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TESORO

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Matthew Wilshire
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Bureau of Consumer Protection
Federal Trade Commission
600 Pennsylvania Avenue, NW
Washington, D.C. 20580

FILED ELECTRONICALLY

Re: Fuel Rating Rule Review

Dear Mr. Wilshire:

The Tesoro Companies ("Tesoro") are pleased to provide comments in response to the Federal Trade Commission's request for public comments on the Automotive Fuels Ratings, Certification and Posting rule at 16 CFR 306 (FR 75 12470; 3/16/10).

Tesoro is an independent manufacturer and marketer of petroleum products. Tesoro operates seven refineries in the western U.S. with combined capacity of approximately 665,000 barrels per day. Tesoro's retail-marketing system includes over 870 branded retail stations. The seven refineries are located in Martinez and Wilmington, California; Anacortes, Washington; Mandan, North Dakota; Kapolei, Hawaii; Kenai, Alaska; and Salt Lake City, Utah.

Tesoro would like to offer comments on the issue of octane certification and testing. We believe that the rule should be amended to provide additional flexibility by allowing the use of infrared test methods as an additional option for octane testing. These methods provide greater precision and accuracy than the knock engines used in ASTM methods D2699, D2700, and D2885. Since infrared analyzers provide more reliable results due to reduced variability in test measurements, use of these methods results in enhanced quality control and better consumer protection.

I. Benefits of Infrared Methods for Determining Octane

Infrared methods have a number of technical, economic, and consumer protection benefits. Infrared analyzers are widely used to determine the octane rating of gasoline as well as gasoline-ethanol blends. They can also test for other fuel properties, including diesel cetane number, ethanol, and biodiesel (FAME) content.

Infrared methods have many attributes that make them superior to the knock engines that are used in ASTM methods D2699, D2700, and D2885.

The benefits of Infrared analyzers include:

- More precise method of measurement

- Smaller variability in test results
- Faster response time resulting in the ability to sample a greater volume of samples during the same period of time
- Lower maintenance costs
- Lower capital installation cost
- Greater confidence in accuracy of measurement

The gasoline that is produced has octane ratings closer to the true value of the gasoline than can be achieved with knock engines and the test methods associated with these knock engines.

II. Accuracy and Precision of Measurement

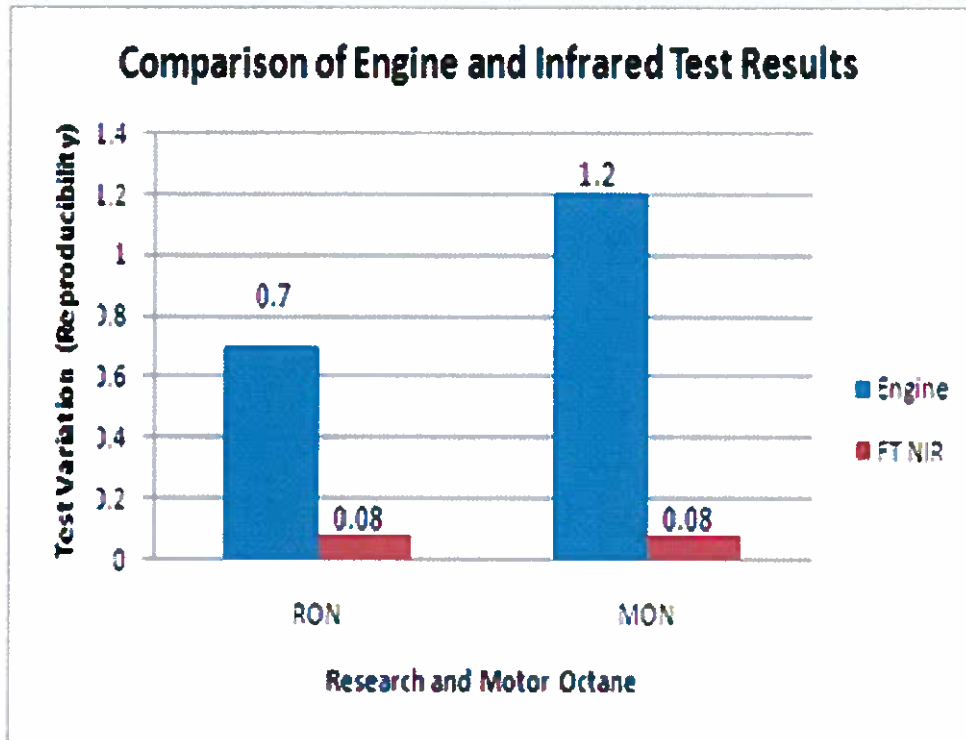
Infrared analyzers offer improved precision due to its much narrower range of reproducibility. Where the octane engine generates results that may vary from 0.5 to 1.0 octane value, the infrared instrument only varies by 0.05 octane value from one test to the next on the same sample. This increased accuracy and precision provides assurance to refiners and producers that the octane number measured will be the same octane number delivered to the consumer.

