Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program

Summary and Analysis of Comments

Chapter 3
Types of Renewable Fules

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

United States
Environmental Protection
Agency

EPA420-R-07-006
April 2007

3 TYPES OF RENEWABLE FUELS

3 TYPES OF RENEWABLE FUELS

What We Proposed:

The comments in this section correspond to Section III.B of the preamble to the proposed rule and address the various types of renewable fuels and qualifications for treatment as a renewable fuel. A summary of the comments received and our response to those comments are located below.

3.1 What Qualifies as a Valid Renewable Fuel

3.1.1 How Renewable Fuels Are Made

What Commenters Said:

We received several comments on our definition of renewable fuel with respect to feedstocks. Environmental Defense, FutureFuel, and Shell/Motiva supported EPA's proposed definition of renewable fuel because it allows for new renewable fuels derived through technological innovation to count toward the standard in the future. Griffin, Methanol Institute (MI), and Biodiesel Industries of Greater Dallas Fort Worth (BIGDFW) agreed with EPA that it is the intent of Congress and good public policy for the definition of renewable fuel to include fuels made from a number of different renewable feedstocks. BP supported the addition of algae-derived feedstocks to the definition of renewable fuel, and Natural Gas Vehicles for America (NGVAmerica) supported the inclusion of natural gas fuels in the proposed regulation, noting that liquefied natural gas (LNG) is another motor vehicle fuel produced from natural gas that should qualify as a renewable fuel if it is produced from appropriate sources. Choren commented that it would like to see the introduction of biomass-to-liquid (BTL) diesel and jet fuel as a new and separate category into the renewable fuels definition considered by the RFS regulation.

Letters:
Biodiesel Industries of Greater Dallas Fort Worth (BIGDFW) OAR-2005-0161-0211
BP Products North America OAR-2005-0161-0221, -0230
Choren OAR-2005-0161-0195
Environmental Defense OAR-2005-0161-0172, -0223
FutureFuel OAR-2005-0161-0198
Griffin Industries OAR-2005-0161-0189
Methanol Institute (MI) OAR-2005-0161-0171
Natural Gas Vehicles for America (NGVAmerica) OAR-2005-0161-0201
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215

Our Response:

EPA's definition of renewable fuel does not exclude any potential sources of fuel such as algae or seaweed. In addition, both the statutory definition and EPA's definition focus on the feedstocks that are used to make renewable fuel and neither specify nor prohibit any particular process for making such fuel. The definition of renewable fuel in 40 CFR 1101(d)(1)(x) includes "Other biomass" which opens up the possibility to any number of sources. We therefore do not believe we need to specify the inclusion of algae and seaweed in the actual regulations. We have, however, mentioned it in the preamble as an example of biomass. The definition is open to any number of processes used to make renewable fuel, including but not limited to biomass-to-liquid (BTL) processes employed to make diesel fuel. Any such fuel would also need to meet the general criteria in the definition of renewable fuel: specifically it would need to be a motor vehicle fuel.

3.1.2 Neat Fuel vs. Blended Fuel

What Commenters Said:

Several commenters remarked on EPA's proposal to allow renewable fuels in both their neat and blended forms to count toward RFS compliance. Baker Commodities, Griffin Industries, MI, DuPont, and a private citizen agreed with the range of uses of renewable fuels EPA proposed as counting toward the RFS, including neat and blended uses in on- and off-road motor fuel applications. NGVAmerica supported EPA's proposal to allow credits for renewable fuels that are not blended with gasoline, agreeing that inclusion of such fuels will encourage additional production of renewable fuels. The commenter also stated that it believes that fuels such as natural gas, whether used in neat form or mixed with other fuels, such as diesel, should be permitted to qualify for renewable fuel credits.

The Engine Manufacturers Association (EMA) commented that it believes that counting renewable fuels used in their neat form in on-road and nonroad applications was overly broad, and suggested that the final rule clarify that biodiesel should be blended with petroleum-based diesel and used only in a manner consistent with applicable industry standards and engine manufacturer guidelines. API supported the proposed definition and treatment of renewables, but believed that biodiesel blends up to 99.99% should be allowed, rather than the proposed limitation of blending biodiesel into conventional diesel at a concentration of 80% or less. A private citizen noted that EPA's definition of renewable fuel seemed to specifically exclude nonroad use, and he inquired about the location of a provision in the regulations that includes fuels for nonroad applications.

Letters:
American Petroleum Institute (API) OAR-2005-0161-0185
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
DuPont OAR-2005-0161-0168
Engine Manufacturers Association (EMA) OAR-2005-0161-0177
Griffin Industries OAR-2005-0161-0189
Methanol Institute (MI) OAR-2005-0161-0171
Natural Gas Vehicles for America (NGVAmerica) OAR-2005-0161-0201

Private Citizen OAR-2005-0161-0182—0184

Our Response:

We believe that biodiesel blended with diesel fuel at any concentration, including biodiesel in its neat form, should be available for compliance purposes under the RFS program. However, the design of the RFS program must be focused on facilitating compliance for obligated parties. To avoid claims by non-obligated parties that very high concentrations of biodiesel count as a blended product, and that therefore any party could separate RINs from volumes of renewable fuel, we proposed that biodiesel must be blended into conventional diesel at a concentration of 80 volume percent or less before the RIN can be separated from the volume. Further discussion of this issue can be found in Section 5.5.5 of this document. With respect to EMA's comments on fuel specifications for biodiesel, such specifications are outside the scope of this rule, in which we are focusing on implementing a statutory renewable fuel program and not on exercising any other authority to control the content of fuel.

With respect to renewable fuel being excluded for nonroad use, the definition of renewable fuel includes a provision (§80.1101(d)(5)) which states: "A fuel produced by a renewable fuel producer that is used in boilers or heaters is not a motor vehicle fuel and therefore is not a renewable fuel." (This is discussed in further detail in Section 3.1.4.) Under the Clean Air Act, the term "motor vehicle" refers to highway vehicles, not nonroad equipment. If biodiesel is used in its neat form, additional provisions for tracking the neat fuel to use in vehicles are included. There is no specific provision in the regulations that addresses the use of renewable fuels in nonroad sources. However, our general approach is discussed in the preamble. We have assumed that all but a trivial quantity of renewable fuels will ultimately be used as motor vehicle fuel. Gasoline or diesel fuels available for and used in nonroad applications are generally limited to nonroad "engines" such as lawnmowers and similar equipment, and this gasoline or diesel fuel is also the same as fuel typically available for and used in motor vehicles. The gasoline or diesel fuel used for such applications is typically dispensed at the same retail stations used for motor vehicles. We therefore treat the fuel as part of the pool of motor vehicle fuel, a portion of which happens to be used in nonroad applications. This is consistent with other EPA fuels programs, where in many cases standards for motor vehicle fuel still must be met even if the actual end use of the motor vehicle fuel is for a nonroad application. The Act requires that renewable fuels for this program be motor vehicle fuels and that they reduce or replace the fossil fuel used in fuel mixtures that operate a motor vehicle engine. Given the physical similarity and the typical fungible nature of this fuel, we treat all of it as motor vehicle fuel and treat it as replacing the fossil fuel in the types of fuels used to operate motor vehicles. In part this is for administrative ease, to avoid the need for tracking actual fuel usage to the ultimate consumer, and we believe that the inclusion of these fuels, even if used in nonroad applications, is consistent with the intent of the Act.

3.1.3 Use of Unprocessed Oils and Greases as Motor Vehicle Fuel

What Commenters Said:

EPA received a comment from the Alliance of Automobile Manufacturers (Alliance) on unprocessed oils and greases used as motor vehicle fuel. The Alliance emphasized that unprocessed oils and greases are not acceptable motor vehicle fuels and can cause significant damage to vehicles. The commenter urged EPA to explicitly prohibit the use of unprocessed oils and greases in any diesel vehicle in the RFS rule, and to investigate and prosecute the selling of liquids not approved for use in motor vehicles.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176

Our Response:

EPA has discussed the requirements for use of unprocessed oils and greases as motor vehicle fuel in a document contained on EPA's website at www.epa.gov/otaq/cert/dearmfr/cisd0602.pdf . In particular, Question 41 in the referenced document addresses this issue. The document states that "EPA has received inquires about converting gasoline fueled vehicles to ethanol (E-85) and converting diesel fueled vehicles to vegetable oil. Vehicles converted to operate on E-85 or diesel fuel must pass the appropriate standards for the fuel type used by the OEM when the vehicle was originally certified. EPA will determine which tests must be conducted and which procedures followed for certifying with a specific alternative fuel." Thus, while it is possible for such fuels to meet the definition of renewable fuel, to be used in motor vehicles, the vehicles would first have to be certified for their use and the fuels generally would also need to be registered with EPA under the fuel registration provisions of 40 CFR Part 79.

3.1.4 Potential for Use vs. Actual Use

What Commenters Said:

We received a number of comments on the proposed distinction between a renewable fuel's potential use and actual use. Baker Commodities, Griffin Industries, MI, and Imperium Renewables, Inc. (IRI) commented that they support EPA's definition of fuel and the fact that it takes into consideration a fuel's "potential for use" in highway vehicles, not its *actual* use in a highway or nonroad vehicle. However, IRI expressed concern that EPA's proposal did not thoroughly maintain "potential for use" as the standard for determining whether a fuel is a renewable fuel, citing the following language from the Notice of Proposed Rulemaking (NPRM): "A fuel produced by a renewable fuel producer *that is used* in boilers or heaters is not a motor vehicle fuel, and therefore, is not a renewable fuel." (See proposed 40 CFR 80.1101(f)(4) in 71 FR 55637). According to the commenter, this statement appears to create an after-the-fact

standard of actual use, rather than potential use, and IRI encouraged EPA to codify its interpretation that a fuel's potential for use in motor vehicles is what matters. Furthermore, according to the commenter, no one should have legal liability for improper generation, transfer or reporting of RINs if fuel suitable for use in motor vehicles is used for other applications; IRI asked that EPA clarify the liability provisions to provide a safe harbor for producers and importers of renewable fuel from RIN generation and transfer violations when the fuel was not ultimately used as motor vehicle fuel. The commenter recommended that the definition of renewable fuel be amended to read "…any fuel that can be used as motor vehicle fuel that is used to replace or reduce the quantity of fossil fuel present in a fuel mixture used to operate a motor vehicle."

In a similar vein, the New York State Department of Environmental Conservation (NYDEC) asked EPA to clarify what impact, if any, the RFS has on the legality of blending biodiesel into heating oil, and what accounting is required under the RFS of a blender who blends biodiesel into heating oil, given that biodiesel used in a stationary burner need not be in any way different from that blended into motor vehicle diesel fuel, and it is unlikely to be designated by the biodiesel producer for stationary burner use. West Park Associates also raised the point that biodiesel, mono-alkyl ester-petroleum diesel blends, and neat non-ester renewable diesel have numerous nonroad uses, such as for heating, electric power generation, and the production of solvents. The commenter asked EPA to consider whether it has the authority to consider the use of these fuels for uses other than highway or nonroad use as meeting the definition of a renewable fuel for RFS compliance. The commenter asked that, if EPA concludes that it does have this authority, EPA add for RFS compliance purposes the use of neat non-ester renewable diesel as a fuel for the generation of electric power.

Letters:
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
Griffin Industries OAR-2005-0161-0189
Imperium Renewables, Inc. (IRI) OAR-2005-0161-0178
Methanol Institute (MI) OAR-2005-0161-0171
New York State Department of Environmental Conservation (NYDEC) OAR-2005-0161-0169
West Park Associates OAR-2005-0161-0202

Our Response:

Based on the comments received, we have clarified our position regarding the use of renewable fuels in motor vehicles versus its use in heaters and boilers. The term "renewable fuel" means "motor vehicle fuel that . . . is used to replace or reduce the quantity of fossil fuel present in a fuel mixture used to operate a motor vehicle." We continue to believe that under our proposed definition all but a trivial quantity of such fuels will ultimately be used as motor vehicle fuel. Renewable fuels will therefore be assumed to be used in motor vehicle applications. EPA disagrees, however, with the suggestion that a logical extension of this reasoning would provide that renewable fuel known to have been used in a boiler or heater would be covered by the RFS program; such use in fact clearly is not a motor vehicle fuel used to replace or reduce the quantity of fossil fuel present in a fuel mixture used to operate a motor

vehicle. As such, fuel used in boilers or heaters or where they are clearly not used in motor vehicles or nonroad engines is not considered renewable fuel in the final RFS program.

