



Johnson Matthey
Process Technologies



**Johnson Matthey Process Technologies and Renovia Announce On Time Start-up
of Mini-Plant for Bio-Based Glucaric Acid Production Using Jointly Developed Technology**

Major milestone accomplished in commercialization of breakthrough process technology

London, England & Santa Clara, CA – July 16, 2015 – Johnson Matthey Process Technologies, a global provider of advanced process technologies, and Renovia Inc., a privately held company that develops novel catalysts and processes for the cost advantaged production of chemical products from renewable feedstocks, announced today that they have successfully started-up a mini-plant for production of glucaric acid from glucose using jointly developed technology.

In March 2014, Johnson Matthey and Renovia announced their collaboration to develop and commercialize production technology for bio-based glucaric acid and adipic acid. Adipic acid, an industrial chemical conventionally derived from petroleum, is a multi-billion dollar global market, with major applications in nylon fibers and engineering polymers, polyester polyols for polyurethanes, and adipate esters for phthalate-free plasticizers. Glucaric acid, an intermediate in the production of adipic acid, is an emerging platform chemical with a wide range of applications in detergents and cleaners, concrete formulations, de-icing and anti-corrosion markets.

“The construction of a fully integrated mini-plant to produce bio-based glucaric and adipic acids using Renovia / Johnson Matthey technology is a critical enabler for our collaboration with Renovia. We are delighted to confirm the successful, on time start-up of the 1st phase of the mini-plant based on the jointly developed technology for the catalytic aerobic oxidation of glucose to glucaric acid. The mini-plant is located at the Johnson Matthey Process Technologies R&D Center in Stockton, England” said David Prest, Managing Director Johnson Matthey Process Technologies Chemicals Business.

“In addition we continue, as planned, with the design & construction of the 2nd phase of the facility based on jointly developed technology for the catalytic hydrogenation of glucaric acid to adipic acid. The learnings from this mini-plant will provide the design basis for commercial scale manufacturing facilities and will enable us to provide licensees with process guarantees” added Prest.

“The successful operation of this mini-plant is a major milestone in the scale-up and commercialization of the 1st products using Renovia / Johnson Matthey technology and demonstrates the strategic importance of our partnership with Johnson Matthey Process Technologies” said Robert Wedinger, President and CEO of Renovia. “We look forward to continuing to work closely together as they expand the mini-plant’s capability to include production of adipic acid. We continue to see this as an excellent way to accelerate the commercialization of our innovative process technology for the production of cost advantaged glucaric and adipic acids”.

About Johnson Matthey Process Technologies:

Johnson Matthey Process Technologies is one of five divisions within Johnson Matthey group, and a key part of the company's strategy for future growth. The division is a global supplier of catalysts, licensed technologies and other services to the petrochemical, syngas, oil refining and gas processing industries. The division serves customers around the world and has manufacturing sites in the UK, USA, Sweden, Germany, India and China, supported by technology development facilities in the UK and US and technical offices in all of the key markets worldwide.

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About Rennovia:

Rennovia is a chemical process technology development company focused on the creation of novel processes for the cost advantaged production of commodity and specialty chemicals from renewable feedstocks. For further information, visit www.rennovia.com or e-mail info@rennovia.com.

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