0(b) and 306.5(a).

(5) ASTM D2885–XX ~~13~~, Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique, published July 2013; IBR approved for §§ 306.0(b) and 306.5(a).

(6) ASTM D4814–XX, Standard Specification for Automotive Spark-Ignition Engine Fuel, published August 2015; IBR

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approved for §§ 306.0(b) and 306.5(a).

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(8) ASTM D8340-XX, Standard Practice for Performance-Based Qualification of Spectroscopic Analyzer Systems, published [**DATE**]; IBR approved for § 306.5(a).

Conclusion

In conclusion, we request that the FTC amend its 16 CFR Part 306 regulations to allow spectroscopic methods to be used as an alternative for determining octane, consistent with recently amended ASTM specifications. As described above, this allowance would improve reliability, provide fuel producers with improved control of gasoline blending, and ensure consistency with ASTM approved test methods.

We thank the FTC for its consideration of this important matter, and we would be happy to meet with you to discuss any questions or provide further information.

Please do not hesitate to contact me at searlesp@api.org or at (202) 682-8227.

Sincerely,