1858 E. 6th St.
Moscow, ID  83843
December 4, 2023

Joe Jobe
SABR Coalition
Via joe@rockhouse.us

Re: EPA Equivalence Values for Biodiesel and Renewable Diesel

Dear Joe:

I have reviewed the materials you sent to me regarding the need for a reconsideration of the Equivalence Values used for lipid-based renewable fuels.  I concur that adjustments are warranted.

I think the previous Equivalence Values were a good faith effort by the EPA to account for two relevant factors: 1) the difference in fuel energy content, which requires more of a low energy-density fuel to perform a specific task, and 2) the difference in the renewable content of the renewable fuel.  The latter factor is to be based on the energy fraction.

As a (former) academic, I must admit that my initial evaluation of the renewable content of the renewable fuel was that the calculation should be based on a complete Life Cycle Analysis.  However, I realize that this is impractical as these fuels are now involved with large-scale commerce with many producers, processors, and feedstocks.  A single value, as represented by the EPA's Equivalence Value seems like a good way to address the issue of renewable content without introducing undue burdens on commerce.
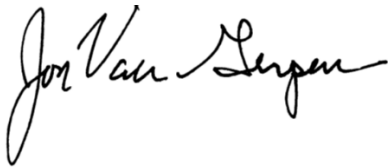
However, it is essential that the estimate of the renewable energy fraction be calculated correctly.  In the case of biodiesel, it seems appropriate that the methanol required by the transesterification reaction, which generally is of fossil origin, should be considered non-renewable.  In the same way, all of the processes I am aware of to produce renewable diesel require hydrogenation.  The hydrogen used in these processes generally comes from natural gas and is thus of fossil origin.  To be equitable, the energy content of this hydrogen should be deducted from the renewable energy associated with renewable diesel.

The calculations provided in the white paper by Shah Parag, More Amol, and Joe Jobe, with the correction of minor errors pointed out by Robert McCormick in his letter of September 13, 2023, illustrate one approach to this calculation using chemical bond energies.  While other techniques could be used, I believe all would give virtually the same result and this method is well known and widely accepted.

With this adjustment to the Equivalence Value calculation, the Equivalence Value for renewable diesel is reduced from 1.7 to 1.5, a change of considerable commercial significance.

Thank you for the opportunity to provide an opinion on this issue.

Sincerely,

Jon Van Gerpen
Emeritus Professor
University of Idaho
Moscow, Idaho
(208) 596-2733