If a producer or importer transfers renewable fuel to another party with the intent or expectation that it will be used in a boiler or heater, the producer or importer cannot generate RINs for that volume. If, instead, a producer or importer transfers renewable fuel to another party with the intent or expectation that it will be used as a motor vehicle fuel, but in fact the renewable fuel is used in a heater or boiler, then the RINs legitimately generated to represent that volume of renewable fuel should not be used for compliance purposes. Thus if the party that used the renewable fuel in a heater or boiler received assigned RINs with that renewable fuel, the party cannot transfer those RINs to any other party. However, if RINs were separated from the renewable fuel prior to its ownership by the party using the renewable fuel in a heater or boiler, the RINs can no longer be uniquely associated with the renewable fuel and thus remain valid for compliance purposes.

In a related comment, a commenter suggested that EPA consider that biodiesel used in applications other than highway or nonroad (such as in electric power plants) be allowed to satisfy the RFS requirement. CAA section 211(o) does not provide EPA the authority to count biodiesel or any other renewable fuel used in such applications to satisfy the requirements of the RFS.

3.1.5 Industry and Regulatory Standards to Ensure Renewable Fuel Quality

What Commenters Said:

Several commenters remarked on the need for renewable fuels to be of high quality and suggested referencing existing industry and regulatory standards in the final RFS rulemaking to ensure that all renewable fuels meet minimum quality standards. The Alliance commented extensively on topics such as the potential impact of poor quality E85 and biodiesel on vehicle systems, the need for renewable fuels to match or exceed the quality of the conventional fuels, and the need to restrict inappropriate fuel blends from the marketplace. The National Biodiesel Board (NBB) believed it was important that all fuels eligible for participation in the RFS program meet the registration requirements as a fuel or fuel additive under 40 CFR Part 79 and have an established ASTM standard. The Missouri Department of Natural Resources (MDNR) recommended that EPA include a definition for each type of renewable fuel based on its corresponding American Society for Testing Materials (ASTM) standard (e.g., ethanol as defined by ASTM D-4806; biodiesel as defined by ASTM D-6751, etc.). More specifically, the Alliance commented that the final rulemaking should define E85, at a minimum, as a blend of ethanol meeting ASTM D-4806 and gasoline complying with ASTM D-4814, with the final E85 blend meeting the requirements found in Table 1 of ASTM D-5798, or should impose a minimum octane requirement of 87.

API agreed that ASTM specifications should be included in the RFS final rule to help promote product quality and eliminate ambiguity in what constitutes a specific renewable, but recommended referencing them in a generic way, without tying definitions of renewable fuels to

any particular version of an ASTM standard. API noted, for example, that the version of ASTM Method 6751 referenced in the RFS proposal was not the most current version. API also supported EPA's proposal that non-ester biodiesel blends should meet D-975, provided the reference to the standard is to "the most current version" of the standard and is not tied to a specific version. Shell/Motiva did not support requiring non-ester renewable diesel to comply with D-975, but rather believed that ASTM should determine whether D-975, or another specification, should apply to such fuel. The commenter expressed concern that specifying a specific version of D-975 would exclude future changes to the specification, which could in turn exclude some non-ester renewable diesel fuels from the definition of renewable fuel under EPA's regulations.

The American Society for Testing Materials (ASTM) commented that it has developed a method to test the renewable content of gasoline (ASTM-D6866), which can be used to detect whether the ethanol added to gasoline is from a renewable source or is synthetic (e.g., a coal derivative). The commenter noted that this method could be an effective tool to ensure compliance with the RFS regulations by both domestic and foreign ethanol producers. A private citizen recommended that ASTM Method D-6866 "or equivalent" be referred to in the RFS regulations as a means of enforcing or verifying the renewable content of automotive fuels when such analyses are warranted. The commenter emphasized that while D-6866 is the only method currently available to verify the renewable content of ethanol/gasoline blends, alternative methods may be developed in the future, and thus the phrase "or equivalent" should be included.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
American Petroleum Institute (API) OAR-2005-0161-0185
American Society for Testing Materials (ASTM) OAR-2005-0161-0235 (hearing)
Missouri Department of Natural Resources (MDNR) OAR-2005-0161-0217
National Biodiesel Board (NBB) OAR-2005-0161-0212
Private Citizen OAR-2005-0161-0160
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215

Our Response:

While EPA references standards that are recognized by industry from specific organizations such as ASTM, referencing them in a general way would give future changes to such standards by the non-government body the force of an EPA regulation, without any rulemaking by EPA. EPA therefore chooses to reference specific standards and to implement new rulemakings when different standards are appropriate. We have made the correction to the reference to D-6751, as suggested by API, so the regulation now refers to the most recent version, D-6751-06a.

The purpose of this rule is to implement the statutory mandate for a renewable fuel program, and not to exercise or decide whether to exercise any other discretionary authority under the CAA to control the contents of fuel. Nothing in this rule limits or changes the obligations of parties to comply with all of the applicable fuel or fuel additive registration regulations in 40 CFR Part 79. With respect to ASTM Method D-6866, EPA will investigate it.

If it proves to provide a reliable and effective means to differentiate between renewable and synthetic ethanol, we may use it in our enforcement of the standard. The issue of whether ethanol is made synthetically or from renewable fuels is currently covered by procedures that require producers to keep records of feedstocks used to produce ethanol, and to provide evidence that their ethanol facilities are indeed the source of such fuel.

3.2 Biodiesel and Renewable Diesel

[Note: Comments on Equivalence Values for biodiesel and renewable diesel are addressed in Section 3.5. Comments on the emission impacts of biodiesel are addressed in Section 10.2.]

3.2.1 Definition of Biodiesel and Renewable Diesel

3.2.1.1 Distinguishing Mono-alkyl Ester Biodiesel from Non-Ester Renewable Diesel

What Commenters Said:

EPA received several comments that generally agreed with our proposed definitions for the terms "biodiesel" and "renewable diesel." The Biodiesel Coalition of Texas (BCOT) supported EPA's definition of biodiesel, and Neste agreed with the distinction between non-ester renewable diesel and biodiesel (mono-alkyl ester). However, Neste stated that it believes it is important that the rule and regulations confirm that both types of fuel are "biodiesel," consistent with the definition in CAA Section 211(o). Neste offered specific language to this effect, commenting that some States have adopted a narrow definition of biodiesel which limits the term to mono-alkyl esters meeting ASTM D-6751, thereby essentially blocking "renewable diesel" from participating in their markets.

The Alliance agreed with EPA's proposal to require that mono-alkyl ester biodiesel meet ASTM D-6751. The Engine Manufacturers Association (EMA) also recommended that the final regulations define biodiesel as any mono-alkyl ester derived from non-petroleum renewable sources (including grain oils and animal wastes) which are processed to conform to ASTM D-6751. NBB strongly supported the proposed definition for biodiesel (mono-alkyl ester), and further expressed support for requiring that fuel be properly registered with EPA as a fuel or fuel additive and meet a specific ASTM standard for biodiesel.

Sutherland Asbill & Brennan commented that EPA's proposed definitions of "biodiesel" and "non-ester renewable diesel" could unnecessarily exclude fuels that would otherwise qualify under the statutory definition of biodiesel. The commenter also found the definition of biodiesel confusing, claiming it required compliance with an outdated ASTM standard. Trenton Fuel Works expressed serious concern that there are important biomass-derived diesel products that would not fit under either definition, such as diesel products made from cellulose that are also mono-alkyl esters.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
Biodiesel Coalition of Texas (BCOT) OAR-2005-0161-0186
Engine Manufacturers Association (EMA) OAR-2005-0161-0177
National Biodiesel Board (NBB) OAR-2005-0161-0212
Neste Oil OAR-2005-0161-0191
Sutherland Asbill & Brennan OAR-2005-0161-0210
Trenton Fuel Works OAR-2005-0161-0181

Our Response:

According to the CAA Section 211(o), renewable fuels that are valid for compliance purposes under the RFS program include "biodiesel," as defined in section 312(f) of the Energy Policy Act of 1992 and modified by Section 1515 of the Energy Policy Act of 2005:

> The term "biodiesel" means a diesel fuel substitute produced from nonpetroleum renewable resources that meets the registration requirements for fuels and fuel additives established by the Environmental Protection Agency under section 7545 of this title, and includes biodiesel derived from animal wastes, including poultry fats and poultry wastes, and other waste materials, or municipal solid waste and sludges and oils derived from wastewater and the treatment of wastewater.

The common meaning of the term "biodiesel," however, is more limited and generally means only mono-alkyl esters made from vegetable oils or animal fats. To implement the Act's definition of biodiesel in the context of the RFS rulemaking while still recognizing the unique history and role of mono-alkyl esters, we have divided the Act's definition of biodiesel into two separate parts: biodiesel (mono-alkyl esters) and non-ester renewable diesel. The sum of these two categories of renewable fuel fulfills the Act's definition of biodiesel, and commenters generally supported this approach. However, we do not believe that this fact need be represented in the regulations explicitly. The inclusion of regulatory definitions for both biodiesel (mono-alkyl esters) and non-ester renewable diesel is sufficient to clarify what types of renewable fuel are valid under the RFS program.

Biodiesel (mono-alkyl esters) has a significant history of development in terms of a precise definition, which culminated in the formal release of ASTM D-6751. We proposed that this ASTM specification be included in the regulatory definition of biodiesel (mono-alkyl esters), and are finalizing this provision. Commenters generally supported this approach. Since ASTM D-6751 applies to neat biodiesel that can be used as a blending component, it ensures that biodiesel must meet specific minimum quality standards.

Commenters correctly pointed out that the regulatory definitions of biodiesel (mono-alkyl esters) and non-ester renewable diesel do not explicitly reference an alkyl ester that is produced from a feedstock other than vegetable oils and animal fats. We are not aware of any renewable fuels currently being produced that would fall into this category. Nevertheless, such renewable fuels could still meet the regulatory definition of a "renewable fuel," and therefore could be valid

for use in complying with the renewable fuel standard. The definition of non-ester renewable diesel could include such fuels, as the definition of "non-petroleum renewable resources" includes but is not limited to vegetable oils and animal fats. 40 CFR 1101(i)(4), (m). A party that produced such a fuel would need to apply for an appropriate Equivalence Value by submitting information describing the renewable fuel, its feedstock and production process, and the calculation of its Equivalence Value according to the methodology provided in the regulations.

3.2.1.2 Referencing ASTM Method D-975 in Definition of Renewable Diesel

What Commenters Said:

EPA solicited comment on whether our definition for "non-ester renewable diesel" should explicitly reference ASTM D-975. The Alliance recommended that final blends with non-ester renewable diesel comply with ASTM D-975. West Park Associates urged that neat non-ester renewable diesel meet the requirements of ASTM D-975. Neste Oil supported making the reference, but believed that the final RFS rule should allow either the renewable diesel itself or the final blended diesel product to satisfy the ASTM D-975.

On the other hand, Trenton Fuel Works commented that ASTM D-975 is not a suitable standard for renewable diesel because the ASTM standard refers to diesel fuel as a final product and renewable diesel is likely to be used as a blending component with petroleum diesel. EMA also commented that ASTM D-975 is not a suitable standard for non-ester renewable diesel because it was intended for petroleum-based diesel fuels, and certain parameters inherent in petroleum-based products are simply not specified in ASTM D-975. EMA further commented that EPA's proposed definition of non-ester renewable diesel includes raw vegetable oils, animal fats, and recycled greases that have not been processed into biodiesel, and that the chemical composition of unprocessed oils and fats have been shown to cause various engine problems. EMA therefore urged EPA not to include non-ester renewable diesel under the definition of biodiesel, and suggested that if EPA believes that other renewable fuel sources may be defined as non-esters (e.g., Fischer-Tropsch fuels), these fuels should be characterized as something other than biodiesel.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
Engine Manufacturers Association (EMA) OAR-2005-0161-0177
Neste Oil OAR-2005-0161-0191
Trenton Fuel Works OAR-2005-0161-0181
West Park Associates OAR-2005-0161-0202

Our response:

Our request for comment on whether the definition of non-ester renewable diesel should include a specific reference to ASTM D-975 was intended to capture the expected properties of this type of renewable fuel. Information we have received to date indicates that renewable

diesels will in general be indistinguishable from petroleum-based diesel at the molecular level. However, we recognize that a variety of products could qualify as non-ester renewable diesel under the RFS rule, and some of these renewable diesels could have properties or components that differ in some respects from petroleum-based diesel. If a particular renewable diesel fuel has been registered with EPA and is thus valid for use in motor vehicles, and if it meets the other criteria for being a valid fuel under the RFS program, it may not be appropriate to require it to meet the specifications in ASTM D-975. We also agree that ASTM D-975 is intended to describe fuels used in motor vehicles rather than blending components. In addition, the statutory definition of biodiesel, which references the Energy Policy Act of 1992 definition of biodiesel, does not include such a limitation.

