

ARB Staff Summary:

KAAPA Ethanol, Minden, Nebraska Corn Ethanol Dry Mill LCFS Pathway ETHC038 Carbon Intensity Adjustment

May 17, 2013

Pathway Summary

KAAPA Ethanol, LLC (KAAPA) operates a corn ethanol plant in Minden, Nebraska. The plant, which has a production capacity of 60 million gallons per year, is a dry mill, natural-gas-fired facility which produces wet distiller's grains with solubles (WDGS) and corn oil as co-products. Both co-products are sold as livestock feed. KAAPA has not included a corn oil co-product credit in its carbon intensity calculations. Because no co-product is claimed, and because the extracted corn oil remains in the livestock feed market, KAAPA's carbon intensity was calculated using the default DGS co-product credit.

KAAPA applied for a Method 2A fuel pathway under the California Low Carbon Fuel Standard (LCFS) in December of 2010. In January of 2011, staff assigned KAAPA's pathway an LCFS identification code of ETHC038, and recommended it for approval at a carbon intensity (CI) of 80.31 gCO₂e/MJ.¹

In April of 2013, KAAPA requested that its pathway CI be reduced to 78.56 gCO₂e/MJ, citing an error in the natural gas heating value used to calculate the pathway CI. At the time the original application was submitted, the applicant believed that the energy amounts shown on the invoices from the natural gas supplier were lower heating values (LHV). The applicant has since confirmed that they were actually gross or higher heating values (HHV). Recalculating the pathway CI using the LHV reduced KAAPA's CI to 78.56 gCO₂e/MJ. This ARB Staff Summary updates the original KAAPA Ethanol Staff Summary, but incorporates by reference all sections of that Summary except the pathway carbon intensity value sought by the applicant.

Carbon Intensity of Ethanol Produced

The applicant provided a signed letter from its natural gas supplier stating (a) that the heating values shown on its invoices were "gross" heating values, and (b) that the industry-standard method for converting gross heating values to lower heating values is to divide them by 1.11. The applicant used this method to convert the heating value of the natural gas its plant consumed to a LHV basis.

¹ This and all staff-approved LCFS pathways are posted to <http://www.arb.ca.gov/fuels/lcfs/2a2b/2a-2b-apps.htm>

Using the resulting LHV to recalculate its pathway CI produced a value of 78.56 gCO₂e/MJ for pathway ETHC038.

The use of the correct natural gas heating value has the effect of reducing the amount of natural gas used per gallon of ethanol produced by an amount the applicant specifies as confidential. KAAPA has provided a signed letter confirming that current and anticipated future plant operations are consistent with the operations described in the original application posted on the ARB website (please see footnote 1 for the URL). The operating conditions placed on the KAAPA plant in the original ETHC038 Staff summary will therefore remain in effect. Those conditions are as follows:²

1. Thermal energy and electricity use shall not exceed the current values that are classified by the applicant as confidential business information.
2. Condition 1, above, effectively limits KAAPA to the production of only WDGS for the ethanol sold into the California market (drying any of its DGS co-product will increase energy consumption and carbon intensity beyond the values specified in the company's Method 2A application).

Table 1: Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO ₂ e/MJ (Including Indirect Effects)		
			Direct Emission	Land Use or Other Indirect Effect	Total
Ethanol	ETHC038	2A Application (Specific Conditions Apply): Midwest; Dry Mill; Wet DGS; NG	48.56	30	78.56

Staff Analysis and Recommendation

Staff has replicated, using the CA-GREET 1.8b spreadsheet, the reduced carbon intensity of 78.56 gCO₂e/MJ requested by KAAPA for Pathway ETHC038. KAAPA has confirmed that its plant is capable of continuing to operate at that CI. On the basis of these findings, and subject to the conditions in this summary,

² Compliance with the “not-to-exceed” values will be based on monthly, quarterly, or annual average values, as determined by operational conditions. Calculation of the average values can exclude periods of abnormal operations, such as planned maintenance or force majeure events.

staff recommends that KAAPA's application for a CI of 78.56 gCO₂e/MJ for pathway ETHC038 be approved. Staff further recommends that this adjusted CI take effect on the date it is posted to the public LCFS Method 2 web site, and apply solely to fuel volumes sold on and after that date.