

**Staff Summary
Method 2A Application**

**KAAPA Ethanol, Minden, Nebraska
Corn Ethanol
(Pathway Code: ETHC038)**

Posted Date: April 9, 2015

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. On May 17, 2013, staff certified this reduced CI for KAAPA Ethanol. Later on March 12, 2015, this staff summary was revised to acknowledge that KAAPA is capable of maintaining this CI even if natural gas or electricity consumption levels rise above the levels used to calculate the certified CI of 78.56 gCO₂e/MJ.

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

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

(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. 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).

Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO ₂ e/MJ)		
			Direct Emission	Land Use or Other Indirect Effect	Total
Ethanol from Corn	ETHC038	2A Application*: Midwest; Dry Mill; Wet DGS; NG	48.56	30	78.56

*Specific Condition Apply.

Operating Conditions

Operation at the plant will be subject to the following conditions designed to ensure that the CI of the KAAPA Ethanol pathway will remain at or below the value appearing in the table above. The following conditions must be met for every gallon sold in California.

1. No conditions are placed on the amounts of electricity and natural gas consumed and the ethanol yield at the KAAPA Ethanol plant, so long as the CIs reported in the above table are not exceeded. For purposes of determining compliance with this operating condition, the plant's CI will be calculated based on data from the most recent 12 months of operation, excluding brief periods of abnormal operations, such as planned maintenance or unpredictable, unavoidable, and uncontrollable *force majeure* events. The plant's thermal and electrical energy use, and ethanol yield values, are classified by the applicant as confidential business information.

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, 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 May 17, 2013, and apply solely to fuel volumes sold on and after that date.