A recent interlaboratory study was conducted to demonstrate the accuracy and precision of infrared analyzers for octane. Based on the results of that study involving six laboratories, near infrared analyzers showed significantly better precision over ASTM D2699 and D2700 octane engines. The lower the variation, the more precise the measurement. Variation (as measured by reproducibility) is significantly lower when using IR than when using the octane engine. Reproducibility (R) is defined as comparing test results between different laboratories using different analyzers and different technicians.

The following chart shows that the infrared analyzer has significantly greater precision (i.e, lower variation) over the octane engines¹. The variability using the Infrared method was 0.08 (for Research and Motor octane) versus the octane engine of 0.7 (for Research Octane) and 1.2 (for Motor Octane)².

¹ Based on interlaboratory study involving six refineries conducting a total of 15 infrared tests and 18 knock engine tests.

² The knock engine test results from the interlaboratory study are comparable to ASTM published reproducibility of 0.7 for Research Octane and 0.9 for Motor Octane (*Annual Book of ASTM Standards* (2009), Section 5, Volume 05.05, D 2699-08 (page 53) and D 2700-08 (page 96)).



The infrared analyzers also offer a more economical and efficient method of testing. The instrument is less expensive to purchase and maintain. The infrared analyzers are also less labor intensive. Multiple tests can be performed by infrared instruments in the time it takes to receive one engine test. Because the analyzers are more reliable than the knock engines - there is greater assurance that the octane number being determined is accurate.

The following article from published literature addresses the benefits of infrared technology to determine octane.

An article entitled "Application – Octane Number of Gasoline" by Guided Wave Incorporated, (2005) states as follows:

"The traditional laboratory method for Octane number determination is the knock engine method in which a gasoline is burned and its combustion characteristics compared to known standards. This method is time and labor intensive, and provides no ability for real time control of production.... In either case NIR is a time and money saving alternative to traditional methods...The measurement of the Octane number of gasoline using NIR spectroscopy is both fast and reliable.... This method minimizes the need for laboratory sample collection. Results are available in real-time (seconds) for multiple parameters in complex streams."

III. State Use of IR for Testing Octane

Infrared methods are widely used by states for screening and enforcement of state octane laws and regulations. Over 25 states use infrared analyzers for screening fuel samples in the field as well as in the laboratory.

Infrared analyzers provide significant benefits to state regulators in terms of mobility, reduced cost, and speed of test results. While many states will sample retail sites utilizing the infrared analyzer, fuel samples screening as "off spec" or as a potential octane violation may be sent to the laboratory for verification prior to taking enforcement action. Some states have sufficient confidence in the test results from an IR octane analyzer that they will take initial enforcement action based on test results from the IR.

Many states utilize infrared analyzers as an enforcement tool for determining gasoline octane ratings. The National Conference on Weights and Measures (a standards organization comprised of state Weights and Measures officials) recently conducted a survey of its membership regarding state use of infrared technology. A chart, "*State Use of IR for Octane Testing*", which summarizes the Survey results is attached.

Based on the results of that Survey, 17 states responded that they have had a positive experience with octane analyzers and that these IR analyzers have provided significant benefits for enforcement. Most states reported that samples suspected of failing to meet the minimum posted octane rating on the dispenser are sent to the laboratory for confirmation. However, at least two states noted in the Survey that due to their confidence in the infrared test equipment, they will take initial enforcement action based on test results from the infrared octane analyzer.