The CAA includes a prohibition on selling fuels or fuels additives that are not substantially similar, without an EPA waiver of this prohibition. Therefore, we have chosen not to include the ASTM D-975 specification in the definition of non-ester renewable diesel fuel in this final rule.

3.2.1.3 Definition of Renewable Diesel in Section 1346 of the Energy Act

What Commenters Said:

We received comments referring to the definition of renewable diesel in Section 1346 of the Energy Policy Act of 2005. Delta-T Corporation encouraged EPA to broadly interpret Section 1346 language in order to promote the development of state of the art technology to produce renewable diesel. Trenton Fuel Works meanwhile believed that the Section 1346 definition of renewable diesel will create confusion as to what renewable diesel is, since EPA's definition specifically excludes mono alkyl esters while the Section 1346 (IRS tax code) definition requires only that the processing method employ a thermal de-polymerization process.

Letters:
Delta-T Corporation OAR-2005-0161-0196
Trenton Fuel Works OAR-2005-0161-0181

Our Response:

Section 1346 of the Energy Act defines "renewable diesel" as diesel fuel derived from biomass using a thermal de-polymerization process. However, this section also specifies that this definition applies only within the Title 13 provisions of the Energy Act. Since this definition is more restrictive than necessary in the context of the RFS program, and we are not required to use it for the Title 15 provisions under which the RFS program falls, we have chosen not to use it. Instead, we are defining non-ester renewable diesel more broadly to mean any motor vehicle fuel which is not a mono-alkyl ester, is registered with the EPA, and is intended for use in engines that are designed to run on conventional diesel fuel.

3.2.2 Other Issues Related to Biodiesel and Renewable Diesel

3.2.2.1 Biodiesel Fuel Quality Specifications

What Commenters Said:

We received comments on the need for uniform quality standards for producing, distributing, and handling biodiesel. EMA commented that it believes that neat (100%) biodiesel used as a blendstock for petroleum-based diesel must meet certain minimum quality standards. Citing recent examples of biodiesel blends that did not meet specifications, the Alliance insisted that EPA has a responsibility to ensure that the biodiesel industry meets its obligation to supply the public with in-specification biodiesel and biodiesel blends, and urged EPA in the short term to require biodiesel providers to subscribe to programs like the BQ9000 program, administered by the National Biodiesel Board. In the medium term, the Alliance suggested that EPA encourage biodiesel providers, users and other stakeholders to participate in developing a federally enforceable management standard and in improving that standard over time as more knowledge, experience and information become available.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
Engine Manufacturers Association (EMA) OAR-2005-0161-0177

Our Response:

The imposition of a quality assurance program such as BQ-9000 is outside the scope of this rulemaking. In today's final rule, we are only implementing the requirements for a renewable fuel program as mandated by CAA Section 211(o). EPA does have the authority to require fuels and fuel additives to meet certain specifications in terms of their properties and/or composition. For instance, in-use fuels and additives must be consistent with the terms of their registrations both in terms of their composition and concentration. However, we are not exercising our discretion in this rulemaking to control fuel content under CAA 211(c).

At the time that biodiesel received its registration, ASTM D-6751 did not yet exist. However, it is current Agency policy that in-use biodiesel used in highway vehicles must meet the specifications in ASTM D-6751 in order to be covered by the biodiesel registration, since the biodiesel used in meeting the Tier 1 and Tier 2 testing as part of the registration requirements did meet the ultimate ASTM D-6751 biodiesel specification. To the degree that a batch of biodiesel does not meet the ASTM D-6751 specifications, it would not be covered by the fuel registration, would not be valid for use in highway vehicles, and would not be considered biodiesel for RFS compliance purposes.

3.2.2.2 Limiting the Portion of Biodiesel in Blends

What Commenters Said:

We received comments on the need to limit the portion of biodiesel in any blend made with conventional diesel fuel. The Alliance emphasized that blends over B5 (5% biodiesel) are not compatible with all diesel engines and vehicles on the road today, and most vehicles are not warranted for use with higher-level blends. The commenter recommended that blends above B5, such as B11 or B20, should not be made available to public retail stations at this time and should be not considered "legal diesel fuel," and that B20 fuel should be limited to fleets and private operators for use in vehicles that are designed to handle this fuel and where fuel use patterns can be controlled. The Alliance urged EPA to review and amend as necessary the legal status of many of these blends, and suggested issuing a "substantially similar" rule. EMA agreed that biodiesel use must be regulated to allow only a limited percentage of biodiesel blendstock in finished fuel.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
Engine Manufacturers Association (EMA) OAR-2005-0161-0177

Our Response:

Under EPA registration requirements, a fuel additive is covered by its registration for use in highway motor vehicles if the in-use concentration of that additive in gasoline or diesel is at or below the concentration that has been registered with the EPA. In the specific case of biodiesel, the neat (100%) form was registered. As a result, it is registered for use in highway motor vehicles in its neat form or at any other concentration in diesel fuel. Registration is not required for nonroad use of fuels or additives.

The registration process has no direct impact on vehicle/engine warranties, and thus manufacturers are free to specify the biodiesel blend levels that they have determined are compatible with their products. However, the inclusion of ASTM D-6751 in the definition of biodiesel as it is used in the RFS program will help to ensure a certain level of consistency in terms of fuel properties.

See also our response to comments regarding a diesel substantially similar definition in Section 13.3 of this Summary and Analysis document. In today's final rule, we are only implementing the requirements for a renewable fuel program as mandated by CAA Section 211(o). We are not exercising our discretion in this rulemaking to control fuel content under CAA 211(c).

3.2.2.3 Renewable Diesel Used as Neat Fuel and as Blending Component

What Commenters Said:

EPA received a comment from West Park Associates noting that non-ester renewable diesels could be used not just in their neat (100%) form, but also as blending components, and the commenter urged EPA to delineate the different requirements for these two separate applications.

Letters:
West Park Associates OAR-2005-0161-0202

Our Response:

We believe that a qualifying non-ester renewable diesel could be used as a blending component as well as in neat (100%) form. In specific cases where the blending component, rather than the neat form, has been registered with EPA, it must be used as a blending component at a concentration no higher than the registered level in order to qualify under the RFS program. Our final definition of non-ester renewable diesel accounts for this possibility by defining it as "a motor vehicle fuel or fuel additive."

3.2.2.4 EPA Coordination to Enable Growth of Biodiesel Use

What Commenters Said:

EPA received a comment from BioSelect encouraging EPA to recognize that efforts will be coordinated at all levels of EPA (including regions) to maximize the expansion of biodiesel into the transportation fuel market.

Letters:
Galveston Bay Biodiesel (dba - BioSelect) OAR-2005-0161-0206

Our Response:

The RFS program allows all valid renewable fuels to be used to meet the required annual volumes. Aside from the 2.5 credit value assigned by the Energy Act to cellulosic and waste-derived ethanol through 2012, all renewable fuels are treated equally in the RFS program in terms of their ethanol equivalence. Biodiesel can participate in the RFS program to the degree that the market supports its participation. There are other EPA grant programs and incentives that may assist the expansion of biodiesel, but these programs and incentives fall outside the scope of the RFS program.

3.3 Biocrude-based Renewable Fuels

What Commenters Said:

EPA received a comment from Neste Oil who suggested modifying the final RFS rule to read: "Biocrude means plant oils or animal fats that are used as feedstock to any production unit in a refinery that normally processes crude oil to make gasoline or diesel fuels, unless the production unit is a separate processing train."

Letters:
Neste Oil OAR-2005-0161-0191

Our Response:

The final regulations will replace the term "biocrude" with "renewable crude." We interpret the statutory definition of renewable fuels to include all gasoline or diesel that is made from feedstocks which are biologically derived feedstocks including, but not limited to, poultry fats, poultry wastes, vegetable oil, greases and animal fats, and rendered products. These are defined as renewable crude-based fuels, which meet the definition of renewable fuel in CAA section 211(o). Since plant oils and animal fats fall into the category of "biologically derived feedstocks," the definition of renewable crude in the final rule satisfies the commenter's concern. Under some circumstances, plant oils and animal fats can be preprocessed into a liquid that is similar to petroleum-based feedstock used in traditional refineries. We are classifying such feedstocks as "renewable crudes," and any motor vehicle fuel that is made from such feedstocks is defined broadly as "renewable crude-based renewable fuel" provided that they are processed in a production unit at a refinery that normally processes crude oil to make gasoline or diesel fuels, or at a separate processing train that similarly processes crude oil to make gasoline or diesel fuels.

3.4 Ethanol

3.4.1 Counting Blended Ethanol for Compliance Purposes

What Commenters Said:

Shell/Motiva requested that the Agency clarify in the final RFS regulations that ethanol used in E85 counts towards a party's obligation and is treated the same as E10 in that the fuel's RINs may only be separated by an obligated party or a party that owns the ethanol at the time it is blended with gasoline.

Letters:
Shell/Motiva OAR-2005-0161-0215

Our Response:

The final regulations make clear that E85 use counts towards the total obligation specified in the RFS program. RINs are generated at the point of production or importation, not when blending or use of the renewable fuel occurs. RINs can be separated from a volume of renewable fuel by an obligated party at the time of ownership, or by any other party at the time of blending to make motor vehicle fuel. See Section III.E of the preamble.

3.4.2 Distribution and Use of Ethanol

What Commenters Said:

Gary-Williams Energy Corporation (GWEC) commented that it believes that EPA should restrict ethanol-gasoline blends to clearly marked E10 and E85 and not allow a wide range of intermediate blending percentages in order to encourage even distribution and use of ethanol across the country. The commenter believes this restriction will be important for vehicle maintenance and for reducing the probability that the Petroleum Administration District for Defense (PADD) 2 market will be flooded with gasoline.

Letters:
Gary-Williams Energy Corporation (GWEC) OAR-2005-0161-0207

Our Response:

In crafting the RFS regulations, EPA has been careful only to provide a structure by which ethanol can be claimed by obligated parties for compliance purposes, and not to stipulate how that ethanol is to be marketed or consumed. The final rule requires the generation of RINs upon the production or importation of the ethanol, and does not distinguish between the concentration or form in which it is ultimately used. The final rule, however, does not modify existing laws and regulations concerning the legitimate use of ethanol. For example, only ethanol blends up to E10 are considered to be substantially similar to gasoline fuel used to certify new vehicles, and thus are permitted for use in conventional gasoline vehicles. Blends that are over E10 and up to E85 are permitted for use only in flexible fueled vehicles which have been certified for use on such blends.

3.4.3 Commingling of Ethanol Blends with Conventional Gasoline

What Commenters Said:

We received comments related to the commingling of ethanol blends with conventional gasoline. The Alliance urged EPA to consider the potential adverse impacts of commingling gasoline with E85 on emissions and drivability, and to investigate controlling the concentration and types of detergents allowed in, or otherwise managing the use of, detergents to help prevent excessive deposits and enable E85 fuels to meet the same deposit performance as gasoline.

BlueFire Ethanol, on the other hand, commented that downstream commingling of ethanol and non-ethanol based gasoline is imperative if ethanol based fuels are to be encouraged on a national basis, as commingling creates fungibility and helps maximize use of existing infrastructure. According to the commenter, commingled fuels may potentially increase RVP very slightly, thus EPA may need to slightly relax its RVP standards with regard to commingled ethanol and non-ethanol based fuels. Alternatively, BlueFire Ethanol suggested, EPA could provide temporary interim volatility regulations until commingling and fungibility achieved a minimum threshold to account for commingling volatility impacts. The commenter proposed that modifications to RFS regulations be adopted to remove any and all barriers to commingling finished gasoline, to remove all obstacles to fungibility while preserving intent of volatility regulations.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
BlueFire Ethanol OAR-2005-0161-0200, -0224

Our Response:

The issues raised by these commenters are outside the scope of this RFS rulemaking which is focused on putting in place the RFS standard and associated compliance and trading systems. EPA will take under advisement issues associated with detergency of E85 blends and commingled mixtures for any future regulatory actions related to detergency. EPA already has existing regulations with respect to gasoline volatility and commingling of ethanol and non-ethanol blends in order to provide important air quality benefits during the summer. Reconsideration of these regulations would be a matter for a separate future rulemaking. However, it is worth pointing out that CAA section 2(s) provides, and EPA implemented in a separate rulemaking, that gasoline retailers could commingle ethanol and non-ethanol blends of reformulated gasoline during two 10-day periods during the VOC season. For conventional gasoline, there is no restriction, but the volatility standards must be met at the pump during the volatility control period, although there is a 1 psi allowance for 10% ethanol blends (80.27(d)).

3.4.4 Application of "Substantially Similar" Rule to Ethanol

BlueFire Ethanol commented that it believes that refining, distribution, and blending of ethanol-based fuels should be treated as "substantially similar" under section 211(f) of the Clean Air Act (CAA) in order to ensure that optimal market forces drive ethanol consumption.

