Staff Summary
Method 2B Application
BIOX Corporation
Used Cooking Oil, Tallow, Soybean Oil, Corn Oil, and Canola Oil to Biodiesel Pathway
(BIOD022, BIOD023, BIOD024, BIOD025, BIOD026)

Deemed Complete Date: August 21, 2014
Posted for Comment Date: October 24, 2014
Certified Date: TBD

Pathway Summary

BIOX Corporation produces mixed-feedstock biodiesel (BD) at its Oakville, Ontario plant. The plant produces approximately 15.345 million gallons of BD annually. BIOX produces BD from the following five feedstocks: soybean oil, tallow (high energy rendering), used cooking oil (cooking required), corn oil, and canola oil. All five of BIOX's pathways are modified versions of existing Low Carbon Fuel Standard (LCFS) biodiesel pathways.

The plant's modified fatty acid methyl ester (FAME) transesterification process utilizes a co-solvent to increase the feedstock conversion rate. The co-solvent is recycled resulting in a consumption rate of less than 0.00075 gal per gal BD. This modified process can produce BD from both free fatty acids and triglycerides.

BIOX left most of the default input parameters unchanged in its CA-GREET analysis. Only the BD production energy consumption, the electrical generation energy mix, and the transportation distance parameters were changed.

Carbon Intensity of the Fuel Produced

The LCFS lookup table currently contains no pathway covering BD produced in Canada from soy oil, UCO, tallow, corn oil, and canola oil. Therefore, the BIOX pathway falls under the Method 2B provisions of the LCFS. Because BIOX's application was submitted under the Method 2B process, it is not subject to the substantiality requirements with which Method 2A applications must comply (a minimum improvement of five gCO_2e/MJ, and a minimum production volume of ten million gallons per year).

The proposed BIOX pathway CIs are shown in the following table.

Operating Conditions

Operations at the plant will be subject to the following conditions designed to ensure that the CI of the of the BD produced at the BIOX plant will remain at or below the value appearing in the following table for all volumes of BD sold in California:

1) Except for periods of abnormal operations, such as planned maintenance or unpredictable, unavoidable, and uncontrollable *force majeure* events, the total thermal and electrical energy use values specified in the BIOX application shall not be exceeded.

2) All gallons produced under all certified LCFS Method 2 pathways shall inherit the same CI increment from the consumption of process energy at the plant. The applicants may not allocate process energy CIs so as to reduce the total life cycle CI of some subset of the gallons produced (e.g., those being shipped to California) and increase the CI of the remaining gallons. An example of such a reallocation would be associating California-bound gallons with the consumption of biogas and non-California-bound gallons with the consumption of natural gas.

Proposed Lookup Table Entry

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO_2e/MJ		
			Direct Emissions	Land Use or other Indirect Effects	Total
Biodiesel	BIOD022	2B Application*: North American UCO; Biodiesel Produced in Canada	22.45	0	22.45
Biodiesel	BIOD023	2B Application*: North American Tallow; Biodiesel Produced in Canada	46.36	0	46.36
Biodiesel	BIOD024	2B Application*: North American Soybeans; Oil extracted in Canada; Biodiesel Produced in Canada	26.59	62	88.59
Biodiesel	BIOD025	2B Application*: North American Corn Oil; Biodiesel Produced in Canada	11.11	0	11.11
Biodiesel	BIOD026	2B Application*: North American Canola; Oil extracted in Canada; Biodiesel Produced in Canada	36.32	31	67.32

*Specific Conditions Apply

Staff Analysis and Recommendation

Staff has reviewed BIOX's Method 2B application, and finds the following:

- Staff has replicated, using the CA-GREET spreadsheet, the carbon intensity values calculated by the applicant; and
- Staff has concluded that the plant's actual energy consumption is not likely to exceed the energy consumption levels specified in BIOX's Method 2B application.

On the basis of these findings, staff recommends that BIOX's application for a Method 2B pathway be approved.