Following are excerpts from correspondence from two states, Missouri and North Carolina, regarding the use of infrared analyzers for enforcing octane requirements.

Missouri

"We use it as a screening tool for all products. For gasoline it predicts the octane. Any sample slightly low in octane is then routed to the octane engines for final testing. Since it predicts the RON and MON, it speeds up testing by having target values for engines. To ensure our octane models are up to date, 20% of all samples are selected randomly for engine tests. The FTIR also is used for measuring and predicting other properties of the fuel.

We have been using the FTIR since 1995. It is a great tool when you have the engines and other equipment to back it up, which is a must for enforcement. For speed and a second check against other tests, we feel we have better assurance of reliable results. It has paid for itself many times."

Email from Ron Hayes, Director, Weights and Measures, Missouri Department of Agriculture to Marilyn J. Herman, Herman & Associates, May 11, 2010

North Carolina

"We have about 13 of these units (one for each field inspector, the field supervisor and the lab)....Some of our newer units include program for ethanol or cetane as well. We will approve a sample on octane using this unit, but we will not condemn one. Any approved results are noted as "NIR" on the inspection transcript so that is clear it was not an engine result. The unit provides RON, MON and the index (average). A sample can be run in about 45 seconds or less.

* * * *

The benefits we see are mainly in the field, it allows for very quick on site testing, especially if a technician is there to correct a blending issue with a dispenser(s). They can make an adjustment and then we can determine if the fuel will then meet the octane specs as posted (there is some line flushing that goes on here as well). Many stations now have blend pumps or have the single hose multi-product units, so it does save us from having to draw larger samples for the lab since we do multiple dispensers at each location. Otherwise samples would have to be sent to the lab, each field inspector has certain days their sample comes into the lab to be tested the next day and then the results reported, so turnaround time is no longer a factor. If we do have a sample that is borderline, we conditionally approve it, meaning we leave the pumps open and take a sample for the lab to determine if it meets specs or not using the engines."

Email from Stephen Benjamin, Director, North Carolina Standards Division to Marilyn J. Herman, Herman & Associates, May 5, 2010

Many states have adopted laws or regulations requiring that the gasoline being sold conforms with the octane posting requirements in 16 CFR Part 306. In addition, the National Conference on Weights and Measures has adopted a model regulation which requires that the Antiknock Index be posted in accordance with FTC regulations, 16 CFR Part 306. States may adopt Handbook 130 by reference, incorporate the regulatory requirement into state rule, or use the Handbook as a guideline for drafting state laws and regulations.

Section 3.2 of Handbook 130, "Uniform Engine Fuels and Automotive Lubricants Regulation", states as follows:

"3.2. Automotive Gasoline and Automotive Gasoline-Oxygenate Blends.

3.2.1. Posting of Antiknock Index Required. – All automotive gasoline and automotive gasoline-oxygenate blends shall post the antiknock index in accordance with applicable regulations, 16 CFR Part 306 issued pursuant to the Petroleum Marketing Practices Act, as amended."

IV. Enforcement / Consumer Protection

Tesoro believes that permitting infrared methods to be utilized to certify the octane rating of gasoline and gasoline-ethanol blends would provide additional flexibility to refiners and importers in complying with FTC octane certification requirements without diminishing Agency oversight or enforcement of same. Since infrared analyzers provide more reliable results due to reduced variability in test measurements, use of these methods results in enhanced quality control and better consumer protection.

We also believe that in case of a discrepancy between the posted octane rating and the octane of the sample, ASTM D2699 and ASTM 2700 should continue to be used as the referee method. This approach, which is consistent with the enforcement approach used by state regulatory agencies, should not impose any additional enforcement burden on the Commission - since ASTM D2699 and ASTM D2700 would continue to be the referee method.

