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RFG/Anti-Dumping Questions and Answers October 31, 1994

Fuels and Energy Division
Office of Mobile Sources
U.S. Environmental Protection Agency

RFG/ANTI-DUMPING QUESTIONS AND ANSWER, OCTOBER 31, 1994

The following are responses to most of the questions received by the Environmental Protection Agency (EPA) through October 17, 1994, concerning the manner in which the EPA intends to implement and assure compliance with the reformulated gasoline and anti-dumping regulations at 40 CFR Part 80. This document was prepared by EPA's Office of Air and Radiation, Office of Mobile Sources, and Office of Enforcement and Compliance Assurance, Office of Regulatory Enforcement, Air Enforcement Division.

Regulated parties may use this document to aid in achieving compliance with the reformulated gasoline (RFG) and anti-dumping regulations. However, this document does not in any way alter the requirements of these regulations. While the answers provided in this document represent the Agency's interpretation and general plans for implementation of the regulations at this time, some of the responses may change as additional information becomes available or as the Agency further considers certain issues.

This guidance document does not establish or change legal rights or obligations. It does not establish binding rules or requirements and is not fully determinative of the issues addressed. Agency decisions in any particular case will be made applying the law and regulations on the basis of specific facts and actual action.

While we have attempted to include answers to all questions received by October 17, 1994, the necessity for policy decisions and/or resource constraints may have prevented the inclusion of certain questions. Questions not answered in this document will be answered in a subsequent document. Questions that merely require a justification of the regulations, or that have previously been answered or discussed either in a previous Question and Answer document or the Preamble to the regulations have been omitted.

Topics Covered

Standards/Models
Test Methods
Downstream Oxygenate Blending
Registration/Recordkeeping/Reporting
Product Transfer Documentation

STANDARDS/MODELS

1. **Question:** When will EPA publish a corrected version of the Complex Model? The NOx equation corrections published in the DFRM were not correct, and the published evaporative VOC equations do not yield the published baseline emissions for baseline fuel.

Answer: Errors in the final rule for the reformulated gasoline program and the DFRM are being corrected in an upcoming technical amendment.

The spreadsheet version of the Complex Model does not contain the errors that appeared in the Federal Register description of the Complex Model. However, the equation coefficients in the spreadsheet have been rounded in comparison to the coefficient values given in the Federal Register. This difference results in a disparity of less than 0.005% between the published baseline emission values and the values calculated from the evaporative equations in the spreadsheet, a disparity which is unlikely to affect any results. Nevertheless, EPA will update the spreadsheet version of the Complex Model as soon as time permits.

TEST METHODS

1. **Question:** Concerning the OFID test method for oxygenates:

a) The method has a program run of 20 minutes, but over half the eluting peaks on the table in the method come off after 20 minutes. For example, the last oxygenate present on the table elutes off at 38 minutes. Can one use other chromatographic conditions such as those conditions set in the ASTM draft method for OFID analysis to achieve shorter retention times and better analytical techniques?

Answer: Yes.

b) The method states that the chromatographic parameters for hydrogen (H2) and air (O2) for the FID should be 370 ml/min for O2 and 15 ml/min for H2. According to the manufacturer, these conditions cannot be met with the instrument we have. The manufacturer recommendation is air at 300 ml/min and H2 at 30 ml/min. Will EPA accept requirements or recommendations from the instrument manufacturers which are different than what is stated in the method for the best chromatographic way of running their OFID system for oxygenate determination?

Answer: Yes.

c) Can one use the same vendor for purchasing calibration standards along with the independent secondary Q.A. standard needed in the quality control part of this method? Please outline all differences that there must be between the standards.

Answer: It would generally be inappropriate to purchase prepared Calibration and Independent Standards from the same purveyor; however, if one is purchasing pristine pure compounds for the purported purpose of preparing precise standards, one vendor may be acceptable.

The main concept is that an inaccuracy caused by an impure standard material would be identified by the use of a different compound, assuming that the second compound is not impure by an identical amount. Similar logic is applied in that a different chemist should prepare the second standard to avoid replicating an inadvertent mispreparation.

d) Please clarify the quality control section by outline what is required to be run with each batch of RFG.