Letters:
BlueFire Ethanol OAR-2005-0161-0200, -0224

Our Response:

Section 211(f) of the Clean Air Act (Act) prohibits sale or introduction into commerce of fuels and additives that are not "substantially similar" to those used in new motor vehicle

emissions certification. The objective is to protect emission controls, such as catalytic converters and oxygen sensors, from potential damage by such fuels and additives. Such damage could cause a vehicle to fail emission standards. A waiver of the prohibition can be granted if it can be demonstrated that use of a prohibited fuel or additive would not cause or contribute to failure of vehicles to meet emission standards. A waiver is also granted by operation of the Act if the EPA Administrator fails to act on a waiver request from a fuel or additive manufacturer within 180 days. A waiver for the use of 10% ethanol in unleaded gasoline was granted by operation of the Act in 1978. A waiver for the use of 7% methyl tertiary butyl ether (MTBE) in unleaded gasoline was granted via a decision by the Administrator in 1979. In 1981 the term "substantially similar" was defined for unleaded gasoline via an interpretive rule. With respect to oxygenates, it allowed aliphatic alcohols and ethers, such as ethanol and MTBE at oxygen levels of 2.0 percent by weight. In 1991, the limit was revised to 2.7 percent oxygen by weight. This corresponds to about 7.7% ethanol by volume and 15% MTBE by volume.

This comment discusses the premise that the use of 10% ethanol in gasoline has been hampered by being covered only by a waiver of the substantially similar prohibition rather than being included as part of the "substantially similar" rule itself, while MTBE enjoyed widespread use because it was covered by the rule. It is theorized that if 10% ethanol were covered by the substantially similar rule, it would "empower natural market forces to voluntarily manufacture, use, employ, blend, and distribute ethanol based fuels." The Agency disagrees with this premise. The waiver allowed a higher concentration of ethanol to be used in gasoline than allowed by the "substantially similar" rule. Technical and market forces resulted in a wider use of MTBE until technical complications resulted in the refining industry voluntarily dropping MTBE and switching to ethanol.

3.4.5 Cellulosic Biomass Ethanol

3.4.5.1 Ethanol Made Only from Cellulosic Feedstocks

What Commenters Said:

One commenter expressed opposition to EPA's proposed definition of cellulosic biomass ethanol (CBE). Biotechnology Industry Organization-Industrial and Environmental Section (BIO IES) commented that only ethanol made from cellulosic feedstocks should be deemed cellulosic ethanol, and that the intent of CAA Section 211(o) was that only ethanol derived from cellulosic agricultural or forest feedstocks would qualify towards the cellulosic minimum standard. BIO IES urged EPA to exclude from the definition ethanol produced using waste heat captured from combustion at off-site facilities. The commenter believes that the intent of the statutory language was to facilitate the construction of ethanol plants that can use manure to produce biogas to fuel boilers at conventional ethanol or CBE plants, or the use of crop residues and other cellulosic wastes to fire a boiler.

Letters:
Biotechnology Industry Organization- Industrial and Environmental Section (BIO IES)
OAR-2005-0161-0199

Our Response:

The statutory definition of cellulosic biomass ethanol includes ethanol produced in facilities in which 90% of fossil fuel is displaced by waste-derived fuels, regardless of what feedstock is used to make the ethanol at such plants. The statutory definition clearly states that "The term also includes any ethanol produced in facilities where animal wastes or other waste materials are digested or otherwise used to displace 90 percent or more of the fossil fuel normally used in the production of ethanol." The term "other waste materials" in the statutory definition is ambiguous, and it is reasonably interpreted as including waste heat generated off-site. (See 3.4.5.2. for further discussion.) We continue to believe that it is appropriate to include waste heat under this definition when it is off-site, and have done so in the final rule.

3.4.5.2 Ethanol Made at Facilities Using Waste Heat from Off-Site Fossil Fuel Combustion

What Commenters Said:

EPA received a number of comments on the proposed provision of crediting ethanol made at facilities that use waste heat from off-site fossil fuel combustion. BIO IES, SilvaGas, and DuPont opposed counting waste heat generated by fossil fuels as "other waste material" in the computation of the 90% displacement of fossil fuel in the definition of cellulosic ethanol, claiming CAA Section 211(o) did not authorize waste heat generated by fossil fuels to be used in this way. DuPont expressed concern that the high Equivalence Value (EV) afforded to cellulosic ethanol could provide incentives for use of off-site waste heat sources that are fired with fossil fuel. The commenter also stated that EPA's proposal to limit credit to only off-site waste heat sources would disincentivize on-site co-generation applications, and that to be consistent with the intent to expand the use of renewable resources in the production of biofuels, credit should be provided to on-site and off-site waste heat derived solely from renewable fuels, with the exception of direct combustion of renewable fuels (specifically, wood waste). DuPont also encouraged giving credit for both heat *and* power produced from renewable sources.

ExxonMobil and NPRA advocated including electricity from off-site in the calculation of the 90% fossil fuel displacement, claiming that including electricity would provide an incentive for co-generation to be used at ethanol plants and for plants to be located where efficient electricity is available. ExxonMobil stated that efficiency factors could be used to calculate the BTUs that would be displaced.

Letters:
Biotechnology Industry Organization- Industrial and Environmental Section (BIO IES) OAR-2005-0161-0199
DuPont OAR-2005-0161-0168
ExxonMobil OAR-2005-0161-0197
National Petroleum and Refiners Association (NPRA) OAR-2005-0161-0170, -0232
SilvaGas OAR-2005-0161-0161

Our Response:

The Agency recognizes that fossil fuel is ultimately the source of most waste heat, but it is also the case that waste heat that is uncaptured represents a loss of energy that could otherwise displace fossil fuel use elsewhere. Specifically, waste heat used at an ethanol plant would result in displacement of fossil fuel use at the plant. In writing the proposed rule, we were aware of the concern raised by the commenter and therefore proposed to restrict waste heat to off-site sources only. We believe that this approach addresses the problem. We do not believe that such restriction disincentives the use of on-site co-generation. The decision to install co-generation equipment is based on factors such as sale of electricity to the grid. Given that the 2.5 Equivalence Value (EV) for the ethanol that meets the definition of cellulosic carries only through the year 2012, we do not believe it influences the business decision to invest in co-generation equipment.

We also do not agree that inclusion of waste heat will cause an incentive to build oversized co-generation units at off-site facilities to generate waste heat. It is highly unlikely that businesses would accept the additional expense of building an oversized combustion unit for the sale of waste heat. Again, because the 2.5 gallon Equivalence Value given for one gallon of cellulosic ethanol as provided by the Act extends only through 2012, any additional market value for waste heat used to qualify ethanol as cellulosic would therefore be of relatively short duration and not likely to warrant investment in oversized combustion units. In a similar vein, the decision to build on-site co-generation units is a business decision related to savings resulting from purchase of electricity from the utility, or from the sale of the electricity generated to the grid. It is unlikely that limiting use of waste heat from off-site sources would serve as a disincentive for installing on-site co-generation equipment at ethanol facilities.

Our findings regarding the use of electricity at ethanol plants remain the same. As such, electricity is not "normally used in the production of ethanol" and we are therefore not considering electricity generated off-site as part of the 90% displacement calculation. The commenters claimed that such inclusion would encourage more on-site co-generation at ethanol plants. We believe that owners of ethanol plants will base their decisions to include co-generation units on-site based on the sale of electricity to the grid, rather than its use at the plant itself.

3.4.5.3 Municipal Solid Waste and Other Feedstocks Containing Cellulosic Material

What Commenters Said:

EPA received a comment from BlueFire Ethanol requesting that the definition of cellulosic biomass ethanol expressly provide that the term "municipal solid wastes" (MSW) include "any cellulosic containing disposal or landfill material;" and that the term "other waste materials" include "any food, feed, beverage, distillation, brewer waste material or cellulosic material derived therefrom."

Letters:
BlueFire Ethanol OAR-2005-0161-0200, -0224

Our Response:

The statutory definition of cellulosic biomass ethanol allows that the cellulosic portion of MSW be counted in calculating the volume of cellulosic ethanol made from it. Ethanol that is made from the non-cellulosic MSW portion is defined as waste-derived ethanol as discussed in the preamble to the final rule. (See 71 FR 55569). The statute does provide for "other waste materials," which could include wood waste. Use of wood "product" – as opposed to waste – is *not* allowed, as discussed in the preamble.

3.4.5.4 Limiting Fossil Fuel Displacement

What Commenters Said:

EPA received a comment from Ethanol Feed and Fuel on our proposed provision for crediting ethanol made at facilities which replace 90% of the fossil fuel used in production with waste heat generated off-site. The commenter stated that it believes that an artificial limitation to fossil fuel replacement would stifle efficiency advancements, whereas a 90% reduction in the use of fossil fuels by itself would leave the field open to more advancement opportunities. According to the commenter, the final RFS program should not assume that the only method to achieve 90% reduction in the use of fossil fuels is through fossil fuel replacement or through a narrow definition of captured waste heat.

Letters:
Ethanol Feed and Fuel OAR-2005-0161-0180

Our Response:

The statutory definition of cellulosic biomass ethanol allows for ethanol to be so defined if it is made at a facility in which 90% of the fossil fuel normally used in the production of ethanol is displaced by fuel derived from animal or other wastes. We are thus limited by the statutory definition, but have interpreted "other wastes" to include vegetative and wood wastes (such as tree trimmings, and wood chips that are waste materials from lumber operations), as well as waste heat from offsite combustion sources. For these reasons, we do not agree with the commenter that we have limited the definition by narrowly defining captured waste heat.

3.4.5.5 Registration Requirements and Fossil Fuel Displacement Provision

What Commenters Said:

We received a comment from the Renewable Fuels Association (RFA) supporting our interpretation that "fossil fuel normally used in the production of ethanol" is limited to "fossil

fuel that is combusted at the facility itself to produce thermal energy." However, the commenter expressed concern that registration requirements for facilities located abroad are limited and may not provide sufficient information to ensure that these facilities meet the statutory definition. RFA urged EPA to establish stringent requirements for foreign facilities that claim to use fossil fuel only for thermal energy production and those that claim to use waste-derived heat energy. The commenter also believed that EPA should create disincentives to ensure that fossil fuel displacement occurs regularly, and that EPA should provide an opportunity for public review and comment on any requirements included in the final RFS rule.

Letters:
Renewable Fuels Association (RFA) OAR-2005-0161-0192, -0228 (hearing)

Our Response:

In addition to the requirements applicable to all ethanol producers, including registration, recordkeeping, reporting, and attest engagements conducted by an independent auditor, the final RFS rule requires producers of cellulosic biomass ethanol and waste-derived ethanol, both domestic and foreign, to keep records of fuel use and other information to ensure compliance with, and enforcement of, the definitions of these types of renewable fuels. In addition, producers of cellulosic biomass ethanol or waste-derived ethanol are required to arrange for an independent third party to verify that the facility is, in fact, a cellulosic or waste-derived ethanol production facility and that the ethanol producer is producing cellulosic biomass or waste-derived ethanol. An ethanol producer must apply to EPA to have its ethanol treated as cellulosic biomass ethanol or waste-derived ethanol and gain the benefits for such ethanol under the RFS program. In addition to complying with all of the requirements that apply to domestic producers of cellulosic biomass ethanol and waste-derived ethanol, foreign ethanol producers are required to comply with additional requirements designed to ensure that enforcement of the regulations at the foreign ethanol facility will not be compromised. Cellulosic biomass ethanol or waste-derived ethanol produced by a foreign ethanol producer must be identified as such on product transfer documents that accompany the ethanol to the importer, and the foreign ethanol producer must arrange for an independent inspector, approved by EPA, to monitor ship loading and offloading records to ensure that volumes of ethanol do not change from port of shipping to port of entry. We believe these additional requirements for foreign cellulosic biomass or waste-derived ethanol producers will provide adequate assurance that these facilities meet the requirements for producers of cellulosic biomass or waste-derived ethanol.

3.4.5.6 Fungible Distribution Systems and Commercial Scale Production

What Commenters Said:

BlueFire Ethanol commented that it believes that the proposal neither seemed to recognize the need for a fungible fuel blending and distribution system and the market forces that can contribute to it, nor appreciated the cellulosic industry's immediate ability to deploy commercial scale operating facilities.

Letters:
BlueFire Ethanol OAR-2005-0161-0200, -0224

Our Response:

At the present time, there is only one cellulosic ethanol plant in North America (Iogen, a privately held company, based in Ottawa, Ontario, Canada). On February 28, 2007, however, the Department of Energy (DOE) announced that it will provide grants of up to $385 billion for six commercial scale biorefinery projects over the next four years. These facilities are expected to produce more than 130 million gallons of cellulosic ethanol per year. As additional information on these future facilities are made available, EPA will have more data on process design from which we will better be able to project production costs for cellulosic ethanol.

