



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 10 2017

OFFICE OF
AIR AND RADIATION

Mr. Thomas S. Leue
President
Homestead Engineering, Inc.
1664 Cape Street
Williamsburg, Massachusetts 01096

Dear Mr. Leue:

You submitted a petition on behalf of Homestead Engineering, Inc. (Homestead), pursuant to the Renewable Fuel Standard (RFS) regulations at 40 CFR 80.1416, requesting EPA’s evaluation of a pathway involving yellow grease to be used as heating oil by burning it in a patented “Yellow Heat burner” (the “Homestead Pathway”). Based on the information in your petition, the Homestead Pathway fits the existing pathway in row P of Table 1 to 40 CFR 80.1426, reproduced in the table below with emphasis added, as long as a number of conditions are satisfied.¹

Fuel	Feedstock	Production Process	RIN D-code
Ethanol, renewable diesel, jet fuel, heating oil , and naphtha.	The non-cellulosic portions of separated food waste and non-cellulosic components of annual cover crops.	Any	5

In addition to the general requirements of the Clean Air Act (CAA) and EPA implementing regulations at 40 CFR Part 80, Subpart M, applicable to renewable fuel producers under the RFS program, a fuel producer seeking to generate RINs for yellow grease used in the Homestead Pathway would need to demonstrate that the yellow grease meets the definition of heating oil at 40 CFR 80.1401, copied below.

Heating oil means:

1. A fuel meeting the definition of heating oil set forth in 40 CFR 80.2(ccc); or

¹ For the full list of approved pathways see: <https://www.epa.gov/renewable-fuel-standard-program/approved-pathways-renewable-fuel>

2. A fuel oil that is used to heat interior spaces of homes or buildings to control ambient climate for human comfort. The fuel oil must be liquid at 60 degrees Fahrenheit and 1 atmosphere of pressure, and contain no more than 2.5% mass solids.

Yellow grease does not satisfy the first paragraph of the above heating oil definition because it is not commonly or commercially known or sold as heating oil, fuel oil or similar trade names.²

For yellow grease to satisfy the second paragraph of the heating oil definition, it would need to be used to heat interior spaces of homes or buildings to control ambient climate for human comfort, as well as be liquid at 60 degrees Fahrenheit and one atmosphere of pressure, with no more than 2.5% mass solids. According to your petition, the Yellow Heat Burner is currently marketed to heat interior spaces of homes or buildings to control ambient climate for human comfort. To qualify for RINs, producers of fuel through the Homestead Pathway would need to demonstrate compliance with this provision through affidavits received from the final end user or users of the fuel. See 40 CFR 80.1426(c)(7) and 40 CFR 80.1451(b)(1)(ii)(T)(2).³ The fuel producer's registration application would also need to include affidavits from the producer and final end users of the yellow grease stating that the yellow grease will be sold (or used) for the purposes of heating interior spaces of homes or buildings to control ambient climate for human comfort, and for no other purpose. See 40 CFR 80.1450(b)(1)(xi).

Any yellow grease qualifying as heating oil would need to be liquid at 60 degrees Fahrenheit and 1 atmosphere of pressure. The Homestead petition references a study by the U.S. Department of Agriculture showing that all of the vegetable oils that typically appear in yellow grease waste streams in the U.S. meet this requirement.⁴ However, yellow grease that includes tallow or other animal fats may not be liquid at 60 degrees Fahrenheit and 1 atmosphere of pressure. The Homestead petition states that waste streams with tallow or other animal fats are not intended to be the source of fuel for the Yellow Heat burner, and Homestead will require the exclusion of these types of feedstocks as part of the system requirements for proper operation and participation in the RFS program. These requirements will also need to be reflected in the affidavits collected per 40 CFR 80.1451(b)(1)(ii)(T)(2).

To qualify as heating oil, yellow grease would also need to contain no more than 2.5% mass solids. According to the Homestead petition, the specifications for the Yellow Heat burner require that yellow grease fuel must be no greater than 2% moisture, inert components, and un-saponifiable material (MIU), with no other mass solids other than those included in the 2% MIU

² As defined at 40 CFR 80.2(ccc), Heating oil means any #1, #2, or non-petroleum diesel blend that is sold for use in furnaces, boilers, and similar applications and which is commonly or commercially known or sold as heating oil, fuel oil, and similar trade names, and that is not jet fuel, kerosene, or MVNRLM diesel fuel.

³ Per 40 CFR 80.1451(b)(1)(ii)(T)(2)(iv), the affidavits would need to include a description of the finished fuel, and a statement that the fuel meets all applicable standards and was sold for use as heating oil.

⁴ Biodiesel: The Use of Vegetable Oils and Their Derivatives as Alternative Diesel Fuels. Gerhard Knothe, Robert O. Dunn, and Marvin O. Bagby. *Fuels and Chemicals from Biomass*. May 1, 1997, 172-208. DOI:10.1021/bk-1997-0666.ch010

threshold. The affidavits collected and reported per 40 CFR 80.1451(b)(1)(ii)(T)(2)(iv) will need to reflect this requirement.

The existing heating oil pathway in row P of Table 1 to 40 CFR 80.1426 includes the non-cellulosic portions of separated food waste as a qualifying feedstock. Yellow grease may qualify as separated food waste provided it meets the definition of separated food waste at 40 CFR 80.1426(f)(5), and is collected according to a plan submitted to and accepted by EPA under the registration procedures specified in 40 CFR 80.1450(b)(1)(vii)(B).

Based on our review of the Homestead petition, a party that produces yellow grease and sells it for use as heating oil may be eligible to generate advanced biofuel (D-code 5) RINs, assuming the fuel meets the conditions and associated regulatory provisions discussed above, and the other definitional criteria for renewable fuel (e.g., production from renewable biomass) specified in the CAA and EPA implementing regulations.⁵ On the basis of this letter, we are considering your petition resolved and intend to take no further action. If you have any additional questions on this matter, please use our Fuels Program Contact Form and include "Homestead" in the summary of your comments.⁶

Sincerely,



Karl Simon, Director
Transportation and Climate Division

⁵ A fuel producer may only generate RINs for yellow grease used in the heating oil pathway in row P of Table 1 to 40 CFR 80.1426 that is produced after the registration application for the pathway is accepted by EPA and activated in the electronic tracking system for RINs known as EMTS.

⁶ <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/forms/fuels-program-helpdesk#contactform>