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U.S. Department of Energy
Bioenergy Technologies Office
Submitted via email to sugarandlignin@ee.doe.gov

RE: Request for Information (RFI) DE-FOA-0001615: Cellulosic Sugar and Lignin Production Capabilities

DuPont appreciates the opportunity to provide feedback in response to the Department of Energy, Bioenergy Technologies Office Request for Information on Cellulosic Sugar and Lignin Production Capabilities. [RFI DE-FOA-0001615].

DuPont brings an unparalleled combination of science competencies and almost 90 years of agronomy expertise in Iowa to commercialize cellulosic ethanol and a biomass supply chain. Since 2009, we have operated a demonstration cellulosic ethanol facility in eastern Tennessee producing fuel from both corn stover and switchgrass. This work culminated in the construction and completion of a 30-million gallon per year facility located in Nevada, Iowa that is scheduled to begin producing cellulosic ethanol from corn stover in 2016. In Iowa, we have worked closely with farmers, equipment makers and others for four years of large-scale corn stover harvest trials to demonstrate the ability to manage a cost-effective cellulose supply chain. DuPont is collaborating with more than 500 local farmers to gather, store and deliver 375,000 dry tons of corn stover each year. Stover will be harvested from 190,000 acres of farmland within 30 miles of the plant. Two facility coproducts that contain lignin include wet filter cake and liquid syrup.

DuPont is pleased to provide the following responses for 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?
Response: DuPont is willing to work with a variety of research entities as long as appropriate material transfer agreements and conditions are mutually agreed upon.

Question 2: What are the maximum and minimum quantities of lignin that you are willing and able to sell (kg)?
Response: DuPont will provide appropriate quantities of lignin based co-products for evaluation purposes.

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

Response: DuPont's lignin based co-products will be sold in bulk. Sample quantities can be made available in smaller containers.

Question 4: How do you ship lignin?
Response: DuPont's lignin based co-products will be shipped in bulk containers. Sample quantities can be shipped in smaller containers.

Question 5: What is the lignin concentration in your product?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

Question 6: What type(s) of biomass do you use in your process?
Response: DuPont's nearly commercial facility in Nevada, IA will utilize corn stover. However, our conversion technology can utilize a variety of bio-mass.

Question 7: What process do you use that produces lignin (dilute acid, ammonium fiber expansion (AFEX), hot water, organosolv, etc.)?
Response: DuPont's process utilizes dilute ammonia and steam as pre-treatment technology.

Question 8: What details of the scale of your process are you willing to share (e.g. batch and/or continuous or volumetric productivity)?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

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?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

Question 10: Do you routinely test your lignin for consistency within and between lots?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

Question 11: What impurities are present in your lignin and what testing do you perform to determine the presence of impurities?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

Question 12: Does your process include a purification or filtration step?
Response: DuPont's process includes purification and filtration steps.

Question 13: What is the typical concentration in g/L you can provide?
Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

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? Response: DuPont considers this information proprietary and will provide with appropriate confidentiality agreements.

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.
Response: DuPont will provide additional information with appropriate confidential agreements.

Question 16: Into what markets do you typically sell your lignin? What is a typical application for your lignin?
Response: DuPont is pursuing a variety of markets for the lignin based co-products with several potential customers under confidentiality agreements.