3.5 Equivalence Values

3.5.1 Authority to Set Equivalence Values

What Commenters Said:

Several commenters agreed with EPA's proposal to assign Equivalence Values to all renewable fuels, while a few commenters took issue with this interpretation of CAA Section 211(o). Shell/Motiva, Baker, Griffin, MI, and Neste Oil agreed that it was the intent of Congress that Equivalence Values should be assigned to all renewable fuels. The National Petrochemical and Refiners Association (NPRA) expressed support for the concept of Equivalence Values as the basis for determining the number of gallon-RINs associated with a batch of renewable fuel. RFA and the American Coalition for Ethanol (ACE) strongly disagreed with EPA's interpretation of CAA Section 211(o) and claimed that EPA did not have authority to assign all renewable fuels equivalency values based on BTU content.

Letters:
American Coalition for Ethanol (ACE) OAR-2005-0161-0218
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
Griffin Industries OAR-2005-0161-0189
Methanol Institute (MI) OAR-2005-0161-0171
National Petrochemical and Refiners Association (NPRA) OAR-2005-0161-0170, -0232
Neste Oil OAR-2005-0161-0191
Renewable Fuels Association (RFA) OAR-2005-0161-0192, -0228 (hearing)
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215

Our Response:

We believe that the use of Equivalence Values is consistent with the statute and the intent of Congress to treat different renewable fuels differently in different circumstances, and to provide incentives for use of renewable fuels in certain circumstances, as evidenced by those specific circumstances addressed by Congress. The Energy Act has several provisions that provide for mechanisms other than straight volume measurement to determine the value of a

renewable fuel in terms of RFS compliance. For example, 1 gallon of cellulosic biomass or waste derived ethanol is to be treated as 2.5 gallons of renewable fuel. EPA is also required to establish an "appropriate amount of credits" for biodiesel, and to provide for "an appropriate amount of credit" for using more renewable fuels than are required to meet the obligation. EPA is also to determine the "renewable fuel portion" of a blending component derived from a renewable fuel. All of these statutory provisions provide evidence that Congress did not limit this program solely to a straight volume measurement of gallons in the context of the RFS program.

We strongly disagree with commenters who said that the explicit inclusion of a 2.5 credit value for cellulosic ethanol and the omission of any credit values for other renewables fuels should be taken as evidence that Congress intended all other renewable fuels to have Equivalence Values of 1.0. CAA Section 211(o) specifically gave EPA the authority to determine an "appropriate" credit for biodiesel. As ethanol and biodiesel were likely the two primary renewable fuels envisioned in the near-term under CAA Section 211(o), it would seem normal for Congress to have focused on these. However, Congress also clearly allowed for other renewable fuels to participate in the RFS program, and a consistent treatment for all renewable fuels is appropriate. Furthermore, CAA Section 211(o) did not specify that one gallon of biodiesel should count as one gallon for compliance purposes. On the contrary, it gives EPA the authority to determine what is appropriate. CAA Section 211(o) also directs EPA to determine the "appropriate" amount of credit for renewable fuel use in excess of the required volumes, and to determine the "renewable fuel portion" of a blending component derived from a renewable fuel. These statutory provisions lend further support to our belief that Congress did not limit the RFS program solely to a straight volume measurement of gallons.

3.5.2 Impacts of Using Equivalence Values

What Commenters Said:

EPA received comments from RFA and ACE in which they expressed concern that by creating and assigning Equivalence Values greater than 1.0, the proposed program would undercut the total national volume goals for renewable fuels usage. RFA further cited EPA's assertion that the amount of renewable fuel that would qualify for an Equivalence Value of greater than 1.0 will not "interfere in any way with meeting the total national volume goals for usage of renewable fuel," and claimed that EPA provided no information in the proposed rule to support this statement.

Letters:
American Coalition for Ethanol (ACE) OAR-2005-0161-0218
Renewable Fuels Association (RFA) OAR-2005-0161-0192, -0228 (hearing)

Our Response:

Although it is true that CAA Section 211(o) specifies the aggregate annual volumes of renewable fuel that the program must require and directs EPA to promulgate regulations

ensuring that gasoline sold each year "contains the applicable volume of renewable fuel," the Act also contains language that makes the achievement of those volumes imprecise. For instance, the deficit carryover provision allows any obligated party to fail to meet its RVO in one year if it meets the deficit and its RVO in the next year. If many obligated parties took advantage of this provision, it could result in the nationwide total volume obligation for a particular calendar year not being met. In addition, the calculation of the renewable fuel standard is based on projected nationwide gasoline volumes provided by the Energy Information Administration (EIA). The projected gasoline volume is expected to vary to some extent from the actual gasoline volume in a given year, and depending on the degree it varies, the standard may not create the demand for the full renewable fuel volume required by the Act for that year or may create greater demand. The Act contains no provision for correcting underestimated or overestimated gasoline volumes, and as a result the volumes required by the Act may not be consumed in use using the mechanism mandated by Congress to implement the program.

We continue to believe that the provision for Equivalence Values will not interfere with meeting the total national volume goals for usage of renewable fuel. While in the long term we agree that renewable fuels with an Equivalence Value greater than 1.0 may grow to become a larger portion of the renewable fuel pool, we do not believe that this is likely to be the case before 2012, the time period when the statute specifies the overall national volumes. For instance, EIA projects that biodiesel volumes will reach 300 million gallons by 2012. With the Equivalence Value of 1.5 that we are finalizing today, this means that the 7.5 billion gallons required by CAA Section 211(o) for 2012 could be met with 7.35 billion gallons of renewable fuel. However, this result is well within the variability in actual volumes resulting from the other statutory provisions described above. Congress explicitly recognized and required the use of credits for biodiesel, as it did for cellulosic ethanol. By requiring or authorizing EPA to assign credit values for such products, Congress recognized that the national volumes specified in the Act had to be interpreted in light of the other provisions specified for use of credits. For the very limited number of other renewable fuels not covered by these express statutory provisions, assigning an Equivalence Value is consistent with this overall approach. Moreover, EIA is projecting that the total volume of renewable fuel will exceed the Act's requirements by a substantial margin due primarily to the favorable economics of ethanol in comparison to gasoline. Under such projections, the existence of renewable fuels with Equivalence Values higher than 1.0 is not expected to have an impact on the demand for renewable fuel or interfere with the ability of the program to meet the volume goals specified by Congress. As such the regulations are a reasonable and balanced way to implement the various provisions contained in CAA Section 211(o).

3.5.3 Calculation Methodology

3.5.3.1 Energy Content Approach

What Commenters Said:

EPA received numerous comments that generally agreed with our proposal to calculate Equivalence Values for different types of renewable fuels based on their energy content relative

to corn-based ethanol. FutureFuel, ExxonMobil, BP, Shell/Motiva, BIGDFW, NYDEC, Organic Fuels, the Alliance, ConocoPhillips, DuPont, and Tyson all generally agreed that at least for the time being, until better means of analysis are available, the proposed approach was the correct approach for calculating Equivalence Values.

API commented that it supports EPA's proposed approach, but believes that Equivalence Values should be uniformly applied to all renewables, regardless of production means or use location. Neste also agreed with the proposed approach, but believes that using an energy lifecycle analysis would offer a fair compromise that would provide certainty and reproducibility, which are key to enforcement and future renewable fuel developments.

SilvaGas, on the other hand, did not agree with our proposal to attribute variable RINs to qualified fuels based on the BTU content of the fuel, even though the comment supported EPA's proposed treatment of excess RINs attributed to cellulosic ethanol.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
American Petroleum Institute OAR-2005-0161-0185
Biodiesel Industries of Greater Dallas Fort Worth (BIGDFW) OAR-2005-0161-0211
BP Products North America OAR-2005-0161-0221, -0230
ConocoPhillips OAR-2005-0161-0194, -0219
DuPont OAR-2005-0161-0168
ExxonMobil Refining & Supply Co. OAR-2005-0161-0197
FutureFuel OAR-2005-0161-0198
Neste Oil OAR-2005-0161-0191
New York State Department of Environmental Conservation (NYDEC) OAR-2005-0161-0169
Organic Fuels OAR-2005-0161-0190, -0233 (hearing)
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215
SilvaGas OAR-2005-0161-0161
Tyson Foods, Inc. OAR-2005-0161-0216

Our Response:

These comments are generally supportive of our proposed approach, and we agree with them. We are therefore finalizing an approach to Equivalence Values that is based on the energy content in comparison to ethanol, along with a measure of the renewability of the fuel. Further discussion of lifecycle analyses as the basis for equivalence values is provided below.

3.5.3.2 Lifecycle Approach vs. Energy Content Approach

What Commenters Said:

We received numerous comments related to our proposal to calculate a fuel's Equivalence Value based on its energy content and not a lifecycle approach. The National

Biodiesel Board (NBB) commented that it supports the proposed approach. ExxonMobil, API, and Shell/Motiva commented that while they believe a well-to-wheels, or lifecycle, approach would be preferable to the energy content approach, lifecycle calculations are currently too variable to be reliable, and they found energy content to be a reasonable surrogate. FutureFuel also commented that due to its complexity and variability, EPA should not adopt the lifecycle approach. DuPont agreed that lifecycle analysis tools need to be further refined and are thus not ready to be used in the context of this rulemaking. The commenter also stated that it believes that the lifecycle approach, once applied, should not be limited to biofuels, but should apply to all transportation fuels. The Alliance commented that it believes that a lifecycle or greenhouse gas basis for determining Equivalence Values was inconsistent with the RFS program's purpose to achieve energy security by replacing petroleum use in the transportation sector. The commenter also stated that the variability inherent in the lifecycle approach would lead to protracted discussions on the subject that would do little to further the goals of petroleum replacement, therefore an approach that considers the volume or energy displaced by the renewable fuel would be the most reasonable at this time.

In contrast to these comments supporting the use of an energy content approach, EPA received a number of comments expressing support for the use of a lifecycle approach and proposing specific metrics to be used with such an approach. Organic Fuels and BIGDFW commented that they believe that total energy lifecycle use would be the proper metric to use because it would provide a more accurate determination of the energy benefit and total petroleum replacement value of the renewable options defined in the RFS rule. IRI commented that assessing the amount of fossil fuel used and emissions generated at all stages of a renewable fuel's lifecycle would more fully meet the goals of the RFS program, and the commenter offered suggestions on how to adopt this approach, such as using fossil fuel use as the metric. The Union of Concerned Scientists (UCS) proposed basing a fuel's Equivalence Value on greenhouse gas (GHG) emission reductions relative to a baseline fuel, and possibly incorporating oil dependence and other lifecycle impacts into the calculation. Baker Commodities and Griffin suggested EPA assign Equivalence Values based on the degree to which a renewable fuel replaces the petroleum content of fuel used in a motor vehicle, while also considering overall benefits such as the utilization of recyclable waste products.

The National Wildlife Federation (NWF) and the Natural Resources Defense Council (NRDC) both commented that an energy content-based standard would not accurately reflect a fuel's true displacement of fossil fuels, and NWF suggested that either lifecycle energy use or lifecycle greenhouse gas reduction would provide a more accurate measure of a fuel's displacement of petroleum and would be a more effective driver of energy independence. The commenter preferred the latter approach and cited cellulosic and waste-derived fuel production as an area where the lifecycle GHG approach would capture the variability in the GHG intensity associated with the fuels' different feedstocks and production processes. NWF also suggested that to gain public acceptance of lifecycle modeling, EPA could implement the RFS program with temporary Equivalence Values and then phase in final values and methodologies following a process of public engagement.

NRDC urged EPA to adopt Equivalence Values based on lifecycle greenhouse gas emissions, and urged EPA to do so expeditiously and not be hampered by the need to come to

consensus with stakeholders. The commenter did suggest that, given the complexity of a shift from a Btu approach to a lifecycle GHG approach, EPA should begin simply by applying the same lifecycle analysis used to assess the impacts of the RFS rule to set GHG-based Equivalence Values. NRDC also suggested that EPA implement fossil fuel and energy use information collection requirements across all technologies, not just for cellulosic biomass ethanol as proposed.

