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Johnson Matthey Davy Technologies Ltd. and Rennovia, Inc. to develop and commercialize production technology for bio-based glucaric acid and adipic acid

Johnson Matthey Davy Technologies Ltd. (JM Davy), a global provider of advanced process technologies and Rennovia, Inc., a development stage company focused on the production of commodity and speciality chemicals from renewable feedstocks, announced today that they are embarking on a collaboration to develop, demonstrate and commercialize catalytic process technologies for the production of bio-based glucaric acid and adipic acid.

Under the collaboration, Rennovia and JM Davy will work together to develop and demonstrate the processes based on Rennovia's technology for the catalytic aerobic oxidation of glucose to glucaric acid, as well as the catalytic hydrogenation of glucaric acid to adipic acid. The goal of the collaboration is to develop and jointly license a technology package enabling commercial production of these chemical products.

Adipic acid, an industrial chemical conventionally derived from petroleum, is a multi-billion dollar global market, with major applications in nylon-6,6 fibers, engineering resins, polyester polyols for polyurethanes, and adipate ester plasticizers. JM Davy and Rennovia anticipate delivering technology capable of producing a bio-based adipic acid equivalent to the petroleum-based product, at a lower cost, and with a significantly improved environmental footprint.

Glucaric acid is an emerging platform chemical with wide applications in detergent, de-icing, cement, and anti-corrosion markets.

"JM Davy is excited at the prospect of co-developing and licensing the process to produce glucaric and adipic acid with Rennovia and promoting the technology throughout the world", said Antoine Bordet, Managing Director of JM Davy. "JM Davy sees this as an opportunity to extend its bio-based process technology portfolio which has already licensed 1.5 million tonnes of bio-based chemical product utilizing catalytic chemical transformations".

"With their extensive experience developing and licensing catalytic process technologies across a wide range of bio-based and petrochemical markets, Rennovia considers JM Davy an ideal development and licensing partner for our renewable glucaric acid and adipic acid products," said Robert Wedinger, President and CEO of Rennovia. "We look forward to working with JM Davy to deliver technologies to the marketplace that are scalable, less capital-intensive, and cost-advantaged over current petrochemical processes."

JM Johnson Matthey Davy Technologies



About JM Davy

Johnson Matthey Davy Technologies Ltd. is a global business developing and licensing proprietary technology for the chemical process industries and transferring the know-how, through provision of basic engineering packages and related technical services including commissioning support. JM Davy has its headquarters in London, England, a technology centre in Teesside in the North of England and a client support office in Beijing, China. JM Davy utilises a range of reaction technologies including, hydrogenation, oxidation, esterification, hydroformylation, reforming, synthesis etc. on which its proprietary processes are based.

About Rennovia

Founded in 2009, Rennovia, Inc. is a chemical process technology development company focused on the creation of novel processes for the cost-advantaged production of commodity and speciality chemicals from renewable feedstocks. In addition to adipic acid and glucaric acid, Rennovia also is developing a bio-based hexamethylenediamine (HMD), an important building block for a wide range of functional materials, including nylons and polyurethanes. For further information, visit <u>www.rennovia.com</u>.