

**Staff Summary  
Method 2B Application  
Champway Technology Ltd.  
Used Cooking Oil Biodiesel Produced  
(BIOD014)**

Deemed Complete Date: January 6, 2014  
Posted for Comment Date: April 14, 2014  
Certified Date: April 24, 2014

**Pathway Summary**

Champway Technology Ltd., which operates a biodiesel plant in Tuen Mun N.T., Hong Kong, worked with ARB staff to develop a Low Carbon Fuel Standard pathway covering the production of biodiesel from used cooking oil (UCO) in Hong Kong. This pathway was developed using standard LCFS UCO biodiesel production inputs<sup>1</sup>, along with electrical energy generation and transportation inputs specific to Hong Kong. No company-specific confidential information was used in the development of this pathway. The feedstock is assumed to be rendered using the low energy “non-cooking” process.<sup>2</sup> Fuel production and rendering are accomplished using only electricity. No natural gas is used in these processes at the Champway facility. The biodiesel fuel is produced using the standard fatty acid methyl ester (FAME) transesterification process.

This pathway would be available to Champway, and, through the Method 1 process, to any other producers in Hong Kong that utilize the feedstock and production processes and energy use profile, which specifies the percentage of electricity generated from residual oil, natural gas, and coal described in this pathway.

**Carbon Intensity of Fuel Produced**

The Low Carbon Fuel Standard (LCFS) Lookup Table currently contains no UCO-to-biodiesel pathway for facilities operating in Hong Kong. Champway's application, therefore, falls under the Method 2B provisions of the LCFS regulation. As such, it is not subject to the substantiality requirements with which Method 2A applications must comply (a minimum improvement of five gCO<sub>2</sub>e/MJ, and a minimum production volume of ten million gallons per year). The proposed fuel pathway carbon intensity is shown in the following table.

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<sup>1</sup> [http://www.arb.ca.gov/fuels/lcfs/092309lcfs\\_uco\\_bd.pdf](http://www.arb.ca.gov/fuels/lcfs/092309lcfs_uco_bd.pdf)

<sup>2</sup> ARB developed two California UCO-to-Biodiesel pathways ([http://www.arb.ca.gov/fuels/lcfs/092309lcfs\\_uco\\_bd.pdf](http://www.arb.ca.gov/fuels/lcfs/092309lcfs_uco_bd.pdf)). These pathways differ only in the amount of energy used to render the feedstock. The high-energy process uses more energy to heat the UCO than does the low-energy process.

**Proposed Lookup Table Entry**

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO <sub>2</sub> e/MJ (Including Indirect Effects)		
			Direct Emission	Land Use or Other Indirect Effect	Total
Biodiesel	BIOD014	2B Application*: Hong Kong Used Cooking Oil; biodiesel produced in Hong Kong; Cooking not required	34.82	0	34.82

\*Specific Conditions Apply

Operations at the plant will be subject to the following conditions designed to ensure that the CI of the Champway-Hong Kong pathway will remain at or below the value shown in the above table. These conditions must be met for every gallon sold in California:

- The feedstock to the Champway Hong Kong plant must be used cooking oil (UCO) that has not used extra energy for pre-processing (cooking not required) for all gallons of biodiesel produced and sold in California.
- The total pathway-specific electrical energy use (BTU/lb of finished fuel) values reported in Table 1 of the Champway-Hong Kong Method 2B application shall not be exceeded.

**Staff Analysis and Recommendation**

Staff has reviewed the Champway Plant application and finds the following:

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

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