Finally, Environmental Defense urged EPA to employ lifecycle GHG analysis as well, but suggested that rather than pre-determining Equivalence Values by rule, EPA establish a procedural basis by which a fuel supplier can specify, and have the Agency accept subject to verification requirements, a specific Equivalence Value for any given RIN-identified batch of renewable fuel. Environmental Defense further recommended that EPA focus on GHG displacement rather than carbon dioxide (CO_2) displacement because the former incorporates important differences between fuels and fuel production methods in emissions of nitrous oxide and methane. In addition, the commenter suggested that EPA distinguish between fuels produced using natural gas versus those produced using coal for process heat in order to reflect critical differences in renewable fuels production.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
American Petroleum Institute (API) OAR-2005-0161-0185
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
Biodiesel Industries of Greater Dallas Fort Worth (BIGDFW) OAR-2005-0161-0211
DuPont OAR-2005-0161-0168
Environmental Defense OAR-2005-0161-0172, -0223
ExxonMobil Refining & Supply Co. OAR-2005-0161-0197
FutureFuel OAR-2005-0161-0198
Griffin Industries OAR-2005-0161-0189
Imperium Renewables Inc. (IRI) OAR-2005-0161-0178
National Biodiesel Board (NBB) OAR-2005-0161-0212
National Wildlife Federation (NWF) OAR-2005-0161-0209
Natural Resources Defense Council (NRDC) OAR-2005-0161-0229
Organic Fuels OAR-2005-0161-0190, -0233 (hearing)
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215
Union of Concerned Scientists (UCS) OAR-2005-0161-0226

Our Response:

We agree that lifecycle analyses would provide the most appropriate means of reflecting the relative benefits of one renewable fuel in comparison to another. Doing so could create an incentive for obligated parties to choose renewable fuels having a greater ability to reduce fossil fuel use or resulting emissions, since such renewable fuels would have higher Equivalence Values and thus greater value in terms of compliance with the RFS requirements. The preferential demand for renewable fuels having higher Equivalence Values could in turn spur additional growth in production of these renewable fuels. Using lifecycle analyses as the basis

for Equivalence Values could also orient the RFS program more explicitly towards reducing fossil fuel use or emissions.

However, we are not ready to establish Equivalence Values on a lifecycle basis for this final rule. Rather, we intend to continue evaluating and updating the tools and assumptions associated with lifecycle analyses in a collaborative effort with stakeholders, and will consider the use of lifecycle analyses as a means for valuing renewable fuels in future actions.

The use of lifecycle analyses to establish the Equivalence Values for different renewable fuels raises a number of issues, generally acknowledged by supporters of the use of lifecycle analyses. For instance, lifecycle analyses can be conducted using several different metrics, including total fossil fuel consumed, petroleum energy consumed, regulated pollutant emissions (e.g., VOC, NOx, PM), carbon dioxide emissions, or greenhouse gas emissions. Each metric would result in a different Equivalence Value for the same renewable fuel. At the present time there is no consensus on which metric would be most appropriate for this purpose.

There is also no consensus on the approach to lifecycle analyses themselves. Although we have chosen to base our lifecycle analyses on Argonne National Laboratory's GREET model, there are a variety of other lifecycle models and analyses available. The choice of model inputs and assumptions all have a bearing on the results of lifecycle analyses, and many of these assumptions remain the subject of debate among researchers. Lifecycle analyses must also contend with the fact that the inputs and assumptions generally represent industry-wide averages even though energy consumed and emissions generated can vary widely from one facility or process to another.

There currently exists no organized, comprehensive dialogue among stakeholders about the appropriate tools and assumptions behind any lifecycle analyses. One of our goals is for such a dialogue to occur. Conclusions reached from such a dialogue could lead to the use of lifecycle analyses in future actions to establish new Equivalence Values or other means for valuing different types of renewable fuels. We will be initiating more comprehensive discussions about lifecycle analyses with stakeholders in the near future.

3.5.3.3 Incorporating End-Use Efficiency

What Commenters Said:

EPA received a comment from Ethanol Boosting Systems (EBS) noting that the proposed Equivalence Value methodology does not take into account the efficiency with which fuels are actually used. The commenter emphasized that it has developed technology that would increase a fuel's end-use efficiency over that obtained by ordinary blending, and suggested a new methodology that would peg the Equivalence Value of ethanol in a given year to the ratio between the number of vehicles produced with EBS technology in that year and the total number of vehicles produced in the same year.

Letters:
Ethanol Boosting Systems (EBS) OAR-2005-0161-0162

Our Response:

According to CAA Section 211(o), the RFS program is designed to require a specified volume of renewable fuel to be used in motor vehicles each year. However, the Act also requires that these volume targets are to be met by placing obligations on parties that produce gasoline, such as refiners, importers, and blenders of gasoline, as appropriate. The compliance program does not envision the inclusion of factors unique to downstream consumption of renewable fuels, such as vehicle efficiency. In any case, EPA is not in a position in this rulemaking to address the many complicated technical issues that would need to be addressed if we were to include factors unique to downstream consumption of the fuel by vehicles.

3.5.3.4 Corn-Based Ethanol as the Reference Point for Equivalence Values

What Commenters Said:

EPA received a comment from NWF on the use of corn-based ethanol as a point of reference for calculating Equivalence Values of other renewable fuels. The commenter stated that it believes that RINs that are proportional to the energy content (or lifecycle GHG emissions) of a gallon of gasoline would more accurately reflect the petroleum displacement, as the corn-based ethanol benchmark inaccurately suggests a one-to-one displacement of a gallon of gasoline.

Letters:
National Wildlife Federation (NWF) OAR-2005-0161-0209

Our Response:

Ethanol is a reasonable point of reference as it is currently the most prominent renewable fuel in the transportation sector. It is likely that Congress saw ethanol as the primary means through which the required volumes would be met in at least the first years of the RFS program. By comparing every renewable fuel to ethanol on an equivalent energy content basis, each renewable fuel is assigned an Equivalence Value that precisely accounts for the amount of petroleum in motor vehicle fuel that is reduced or replaced by that renewable fuel in comparison to ethanol. To the degree that corn-based ethanol continues to dominate the pool of renewable fuel, this approach allows actual volumes of renewable fuel to be consistent with the volumes required by the Act while still allowing some renewable fuels to be attributed a different value in terms of RFS program compliance to the extent that they have a different energy content than ethanol.

The use of gasoline as the point of reference instead of ethanol would mean that each gallon of ethanol would only count as 0.66 gallons of renewable fuel in terms of compliance with the standard. As a result, the 7.5 billion gallons of renewable fuel required by the CAA Section

211(o) would require about 11.3 billion gallons of ethanol. The Act specified the volumes of renewable fuel that the program must ensure are used in gasoline each year. Although the Act contains a number of provisions that make the achievement of these volume targets imprecise, including the use of deficit carryovers and credits as well as the use of predicted gasoline consumption in the calculation of the standard, it does not give EPA the authority to substantially increase the total annual volumes of renewable fuel required by the program prior to 2013. As a result it would not be appropriate to use gasoline as the point of reference in setting the Equivalence Values for renewable fuels.

3.5.3.5 ASTM D-4809 for Non-Ester Renewable Diesel Equivalence Value Calculation

What Commenters Said:

EPA received a comment from West Park Associates in which they indicated that they do not yet have sufficient experience with different non-ester renewable diesels to judge whether or not a good estimate of the lower heat of combustion can be made using ASTM Specification D-4868. The commenter therefore suggested that EPA require the determination of the heat of combustion of a representative fuel sample in a bomb calorimeter per ASTM Specification D-4809 every six months or after a major change in the production process.

Letters:
West Park Associates OAR-2005-0161-0202

Our Response:

The final rule specifies the Equivalence Value for the renewable fuels that we expect will dominate the pool for the foreseeable future. For other renewable fuels, we have provided a process whereby producers can apply for an Equivalence Value using information specific to the production of that renewable fuel. We have not specified a particular method for the determination of lower heating value for any renewable fuel, but instead will evaluate the appropriateness of any method on a case-by-case basis depending on the type of renewable fuel being assessed.

3.5.3.6 Standards for Renewability of Feedstock

What Commenters Said:

EPA received a comment from NRDC on developing standards for the renewability of renewable fuel feedstock and the amount of fossil fuels used to process the feedstock into a finished motor vehicle fuel. According to the commenter, EPA should adopt a standard that limits RFS eligibility to renewable fuels that return more than 1.3 Btus of finished motor vehicle fuel for every 1 Btu of fossil fuel invested in production. Furthermore, the commenter stated, over time, EPA should add more detailed standards for feedstock to ensure that they meet minimum standards for responsible management and harvesting.

Letters:
Natural Resources Defense Council (NRDC) OAR-2005-0161-0229

Our Response:

Congress specified the definition of renewable fuel and it does not include such an energy standard. While EPA does have some discretion in setting Equivalence Values for fuels that meet the definition of renewable fuel, as discussed above we are not ready to establish Equivalence Values on a lifecycle basis at this time. Rather, we intend to continue evaluating and updating the tools and assumptions associated with lifecycle analyses in a collaborative effort with stakeholders, and will consider the use of lifecycle analyses as a means for valuing or incentivising renewable fuels in future actions. This issue will be addressed more fully in a future rulemaking addressing the RFS program standard for 2013 and beyond.

3.5.3.7 EV for Cellulosic Portion of Municipal Solid Waste

What Commenters Said:

EPA received a comment from DuPont urging the Agency to rethink its intent to provide the same incentive for ethanol derived from municipal waste, which comprises only some renewable materials, as for biofuels derived from fully renewable plant cellulose. The commenter stated that it believes that any such provision should be limited to technologies that convert only cellulosic elements of municipal solid waste.

Letters:
DuPont OAR-2005-0161-0168

Our Response:

CAA Section 211(o) specifies that the Equivalence Value for both cellulosic biomass ethanol and waste-derived ethanol must be 2.5 through 2012. Therefore, the calculation methodology we have developed for the determination of Equivalence Values for other types of renewable fuels does not apply to these two types of ethanol. In the context of future actions to set the renewable fuel standard for 2013 and beyond, the Equivalence Values for cellulosic biomass ethanol and waste-derived ethanol may be reconsidered based on a variety of factors.

3.5.3.8 Technical Justification for Equivalence Values

What Commenters Said:

EPA received a comment from NPRA on the proposal that renewable fuels producers must prepare a technical justification of the calculation of a fuel's Equivalence Value for EPA approval. The commenter stated that it believes that this requirement should apply to domestic

producers of cellulosic ethanol and non-ester renewable diesel, as well as producers of different renewable fuels.

Letters:
National Petrochemical and Refiners Association (NPRA) OAR-2005-0161-0170, -0232

Our Response:

For the final rule we have clarified that the technical justification is not required from all producers of renewable fuel. Based on information we have received concerning the energy content and renewable content of the renewable fuels most likely to be used in the near future, we have calculated the appropriate Equivalence Values for these renewable fuels and specified them in Section 80.1115 of the regulations. Producers or importers need not provide a technical justification for these renewable fuels.

However, since there are a wide variety of possible renewable fuels that could qualify under the RFS program, there may be cases in which a party produces a renewable fuel for which an Equivalence Value has not been specified. A party may also produce a renewable fuel whose Equivalence Value has been specified, but the party believes that a different Equivalence Value is warranted. For such cases we have created a mechanism in the regulations through which the producer may submit a petition to the Agency describing the renewable fuel, its feedstock and production process, and the calculation of its Equivalence Value. The Agency will review the petition and approve an appropriate Equivalence Value based on the information provided.

In addition to the records applicable to all ethanol producers, producers of cellulosic biomass or waste-derived ethanol must keep records of fuel use in order to ensure compliance with, and enforcement of, the definitions of these types of renewable fuel. Producers of cellulosic biomass or waste-derived ethanol must keep records of volume and types of all feedstocks purchased. In addition, producers of cellulosic biomass or waste-derived ethanol are required to arrange for an independent third party to review plot plans and product flow schematics of the facility and to verify by physical inspection that the facility is, in fact, a cellulosic biomass or waste-derived ethanol production facility.

3.5.3.9 Equivalence Value for ETBE

What Commenters Said:

EPA received three comments on the proposed Equivalence Value for ethyl tertiary butyl ether (ETBE) made from corn ethanol. Shell/Motiva and NPRA suggested that EPA increase the proposed value from 0.4 to 0.5 to be consistent with the European Union (EU) Biofuel Directive program's biofuel volume equivalents for bio-ethers. Lyondell commented that it believes a 0.47 Equivalence Value would likely be a better estimate for ETBE, or 0.5 if EPA prefers to keep it to two significant figures. Alternatively, Lyondell suggested that EPA allow the ETBE producer to reassign (or pass through) the RINs associated with the commercial ethanol to the contained

ETBE product, thus maintaining aggregated RIN balances, independent of the amount of unreacted ethanol allowed in the commercial grade ETBE product.

