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Sao Paulo, August 24, 2016.

U.S. Department of Energy - Energy Efficiency & Renewable Energy
Via e-mail: *sugarandlignin@ee.doe.gov*

Ref. **Request for Information – RFI – Categories 1 and 2: Lignocellulosic Sugars and Lignin**

Dear Sirs,

We refer to your Request for Information – RFI DE-FOA-0001615, dated July 20, 2016, in relation to which we comment as follows:

Category 2: Lignin:

Question 1: To which types of research entities are you willing and able to sell or otherwise provide your lignin? (e.g., university researchers, national laboratories, industry/private sector)? Are there any types of research entities to whom you are not willing and able to sell your lignin?

The plant is currently designed to burn the lignin at the boiler to produce electricity and steam. We would be willing to sell samples to any research entity.

Question 2: What are the maximum and minimum quantities of lignin that you are willing and able to sell (kg)?

We would be willing to sell samples only (approximately 50-100 kg).

Question 3: In what units do you sell your lignin and is it packaged (e.g., super sacks), or sold in bulk?

Lignin is currently burned at the boiler.

Question 4: How do you ship lignin?

Please see above.

Question 5: What is the lignin concentration in your product?

Bioflex's main product is anhydrous ethanol. There are no traces of lignin in our ethanol. As for the composition of the lignin itself, this is confidential information protected under the agreement with the technology provider.

Question 6: What type(s) of biomass do you use in your process?

We can use any sugarcane residue in our process. In Bioflex 1, we use sugarcane straw (i.e. tops and leaves).

Question 7: What process do you use that produces lignin (dilute acid, ammonium fiber expansion (AFEX), hot water, organosolv, etc.)?

Hydrothermal pretreatment and enzymatic hydrolysis.

Question 8: What details of the scale of your process are you willing to share (e.g. batch and/or continuous or volumetric productivity)?

The plant has a continuous operation. Nameplate capacity is 82 million liters (i.e. 22 million gallons) of ethanol.

Question 9: Do you measure the typical composition of your lignin? If so, what method do you use? How consistent is the composition of your lignin?

No.

Question 10: Do you routinely test your lignin for consistency within and between lots?

Yes.

Question 11: What impurities are present in your lignin and what testing do you perform to determine the presence of impurities?

Silica and ash.

Question 12: Does your process include a purification or filtration step?

Yes, it includes.

Question 13: What is the typical concentration in g/L you can provide?

Confidential information.

Question 14: Have you examined the impacts of transport and storage on lignin? If so, can you please provide any relevant (non-proprietary) details of these impacts?

No.

Question 15: What additional information are you willing and able to provide to the research community about the lignin? Please provide any non-proprietary cost information you are willing to share.

No.

Question 16: Into what markets do you typically sell your lignin? What is a typical application for your lignin?

Lignin is currently burned at the boiler.

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