V. Recommendation

A. Allow Infrared Octane Analyzers as Alternative Method

Infrared analyzers are a proven technology widely used by industry and states and provides greater precision than the octane engine and on-line octane engine test methods. There would be no additional enforcement burden, since ASTM D2699 & D2700 would continue to be used for enforcement purposes. For these reasons, Tesoro urges the Commission to amend 16 CFR §306.5, "Automotive fuel rating", of its "Rule for Automotive Fuel Ratings, Certification and Posting" to

allow infrared octane measurement methods to determine research and motor octane number, provided that:

- 1) These methods are correlated with ASTM D2699 and ASTM D2700,
- 2) Conforms with ASTM D6122, "Standard Practice for Validation of the Performance of Multivariate Infrared Spectrophotometers", and that
- 3) ASTM standard test methods D2699 and D2700 would be the referee test methods for purposes of enforcement of §306.5.

Requiring that infrared analyzers comply with the requirements of ASTM D6122 would enable the use of this important technology while ensuring that the analyzers are properly correlated, validated, and calibrated in accordance with ASTM procedures.

B. Update ASTM Test Methods and Reference to "ASTM"

We would also like to note that ASTM has adopted more recent methods than those cited in §306.5(a), §306.5(a)(1) and the Commission's proposed new wording for §306.5(a)(2). We suggest that the Commission consider updating these methods to their most current ASTM version and making editorial corrections as follows:

- ASTM D2699-08, "Standard Test Method Standard for Research Octane Number of Spark-Ignition Engine Fuel" has been changed to ASTM D2699-09,
- D2700-08, "Standard Test Method for Motor Octane Number of Spark-Ignition Engine Fuel" has been changed to D2700-09,
- ASTM D2885-08, "Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique", has been changed to ASTM D2885-10, and
- ASTM D4814 is entitled "Standard Specification for Automotive Spark-Ignition Engine Fuel" instead of "Standard Specifications for Automotive Spark-Ignition Engine Fuel".

In addition, ASTM recently underwent a name change. The new name of the organization is "ASTM International".

VI. Proposed Regulatory Language

Tesoro appreciates the opportunity to offer these comments, and would like to suggest the following proposal for the Commission's consideration. We suggest that the Commission add a new option "3" to §306.5 Automotive fuel rating allowing the use of infrared octane analyzers as an alternative methodology, as well as update ASTM standards to their current version.

We offer the following proposed regulatory language for your consideration:

[Note: Additions are indicated with bold, red font, and deletions are indicated with a "strikethrough" in black.]

PART 306_AUTOMOTIVE FUEL RATINGS, CERTIFICATION AND POSTING

§306.5 Automotive fuel rating.

If you are a refiner, importer, or producer, you must determine the automotive fuel rating of all automotive fuel before you transfer it. You can do that 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 ~~the American Society for Testing and Materials~~ **ASTM International** ("ASTM") in ASTM D4814-09b, entitled "Standard Specifications for Automotive Spark-Ignition Engine Fuel." To determine the research octane and motor octane numbers you may either:

(1) Use ASTM standard test method D2699-08 **09** to determine the research octane number, and ASTM standard test method D2700-08 **09** to determine the motor octane number; or

(2) Use the test method set forth in ASTM D2885-08 **10**, "Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique"; **or**

(3) Use infrared methods to determine research and motor octane number, provided that these methods are correlated with ASTM D2699-09 and ASTM D2700-09 and conform with ASTM D6122-10 "Standard Practice for Validation of the Performance of Multivariate Infrared Spectrophotometers". ASTM standard test methods D2699-09 and D2700-09 shall be the referee test methods.

VII. Consideration of Alternatives Is Appropriate Under Administrative Law

FTC is well-positioned to adopt Tesoro's suggested alternative language allowing for additional flexibility to utilize infrared analyzers. From the earliest proposal and solicitation of comments, FTC has asked for comment on alternative mechanisms for octane testing that go beyond the current requirements to utilize ASTM D2699 and ASTM D2700. By proposing on-line test methods in conjunction with traditional tests, FTC creates a reasonable expectation in the regulated community that technological alternatives to current approaches are welcome and likely to be considered and approved by the Commission.

Such robust consideration of technological alternatives is fully consistent with FTC's obligations under substantive and administrative law. It is axiomatic under administrative law that criticism of a proposed rule coupled with a suggested alternative creates an obligation on the part of an agency to consider the alternative

fully. See, e.g., R.J. Pierce, *Administrative Law Treatise* (5th ed. 2010) §§ 7.4 at 594; *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29 (1983). In addition, any failure to address in detail specific technologies in earlier comments does not preclude FTC from undertaking a more fulsome examination of the topic before the proposed rule is finalized. Pierce at 596. The current proposal offers precisely the opportunity to refine the revisions suggested by the proposed on-line mechanism to include infrared analysis or other technologies.