Letters:
Lyondell OAR-2005-0161-0165
National Petrochemical and Refiners Association (NPRA) OAR-2005-0161-0170, -0232
Shell Oil Company/Motiva Enterprises OAR-2005-0161-0215

Our Response:

ETBE is made from combining ethanol with isobutylene. The ethanol is generally from corn, and the isobutylene is generally from petroleum. The ETBE producer may purchase ethanol from another source, and that ethanol may already have RINs assigned to it. In such cases it would not be appropriate for the ETBE producer to generate additional RINs for the ETBE made from that ethanol. Therefore, we are finalizing a provision prohibiting a party from generating RINs for a partially renewable fuel or blending component that it produces if the renewable feedstock used to make the renewable fuel or blending component was acquired from another party. Any RINs acquired with the renewable feedstock (e.g., ethanol) must be assigned to the product made from that feedstock (e.g., ETBE). If the ethanol does not have RINs associated with it, i.e. the RINs have been properly separated prior to receipt of the ethanol by the ETBE producer, then the ETBE producer would not only not generate RINs for the ETBE it producers, but would also not assign any RINs to the ETBE produced.

Moreover, for the specific case of ETBE, we have chosen for this final rule to eliminate a uniquely determined Equivalence Value. An ETBE producer would need only assign the RINs received with the ethanol to the ETBE made from that ethanol. In this case, there will be no need to generate new RINs, and therefore no need for an Equivalence Value.

3.5.3.10 Equivalence Value for Denatured Ethanol

What Commenters Said:

UCS and NRDC submitted remarks to EPA that corn-based ethanol should be assigned an Equivalence Value of 0.95, not 1.0, due to the presence of 5% non-renewable denaturant in the ethanol.

Letters:
Natural Resources Defense Council (NRDC) OAR-2005-0161-0229
Union of Concerned Scientists (UCS) OAR-2005-0161-0226

Our Response:

We continue to believe that the Equivalence Value for ethanol should be specified as 1.0 despite the presence of a denaturant. First, ethanol is expected to dominate the renewable fuel pool for at least the next several years, and it is likely that Congress recognized this fact. Given

this, having each physical gallon of denatured ethanol be counted as one gallon for RFS compliance purposes, and thus setting the Equivalence Value for denatured corn ethanol at 1.0, will help ensure that the volume requirements specified in the Act for total renewable fuel use are met. Second, the accounting of ethanol has historically ignored the presence of the denaturant. For instance, under Internal Revenue Service (IRS) regulations the denaturant can be counted as ethanol by parties filing claims to the IRS for the federal excise tax credit. Also, EIA reporting requirements for ethanol producers allow them to include the denaturant in their reported volumes. The commenters provided no additional information to counter these arguments.

3.5.4 Equivalence Value for Biodiesel

3.5.4.1 Equivalence Value for Mono-alkyl Ester Biodiesel

What Commenters Said:

EPA received comments, including one from the National Biodiesel Board, that supported the proposed Equivalence Value of 1.5 for mono-alkyl ester biodiesel. Baker, Griffin, and MI supported EPA's calculation assumptions with respect to ethanol and methanol, specifically noting that because the volume of the denaturant in ethanol and volume of the nonrenewable methanol used to produce biodiesel are both considered, this creates a level playing field for all alcohols that would be used in the biodiesel production process.

Letters:
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
Griffin Industries OAR-2005-0161-0189
Methanol Institute (MI) OAR-2005-0161-0171
National Biodiesel Board (NBB) OAR-2005-0161-0212

Our Response:

These comments are generally supportive of our proposed approach to determining Equivalence Values and its application to biodiesel, and we agree with them. The calculation methodology is being finalized as proposed, with some small modifications related to rounding protocols. The final Equivalence Value for biodiesel (mono alkyl esters) is 1.5.

3.5.4.2 Equivalence Value for Waste-Derived Biodiesel

What Commenters Said:

EPA requested comment on whether it would be appropriate to assign an Equivalence Value of 2.5 to biodiesel produced from animal waste or municipal solid waste. A number of commenters supported this proposal, including FutureFuel who stated that it believes that assigning an Equivalence Value of 2.5 to biodiesel made from waste products and recycled

biomass would incentivize their use as feedstocks and decrease the demand pressures on soybean oil and palm oil, currently the primary sources of biodiesel. NPRA noted that if biodiesel made from recycled cooking oil (RCO) is recognized as a higher credit than previously documented, it would establish a more valuable product to refiners and energize the demand of such type of biodiesel.

Baker Commodities and Griffin also endorsed this approach and noted that it would help incentivize the use of waste products and recycled biomass to make biodiesel. The commenters further argued that since ethanol derived from waste products will be assigned an Equivalence Value of 2.5, it is appropriate to create a parallel provision for biodiesel made from waste oils and fats. Neste and NGVA both supported this approach, and while Neste requested that all forms of waste-derived biodiesel, including renewable diesel, be assigned an Equivalence Value of 2.5, NGVA went a step further and requested that other fuels produced from these sources, including natural gas fuels, earn the same level of credit.

A private citizen supported assigning an Equivalence Value of 2.5 for waste-derived biodiesel because of the additional benefit of avoiding sending material to landfills. However, the commenter believed that to limit the "parallel provision" to only biodiesel made from wastes is too restrictive. Finally, the Alliance disagreed with this approach, arguing that a higher Equivalence Value for waste-derived ethanol was applied because it is the product of an emerging technology that currently is more costly than obtaining ethanol from sources such as corn, whereas producing biodiesel from waste is not a new technology that needs help in getting developed and established. The commenter recommended retaining the proposed 1.5 equivalence factor or using an equivalence factor of 1 if a volume replacement system is adopted.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176
Baker Commodities OAR-2005-0161-0003 through -0006, -0173
FutureFuel OAR-2005-0161-0198
Griffin Industries OAR-2005-0161-0189
National Petrochemical and Refiners Association (NPRA) OAR-2005-0161-0170, -0232
Natural Gas Vehicles for America (NGVA) OAR-2005-0161-0201
Neste Oil OAR-2005-0161-0191
Private Citizen OAR-2005-0161-0182—0184

Our Response:

Supporters of the 2.5 Equivalence Value argued that it would place the treatment of waste-derived biodiesel (mono alkyl-esters) on the same level as waste-derived ethanol, and that it would be good Agency policy to encourage and reward parties that turn materials that would otherwise be wasted into usable motor vehicle fuel. While we generally agree with these arguments, we nevertheless believe that they are insufficient to deviate from the general methodology applicable to renewable fuels at this time. While the use of relative energy content to set Equivalence Values in this rule can be justified based on the statutory language, it is not clear whether the use of other factors such as the promotion of a particular industry, process,

feedstock, or type of renewable fuel can be justified. While incentives to use more waste products as feedstocks may be a reasonable policy goal, they nevertheless cannot be justified in the context of this regulation. Therefore, we have not finalized a 2.5 Equivalence Value for waste-derived biodiesel, but instead have used energy content relative to ethanol to set an Equivalence Value of 1.5 for all biodiesel (mono alkyl-esters).

3.5.4.3 Setting Equivalence Values for Biodiesel Based on Energy Lifecycle Analysis

What Commenters Said:

Griffin and Organic Fuels remarked that biodiesel should be assigned an Equivalence Value of 2.5 -- not 1.5 as noted in the proposed rule -- based on total energy lifecycle analysis.

Letters:
Griffin Industries OAR-2005-0161-0189
Organic Fuels OAR-2005-0161-0190, -0233 (hearing)

Our Response:

Based on our own lifecycle analyses as described in Section IX of the preamble, we agree that biodiesel may produce greater reductions in greenhouse gases and fossil fuel use than corn-based ethanol. However, as discussed earlier, we do not believe that lifecycle analyses can be used as the basis of Equivalence Values at this time. We will continue to evaluate the appropriateness of lifecycle analyses in future actions.

3.5.5 Equivalence Values for Other Types of Renewable Fuel

3.5.5.1 Equivalence Value for Renewable Diesel Produced at Refineries

What Commenters Said:

EPA received a few comments on assigning Equivalence Values to non-ester renewable diesel produced at refineries. ConocoPhillips claimed that renewable diesel would be the result of biocrude co-processing done in a distillate hydrotreater, and that jet fuel would not be produced from biocrude because it would not meet jet fuel specifications per ASTM D-1655. The commenter also argued that renewable diesel produced in this way should warrant a 1.7 Equivalence Value, equivalent to the proposed value for non-ester renewable diesel produced through neat processing of biocrude, as the energy content of the product would be equivalent to renewable diesel produced neat through a hydrotreating process and the volume yields would range from 98% to 106% (product to feed).

API agreed that renewable diesel produced through co-processing in a hydrotreater should have an Equivalence Value greater than 1.0 assigned to the biocrude, given that biodiesel and non-ester renewable diesels are 1 to 1.5 and 1.7. The commenter argued that the

Equivalence Value of biocrude-based renewable fuel generated at refineries should be based on the energy content of the bio-produced materials, and that an unequal approach to assigning these Equivalence Values would handicap refinery operations and the effective utilization of biocrude.

Finally, Tyson commented that it believes that the RFS program should support the use of all renewable fuels produced in the United States from feedstocks such as vegetable oils and animal fats and should encourage the use of developing production methodologies. The commenter cited the difference in proposed Equivalence Values for biodiesel (mono alkyl-esters), non-ester renewable diesel produced using a "Neste" process, and non-ester renewable diesel produced at a refinery, despite the fact that the non-ester renewable diesel produced in the "Neste" process and at a refinery are essentially equivalent. To ensure that the highest possible Equivalence Value is given to renewable fuels made from animal fats, Tyson suggested that a higher Equivalence Value be considered for non-ester renewable diesel produced at a conventional refinery.

Letters:
American Petroleum Institute (API) OAR-2005-0161-0185
ConocoPhillips OAR-2005-0161-0194, -0219
Tyson Foods, Inc. OAR-2005-0161-0216

Our Response:

Equivalence Values are assigned to renewable fuels on the basis of information on their energy content and their renewable content. The number of gallon-RINs that can be generated for a given volume of renewable fuel is then based on the Equivalence Value multiplied by the volume. In the case of renewable crude-based fuels, information on the energy content, renewable content, or actual product volume may be difficult to obtain. For this reason, we are finalizing a generalized approach for renewable crude-based fuels in which the Equivalence Value is designated as 1.0 and the applicable volumes are measured according to the volume of renewable crude rather than the volume of the final product.

However, in cases where information on the energy content and renewable content is more precise, a higher Equivalence Value may be warranted. Likewise, if product volumes can be measured accurately, they can be used directly instead of the volume of renewable crude. For instance, for non-ester renewable diesel produced by processing fats and oils through a refinery hydrotreating process, we have determined that the default Equivalence Value should be 1.7. This approach recognizes that hydrotreating produces a product that meets the definition of non-ester renewable diesel. Producers of other types of renewable fuel which use renewable crude as a feedstock may also petition EPA for a higher Equivalence Value and/or the use of product volumes instead of renewable crude volumes.

3.5.5.2 Equivalence Value for BTL

What Commenters Said:

EPA received lengthy comments from Choren on the Equivalence Value of BTL. The commenter argued that BTL will have cleaner combustion characteristics, and therefore merits a higher Equivalence Value, than FAME or hydrotreated non-ester renewable first generation diesel products. Choren urged EPA to rank BTL fuels from renewable sources or from waste in a similar fashion to waste-derived ethanols in order to stimulate development of this second generation diesel fuel. Choren proposed an initial Equivalence Value of 2.5 * 1.7 = 4.25 for BTL to reflect three things: the advantage of diesel/jet fuel platforms over ethanols, the advantage of second generation fuels over first generation fuels, and the benefits achievable with fully synthetic renewable fuels.

Letters:
Choren OAR-2005-0161-0195

Our Response:

The calculation methodology for the determination of Equivalence Values is not intended to encourage the development of any particular industry, process, or renewable fuel. By focusing on the relative energy content in comparison to ethanol, Equivalence Values are designed only to ensure that renewable fuels are all treated on an ethanol-equivalent basis. Although the 2.5 value prescribed by CAA Section 211(o) may have been intended to encourage the development of cellulosic biomass ethanol production technologies, we do not believe it is appropriate to extend the same basis to other renewable fuels in the context of this final rule. However, we will be reevaluating the role of and calculation methodology for Equivalence Values in later actions.

3.5.5.3 Equivalence Value for Biogenic Methanol

What Commenters Said:

EPA received a comment from MI to assign neat biogenic methanol an Equivalence Value of 0.8 based on its lower heating value.

Letters:
Methanol Institute (MI) OAR-2005-0161-0171

Our Response:

The final rule for the RFS program specifies the Equivalence Value for a number of renewable fuels that are either being produced currently or are in the planning stages for near-term production, and for which we have sufficient information regarding the energy content and renewable content. We do not believe that this is true for biogenic methanol, and so we have not

specified its Equivalence Value. However, we have created a mechanism in the regulations through which the producer may submit a petition to the Agency describing the renewable fuel, its feedstock and production process, and the calculation of its Equivalence Value. The Agency will review the petition and approve an appropriate Equivalence Value based on the information provided.