Answer: Quality control for OFID (FR V59, No32, pp7828-7833)

QC Provision	Required		Recommended	
CalCheck Standards 1 per 10 samples or once per analysis batch.	±10% ±13%	EtOH MeOH MTBE t-BuOH	±6% ±10%	EtOH MeOH MTBE t-BuOH
Independent Check Stds 1 per 100 samples or once per analysis batch.	±10% ±13%	EtOH MeOH MTBE t-BuOH	±6% ±10%	EtOH MeOH MTBE t-BuOH
Spikes Required only if matrix effects are suspected. One per analysis batch or one per ten samples recommended.	±13% ±16%	EtOH MeOH MTBE t-BuOH	±10% ±13%	EtOH MeOH MTBE t-BuOH

Duplicates		Limit to Range
	MeOH	0.043C + 0.010 (0.27-1.07%)
	MeOH	0.053C (1.07-12.73%w/w)

(Duplicates are not required, but it is recommended that one sample in tenor one per analysis batch be duplicated)	EtOH	0.053C
	MTBE	0.029C + 0.069
	DIPE	0.048C
	ETBE	0.074C
	TAME	0.060C

2. **Question:** Concerning the EPA method for total aromatics:

a) Does EPA know of a source where all the components on the table in the method can be purchased? We have not been able to find one component, 1,3 diethyl benzene. Please state the manufacturer and the availability of each aromatic component in the method table.

Answer: EPA is using the five level calibration mixture recommended in the ASTM draft method for aromatics in gasoline. Pre-made standards for that method can be purchased from at least two vendors. The list of compounds used in the ASTM calibration are generally available from at least one vendor. For further information, contact Carl Scarboro at (313) 668-4209.

b) If all the aromatic components listed in the method table cannot be found to calibrate the GC-MS, how can someone get an accurate result?

Answer: Precise results are possible by using a multi-level calibration using the compounds listed in either the ASTM procedure and by using: the response factor for Indan for all uncalibrated aromatics with a molecular mass of 117, the response factor for 1,2,3,5-tetramethylbenzene for all uncalibrated aromatics with a molecular mass of 134, and the response factor for pentylbenzene for all uncalibrated aromatics with a molecular mass of 148. There are undoubtedly some errors in the quantification but they are probably less than 1.0 of the total aromatic number. Leaving out the uncalibrated aromatics would underestimate the total aromatic number. We have no evidence that using a response factor of one is as good as using a response factor of a calibrated compound of a similar mass and structure.

c) A previous Q&A document stated that one had to determine all aromatic components in a sample by comparing them to the closest calibrated component. How can this be done? Since response factors are so widely different between the different aromatics, how can one get an accurate total aromatic result?

Answer: Using the above calibration standards and a reconstructed chromatogram at the masses 117, 134, and 148 of a gasoline like RFA or other high aromatic gasoline, one can identify uncalibrated aromatics with the above molecular weights, assign a single point through

zero calibration curve using the curves generated for one of the above three calibrated compounds and produce an adequate calibration table for this procedure.

d) 25 vol% is the lowest concentration for the internal standard recommended by EPA. We believe this is not good analytical practice when the largest component is around 5 vol% and almost all other aromatic components are below 2 vol%. Can a refiner pick a level for the internal standard that fits the level of the aromatic components in their fuel sample? If one cannot pick a level for the internal standard, please indicate why and how to get accurate results.

Answer: The 25 vol% only refers to the volume of a single internal standard in the total internal standard mixture; i.e., a compound is specified as 25 vol% of the internal standards. That translates to a much lower number when it is mixed into a sample or standard. Presently, EPA is using 6.0 wgt% ethylbenzene-d10, 2.5 wgt% benzene-d6, and 2.0 naphthalene-d8. This seems to work well, but methylbenzene may be better quantitated with the addition of methylbenzene-d8. We believe other compounds should work as well.

e) The quality control section of the aromatic method states that the samples must be within 2 vol% of the RFG sample at a 95% confidence level. Does this mean that you must run each sample 10 times to get a statistical average and compare it with 10 runs of a previous statistical average so that one can compare it to a 95% confidence level. Please explain the quality control section in more detail. We assume this to mean that any 2 runs of a sample cannot deviate by more than 2 vol% in a fuel sample.

Answer: The 2 vol% is the allowable difference for lab duplicates of a sample. That is, duplicate analyses should not differ by more than 2 vol%. In addition, the analysis of the quality control standard or reference material should also not differ from its nominal concentration by 2 vol%. These are fairly wide targets. EPA is currently seeing a precision of 5.0% of point at the 95% confidence interval. That figure translates in a standard or sample containing 25 vol% aromatics as 1.25 vol% for a 95% confidence interval and less than 1.9 vol% at a 99% confidence interval.

f) The issue of handling aromatics that are found in the sample but are not part of the calibration list must also be resolved. In a previous question and answer session, EPA indicated that other aromatics found in the sample but not part of the system calibration should be approximated by comparing the peak area of the non-calibrated compound to the closest calibrated analyte. This type of calculation is difficult for instrument manufacturers to program and, therefore, places a large burden of manual calculations on the chemist. These approximations can also corrupt the quantitation data. Why build calibration curves for 30 to 40 analytes and follow the QA/QC protocol for verification of these curves only to corrupt the final result by adding in a number of estimated aromatic levels. In other EPA methods such as 524, 525, 8260, and 8270, unknown peaks that are not part of the calibration are tentatively identified

by a library search against a commercial library and their approximate concentration calculated by assuming a response factor of 1 for the unknown peak. These compounds are reported as potentially being present in the sample but are not involved in any of the calculations involving calibrated analytes. Software for this sort of a calculation is available from any GC-MS vendor.

