CALYSTA Energy™ NatureWorks

Calysta Energy™ and NatureWorks Announce an R&D Collaboration to Transform Methane into the Lactic Acid Building Block for Bioplastics

This multi-year research and development project is aimed at feedstock diversification, innovatively utilizing methane, a potent greenhouse gas. Project success would mean that Ingeo™ polymers would be even more cost competitive than they are today.

MENLO PARK, Calif., and MINNETONKA, Minn., June 18, 2013 — Calysta Energy™ and NatureWorks have entered into an exclusive, multi-year collaboration to research and develop a practical, world-scale production process for fermenting methane – a potent greenhouse gas (GHG) – into lactic acid, the building block for Ingeo™, lactide intermediates and polymers made from renewable materials. If the collaboration results in the successful commercialization of this first-of-its-kind technology, the cost to produce Ingeo would be structurally lowered, and the wide range of Ingeo based consumer and industrial products could be produced from an even broader set of carbon-based feedstocks, complementary to what is already in use by NatureWorks.

A greenhouse gas 20 times more harmful than carbon dioxide, methane is generated by the natural decomposition of plant materials and is a component of natural gas. Methane is also generated from society's organic wastes and is produced from such activities as waste-water treatment, decomposition within landfills and anaerobic digestion. If successful, the technology could directly access carbon from any of these

sources. Determining the feasibility of methane as a commercially viable feedstock for lactic acid may take up to five years, according to NatureWorks.

Feedstock diversification for Ingeo

"If proven through this R&D collaboration, the new technology could be revolutionary because it will provide alternatives to the current reliance on agricultural feedstocks, and with the direct conversion of methane, it will greatly simplify the number of steps and operations needed to convert carbon into performance consumer products," said Marc Verbruggen, president and CEO of NatureWorks. "This could structurally lower the cost of producing Ingeo."

Currently, Ingeo relies on carbon from CO_2 feedstock that has been fixed or sequestered through photosynthesis into simple plant sugars, known as "first generation materials." NatureWorks' flagship facility in Blair, Neb., uses industrially sourced corn starch, while its second facility currently in planning for a location in Southeast Asia will use cane sugar. In parallel with the collaboration, NatureWorks is continuing its broad technology assessment of "second generation" cellulosic sources of carbon. In the case of Southeast Asia, opportunities exist for harvesting cellulosic sugars from bagasse, an abundant lignocellulosic byproduct of sugarcane processing.

The research and development collaboration with Calysta Energy relates to NatureWorks strategic interests in feedstock diversification and a structurally simplified, lower cost Ingeo production platform. Calysta Energy is developing its BioGTC™ (biological gas-to-chemicals) platform for biological conversion of methane to high value chemicals. For NatureWorks, methane could be an additional feedstock several generations removed from simple plant sugars. The project will wrap up with an

evaluation of potential sources of a methane feedstock for commercial scale production of lactic acid. The evaluation will include criteria such as purity, availability, price, location to customers, GHG sequestration potential and environmental and energy impacts. Feedstock diversification supports the organization's goal of utilizing the most abundant, available and appropriate sources of carbon to produce Ingeo for the local geographic region served by a NatureWorks' production facility.

"We are pleased to be partnering with NatureWorks, an industry leader in renewable technology and biopolymer business development," said Alan Shaw, Ph.D., chairman, president and CEO of Calysta Energy. "Calysta's proprietary technology enables a novel route from a significant greenhouse gas to high-value industrial chemicals such as lactic acid. This approach demonstrates the power of biology compared to chemical transformation. Specific products, such as lactic acid, would be extremely difficult to make economically from methane using traditional catalysts.

"Calysta technology offers NatureWorks a competitive advantage through excellent product performance at a lower cost, and we look forward to a productive collaboration. This exclusive project validates our value proposition of converting existing, proven biological pathways to advantaged feedstocks."

The companies will share commercialization rights for select products developed under the agreement.

Note to Editors:

Josh Silverman, Ph.D., CSO of Calysta Energy, will be speaking today at 8:30 am on a panel titled "Direct Conversion of Methane to Higher Value Products Using Biological Systems" at the BIO World Congress on Industrial Biotechnology in Montreal.

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About NatureWorks

NatureWorks LLC is a company dedicated to meeting the world's needs today without compromising the earth's ability to meet the needs of tomorrow. NatureWorks LLC is the first company to offer a family of commercially available, low-carbon-footprint Ingeo™ lactides and biopolymers derived from 100 percent annually renewable resources with performance and economics that compete with oil-based intermediates, plastics, and fibers, and provide brand owners new cradle-to-cradle options after the use of their products. NatureWorks is jointly owned by Thailand's largest chemical producer, PTT Global Chemical, and Cargill, an international producer and marketer of food, agricultural, financial, and industrial products and services.

About Calysta Energy

Calysta Energy, Inc. (www.calystaenergy.com), Menlo Park, CA., is developing a new biological gas-to-liquids™ (BioGTL™) and biological gas-to-chemicals (BioGTC™) technology using methane as a new feedstock for high value industrial chemicals and transportation fuels with cost and performance advantages over current processes.

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