3.5.5.4 Equivalence Value for Cellulosic Content of Waste

What Commenters Said:

EPA received a comment from DuPont who commented that it did not believe that biofuels derived from municipal solid waste (MSW) should be assigned the same Equivalence Value as those derived from "truly renewable resources." The commenter argued that MSW is comprised of a range of materials, only some of which are truly cellulosic and renewable, and differing technologies extract energy from different elements of MSW, and that assuming an entirely cellulosic basis for biofuels derived from MSW is inappropriate. The commenter advised that if EPA intends to treat biofuels from MSW as cellulosic, we should limit such designations to technologies that only convert cellulosic elements of the MSW.

Letters:
DuPont OAR-2005-0161-0168

Our Response:

"Waste derived ethanol" is defined in CAA Section 211(o) as ethanol derived from "animal wastes, including poultry fats and poultry wastes, and other waste materials; … or municipal solid waste." Both animal wastes and municipal solid waste are also listed as allowable feedstocks for the production of "cellulosic biomass ethanol." The determination of the appropriate category of ethanol is based on whether the feedstocks in question contain cellulose or hemicellulose that is used to make the ethanol. Thus if the ethanol is made from the non-cellulosic portions of animal, other waste, or municipal waste, it is labeled "waste derived ethanol." As such, a portion of the ethanol made from animal or other wastes and municipal solid wastes that contain cellulose or hemicellulose, would be considered cellulosic biomass ethanol.

Nevertheless, both waste-derived ethanol and cellulosic biomass ethanol are considered equivalent to 2.5 gallons of renewable fuel when determining compliance with the renewable volume obligation. As noted above, we expect to address the issue of the appropriate Equivalence Value for cellulosic and waste derived ethanol for 2013 and later in a later action. We therefore do not believe it is necessary at this time for owners of facilities that make ethanol from animal, other, or municipal solid wastes to calculate the portions of ethanol that are cellulosic and waste-derived.

3.5.5.5 Equivalence Value for Biobutanol and Future Fuels

What Commenters Said:

DuPont suggested that an Equivalence Value of 2.5 apply to all cellulose-derived biofuels, including biobutanol. The commenter also suggested that EPA assign an additional Equivalence Value for cellulosic biobutanol of 1.3 x 2.5 or 3.25 and include provisions to assign Equivalence Values to future biofuels as they enter the market.

Letters:
DuPont OAR-2005-0161-0168

Our Response:

CAA Section 211(o) specifies that waste-derived ethanol and cellulosic biomass ethanol are considered equivalent to 2.5 gallons of renewable fuel when determining compliance with the renewable volume obligation. The Act provides no flexibility to extend this provision to other renewable fuels, even if they are likewise produced from cellulosic or waste feedstocks. However, we have created a mechanism in the regulations through which a producer may submit a petition to the Agency describing the renewable fuel it produces, its feedstock and production process, and the calculation of its Equivalence Value. The Agency will review the petition and approve an appropriate Equivalence Value based on the information provided.

3.5.5.6 Setting the Equivalence Value of Renewable Diesel Based on Lifecycle Analysis

What Commenters Said:

EPA received a comment from Neste Oil stating that while it supported EPA's proposed energy content approach for assigning Equivalence Values, a lifecycle approach would probably assign a larger Equivalence Value to non-ester renewable diesel fuel than 1.7. Neste claimed that there is a rationale for applying a higher Equivalence Value to non-ester renewable diesel than to mono-alkyl ester biodiesel, butanol, and "typical" ethanol.

Letters:
Neste Oil OAR-2005-0161-0191

Our Response:

We considered lifecycle analyses as the basis for calculating Equivalence Values, but determined that they cannot be used at this time for a variety of reasons. The calculation methodology we are finalizing is limited to a consideration of the renewable content of a renewable fuel and its energy content in comparison to ethanol. However, we will be reevaluating the role of and calculation methodology for Equivalence Values in later actions.

3.5.6 Equivalence Values for Foreign-Produced Renewable Fuel

What Commenters Said:

EPA received a few comments related to Equivalence Values assigned to renewable fuel produced in other countries. One private citizen stated that assigning cellulosic ethanol an Equivalence Value of 2.5 creates a loophole that encourages foreign producers to export cellulosic ethanol and discourages U.S. production of such fuel. NPRA commented that before 2013, imported cellulosic or waste-derived ethanol should not have an Equivalence Value of 2.5**.** RFA commented that the registration requirements for ethanol facilities using waste-derived fuel to displace 90% of fossil fuel are limited and that they did not provide sufficient information to ensure that the facilities meet the definition under the statute. RFA therefore recommended that recordkeeping requirements extend to foreign producers. ExxonMobil believed that the 90% displacement qualification should not be extended to foreign producers at all.

Letters:
ExxonMobil Refining & Supply Co. OAR-2005-0161-0197
National Petrochemical and Refiners Association (NPRA) OAR-2005-0161-0170, -0232
Private Citizen OAR-2005-0161-0236
Renewable Fuels Association (RFA) OAR-2005-0161-0192, -0228 (hearing)

Our Response:

EPA is requiring foreign producers of ethanol who want to have it classified as cellulosic biomass ethanol or waste-derived ethanol to comply with a set of enforcement-related safeguards designed to assure the legitimacy of claims to the 2.5 Equivalence Value. Our final regulations require foreign producers to register with EPA if they wish to export ethanol classified as cellulosic biomass or waste-derived ethanol into the U.S. Compliance with the definition of cellulosic biomass or waste-derived ethanol is the burden of the producers. Both domestic and foreign producers of cellulosic biomass and waste-derived ethanol must comply with recordkeeping requirements, as well as provide copies of plot plans and product flow schematics of the ethanol facility to inspectors.

3.5.7 Other Issues Regarding Equivalence Values

3.5.7.1 Extra Credit for Cellulosic Ethanol in 2013

What Commenters Said:

EPA received a comment from BIO IES who noted that in 2013, if the total amount of ethanol produced from cellulosic feedstocks exceeds the 250 million gallon requirement, there is a potential source of additional credits that should be accounted for and utilized in the credit trading program. The commenter claimed that this extra credit potential would incentivize the production of cellulosic ethanol and encourage maximal production under the RFS. BlueFire Ethanol commented that it believes that maintaining the 2.5 Equivalence Value for cellulosic

ethanol well beyond 2013 is critical for continued and sustained deployment of cellulosic ethanol, and that it is fully warranted because cellulosic processes are appreciably more environmentally friendly in terms of reducing GHG than tradition corn based processes.

Letters:
Biotechnology Industry Organization- Industrial and Environmental Section (BIO IES)
OAR-2005-0161-0199
BlueFire Ethanol OAR-2005-0161-0200, -0224

Our Response:

In general, the Equivalence Values set by this final rule, or any others approved through the petition process, will be applicable for all years. However, in the final rule we are only specifying the 2.5 ratio for cellulosic biomass and waste-derived ethanol prior to 2013.

According to CAA Section 211(o), the 2.5 to 1 ratio no longer applies for cellulosic biomass ethanol beginning in 2013, but the Act is unclear about whether the 2.5 to 1 ratio for waste-derived ethanol will apply after 2012. It would be reasonable to treat both cellulosic biomass ethanol and waste-derived ethanol consistently in terms of the applicability of the 2.5 to 1 ratio after 2012, but in this rulemaking we do not need to make a final decision on this issue. Consequently, we are only setting the 2.5 Equivalence Value for cellulosic biomass and waste derived ethanol through 2012, and beginning in 2013, the 2.5 to 1 ratio will no longer apply for either cellulosic biomass ethanol or waste-derived ethanol. In subsequent actions, we will address the issue of the post-2012 Equivalence Value for cellulosic and waste derived ethanol explicitly, including a reevaluation of the role of and calculation methodology for Equivalence Values.

3.5.7.2 Limiting Equivalence Values to Bins

What Commenters Said:

EPA received a comment from NYDEC who disagreed with EPA's proposal to limit Equivalence Values to bins of 1.0, 1.3, 1.5, and 1.7, and believed that, instead, Equivalence Values should be calculated using the proposed formula at 71 FR 55571, rounded to the nearest tenth.

Letters:
New York State Department of Environmental Conservation (NYDEC)
OAR-2005-0161-0169

Our Response:

We agree with this comment. We have determined for the final rule to further simplify the application of Equivalence Values by only requiring the calculated values be rounded to the first decimal place. There will no longer be bins for Equivalence Values.

3.5.7.3 Including Equivalence Values for Biodiesel and MTBE from Biogas

What Commenters Said:

EPA received a remark from MI to update Table 1 of §80.1115: Equivalence Values to include the Equivalence Values already calculated and included in the technical support document, "Memorandum from David Korotney to EPA Air Docket OAR-2005-0161, dated August 23, 2006," for "Biodiesel using biogas" and "MTBE from biogas."

Letters:
Methanol Institute (MI) OAR-2005-0161-0171

Our Response:

The technical memorandum was provided primarily to lay out the details of the calculation methodology and its derivation, and to provide examples of some calculations for specific renewable fuels. The regulations, however, include Equivalence Values only for those renewable fuels that are either being produced currently or are in the planning stages for near-term production, and for which we have sufficient information regarding the energy content and renewable content. We have no information to indicate that biogas is currently being used, or is in the planning stages, for use as a feedstock in the production of renewable fuels. We have created a mechanism in the regulations through which a producer may submit a petition to the Agency describing the renewable fuel it produces, its feedstock and production process, and the calculation of its Equivalence Value. The Agency will review the petition and approve an appropriate Equivalence Value based on the information provided.

3.5.7.4 Use of the Term "Denatured Ethanol"

What Commenters Said:

API commented to EPA that Table 1 of §80.1115: "Ethanol from corn, starches, or sugar" should be "Denatured ethanol from…," in accordance with p.51 of the pre-publication version preamble.

Letters:
American Petroleum Institute (API) OAR-2005-0161-0185

Our Response:

We agree with this comment. The regulations specifying Equivalence Values have been revised to clarify that qualifying ethanol must be denatured.

3.5.7.5 Equivalence Value Equation

What Commenters Said:

EPA received a comment from MI who pointed out a technical error in the formula for calculating Equivalence Value (EV) at §80.115(a). The commenter noted that if R is expressed as a percent, as stated, then the denominator must be 93.1 instead of 0.931, and the formula should read: EV = (R / 93.1) * (EC / 77,550).

Letters:
Methanol Institute (MI) OAR-2005-0161-0171

Our Response:

In mathematics, a percentage is considered to be equivalent to its fraction (i.e., 93.1% = 0.931). Thus the regulations are correct as written. However, the technical memorandum provides example calculations that clarify the form and use of the renewable content factors that should be used. Parties who submit an application to the EPA for an Equivalence Value not already specified in the regulations can look to the technical memorandum for example calculations.

3.5.7.6 Equivalence Values and Fuel RINs

What Commenters Said:

MDNR noted that it believes the approach proposed by EPA appears to provide a systematic and uniform application of Equivalence Values for various renewable fuels under the RFS program. The commenter believes EPA should consider using a similar approach in determining potential equivalence valuation for the credit-trading program.

Letters:
Missouri Department of Natural Resources (MDNR) OAR-2005-0161-0217

Our Response:

Equivalence Values are used to determine the number of RINs that can be generated for a given renewable fuel, and these RINs form the basis for compliance with the standard. RINs fulfill the purpose of credits as they are defined in CAA Section 211(o), and Equivalence Values thus determine the valuation of renewable fuels in the credit-trading program.

3.5.7.7 Equivalence Value of E85

What Commenters Said:

EPA received a comment from the Alliance suggesting that to promote true fuel diversification, EPA should assign an equivalence ratio of 2.5 to ethanol used to blend E85, regardless of the ethanol feedstock source. The commenter stated that it believes that a credit enhancement for E85 would help promote the necessary infrastructure and collaboration required by refiners, blenders, terminal facilities and retail distribution outlets to establish an alternative fuel choice for consumers and enhance overall energy security goals.

Letters:
Alliance of Automobile Manufacturers (Alliance) OAR-2005-0161-0176

Our Response:

The calculation methodology for the determination of Equivalence Values is not intended to encourage the development of any particular industry, process, or renewable fuel. By focusing on the relative energy content in comparison to ethanol, Equivalence Values are designed only to ensure that renewable fuels are all treated on an ethanol-equivalent basis. We do not believe it would be appropriate to extend the 2.5 value to other renewable fuels in the context of this final rule. However, we will be reevaluating the role of and calculation methodology for Equivalence Values in later actions.