If it is necessary to add the unknown aromatics into the total aromatic content, we suggest using the same type of calculation used in the other EPA methods (assume a response factor of 1). This would allow for easy modification of existing software to handle the calculations.

Answer: We believe that by following the steps outlined in paragraphs b and c above, and the ASTM procedure one can produce satisfactory results. The use of a response factor of one may or may not produce similar results. We have no data at this time to make an evaluation.

DOWNSTREAM OXYGENATE BLENDING

1. **Question:** Would a refinery that receives RBOB from another refinery and blends oxygenate(s) with that RBOB to make RFG also have to register as an oxygenate blender?

Answer: Yes. Under § 80.2(mm), an oxygenate blender means "any person who owns, leases, operates, controls, or supervises an oxygenate blending facility, or who owns or controls the blendstock or gasoline used or the gasoline produced at an oxygenate blending facility." Under § 80.76(a), registration is required for "any oxygenate blender that produces any reformulated gasoline." In addition, the refiner-oxygenate blender would be required to demonstrate compliance with the oxygen standard for the RFG produced in its oxygenate blending capacity separately from the RFG produced as a refiner.

REGISTRATION/RECORDKEEPING/REPORTING

1. **Question:** By our reading of the regulations, the only reporting required of the oxygenate blender who elects to comply with the oxygen standard on a per gallon basis is a yearly report due the last day of February of each year (beginning in 1996) that states the total volume of RFG produced along with the certification statement. Is our interpretation correct? Are we correct in assuming that batch numbers and individual batch data are not required as part of the report?

Answer: Your interpretation is correct.

PRODUCT TRANSFER DOCUMENTATION

1. **Question:** We understand it is not necessary to use the words "transferor" and "transferee" on PTD's as long as the parties giving and receiving custody/title are identified. Our concern was with the carrier receiving custody from a marketing terminal and then passing it on to another

party. This makes him a transferee and then a transferor. The concern was having the carrier alter the bill of lading to reflect this change. We understand that as long as we show the name and address of the carrier (or show a carrier identification number that is directly related to the carrier's address) on the PTD and also show the party to whom the product is being shipped, we have sufficient information to satisfy the obligation for us as well as the carrier. Please confirm that this is a correct interpretation.

Answer: Your interpretation is correct. If the paperwork properly reflects the chain of custody through the carrier and shows the proper dates and locations for the different transfers, you have met the PTD requirements with regard to the transfer of custody and the carrier can use the same document to meet his PTD requirements. There normally would be additional PTD requirements concerning the transfer of title, however, because by definition a party other than the carrier has title.

2. **Question:** We are a domestic refiner who also will be importing (paying customs duties) conventional and reformulated gasoline into our own marketing terminal. It is our understanding that we would be the transferor, not the foreign refiner from whom the product was obtained. If we were importing into another party's terminal, the PTD would have to show them as receiving the product (transferee).

EPA reiterated they expect that most, if not all, of the PTD information would be included on existing type documents. New documents would only be required when there is no existing paper path with the necessary EPA information to follow product movements. If the necessary PTD information is included on the foreign refiner's transfer papers, is it necessary to originate another document since we are the first U.S. party involved in the transfer.

Answer: The foreign refiner's paperwork would satisfy the PTD requirements if you provide it to the transferee and it includes all of the required PTD information, including the proper date and location of the transfer.

3. **Question:** The regulations state that, "other than when gasoline is sold or dispensed for use in motor vehicles at a retail outlet or wholesale purchaser-consumer facility," transfer documents must be exchanged with the requisite information. In many areas of the country, the petroleum industry is using cardlocks, unmanned fueling facilities, to dispense gasoline into motor vehicles. These cardlocks provide access to fleet operators via an electronic card, which is also used to access the pumps. The pumps transmit an electronic message regarding the purchase and the customer is invoiced. There is no opportunity for the delivery of written paper at the time of purchase. In EPA's judgment, are these cardlock facilities considered retail outlets?

Answer: As you describe them, these cardlock facilities would be considered retail outlets for purposes of the product transfer document requirements.