VIII. Conclusion

Tesoro believes that inclusion of infrared methods as an allowable alternative is appropriate and would provide additional flexibility for certifying the octane rating of gasoline and gasoline-ethanol blends. We urge the Commission to amend §306.5 "Automotive fuel rating" in order to not preclude use of these beneficial methods.

We appreciate the opportunity to provide these comments. Please let me know if you have any questions or if we can be of any assistance.

Sincerely,

Lynn D. Westfall

State Use of IR for Octane Testing

Preliminary Responses to May 7, 2010 Survey by National Conference on Weights and Measures

State	Utilize IR	Use in Laboratory Testing	Use for Field Testing	Verify Failures with Engine Testing	Comments
Arizona	Yes	Yes	Yes	Yes	Used as screening tool. Enforcement taken on lab test results. Instrument correlated to ASTM 2699 and 2700.
Arkansas	Yes	Yes	Yes	Yes	Uses benchtop IR fuel analyzers in laboratory. Very failures with engine testing.
Connecticut	Yes	No	Yes	Yes	Used for enforcement. Engine tests performed if retailer does not agree to address problems with fuel.
Delaware	No	No	No	No	State has not started octane testing yet.
Florida	Yes	Yes	No	Yes	Used as screening tool. Enforcement taken on lab test results. Run percentage of samples that pass the IR on engines, to check for potential positive biases with the IR.
Georgia	Yes	Yes	No	Sometimes	Does not always verify failures with engine tests.
Hawaii	No	No	No	No	Hawaii does not test for octane ratings.
Illinois	No	No	No	No	Does not use IR equipment to scan for octane rating of gasoline.
Iowa	Yes	Yes	Yes	No	Used for screening and enforcement. Have enough confidence in unit to take immediate action if fuel found to be different than labeled.
Kansas	No	No	No	No	Does not use.
Maryland	Yes	Yes	Yes	Yes	Used as screening tool. Enforcement taken on lab test results. All samples are lab tested.
Massachusetts	Yes	No	Yes	Yes	Used for enforcement. Lab tests available for confirmation at request of retailer.
Michigan	Yes	Yes	Yes	Yes	Used for screening. If octane found to be low, official sample obtained for verification on engines. Enforcement based on engine results.
Minnesota	Yes	Yes	Yes	No	Used as screening tool. Enforcement taken on lab test results.

State Use of IR for Octane Testing

Preliminary Responses to May 7, 2010 Survey by National Conference on Weights and Measures

State	Utilize IR	Use in Laboratory Testing	Use for Field Testing	Verify Failures with Engine Testing	Comments
Missouri	Yes	Yes	No	Yes	Used as screening tool. Enforcement taken on lab test results. 20% of all samples are randomly selected for engine tests. FT IR used for biodiesel enforcement according to ASTM D7371.
Nevada	Yes	Yes	Yes	Yes	Used as screening tool. Enforcement taken on lab test results.
New Mexico	Yes	Yes	Yes	Yes	Used as screening tool. Enforcement taken on lab test results.
New York	No	No	No	No	Currently evaluating portable analyzers. Considering purchasing small number to reduce demands for lab testing. Would confirm screening test failure with ASTM tests. Enforcement taken only on official test.
North Carolina	Yes	Yes	Yes	No	Used as screening tool. Enforcement taken on lab test results.
Ohio	No	No	No	No	No Fuel Quality Program.
Oregon	Yes	Yes	Yes	Yes	Used as screening tool. Enforcement taken on lab test results.
South Dakota	No	No	No	No	Does not have a laboratory or own octane field analyzer. Would like to be able to use field test for octane when complaints received.
Virginia	Yes	Yes	Yes	No	Used portable fuel analyzer for several years. Plan to expand use of IR technology to cetane, ethanol, and biodiesel. May take action on gross violations detected by IR device. Close readings verified in laboratory.
Washington	Yes	No	Yes	Yes	Used as screening tool. Enforcement taken on lab test results.