

GFBiochemicals and American Process Inc enter into a joint development agreement to create the largest integrated cellulosic bio-refinery in the world

- **GFBiochemicals and American Process Inc. to lead consortium in developing a large integrated bio-refinery in the U.S**
- **Products deriving from the bio-refinery will address a market with an estimated annual value of USD 10 billion for GFBiochemicals bio-polyols**

Milan, Italy / Atlanta, U.S; 24 March 2017 – GFBiochemicals and American Process Inc. (API), leaders in the global bio-product industry, are pleased to announce that they have entered into a joint development agreement to create the largest integrated cellulosic bio-refinery in the world. The agreement between API and GFBiochemicals is rooted in their complementary industrial operations and joint vision for a lower-carbon future. The proposed bio-refinery, located in the U.S, is expected to create 50-200 thousand tonnes per annum of bio-based products, addressing markets with a potential annual value of USD 10 billion.

Dr. Theodora Retsina, founder and CEO of API, said:

“This agreement will be instrumental in delivering the new biorefinery and introducing high-quality bio-based products to the market at commercial scale. It will exploit synergies between our two companies and bring other parties to the consortium to create a world-class integrated biorefinery. This will be a structured process, powered by both the learning from our own success and failures and those of others in this space. We are pleased to join forces with GFBiochemicals in our shared vision to develop a viable bioeconomy.”

Pasquale Granata, Co-Founder of GFBiochemicals, said:

“We are proud to be working with American Process as we move to the next phase in our strategy. Over the past few years we have de-risked our patented technology and have proven that it can produce levulinic acid at a competitive cost to the oil-based equivalents. Together with American Process we will be able to scale up our production of levulinic acid as well as offering a larger variety of bio-based products to the market.”

Both companies will be active in manufacturing products at the proposed biorefinery site. These include bio-polyols, bio-plasticisers, bio-esters and bio-solvents manufactured by GF Biochemicals; and bioethanol, nanocellulosic products and sugars from wood manufactured by API.

API and GFBiochemicals will be cornerstone members of a consortium to develop the biorefinery by repurposing an old industrial site that has an existing biomass supply chain. The global market for bio-based chemical substitutes is set to grow substantially as industrial and energy companies seek environmentally sustainable alternatives for their raw materials that can compete on price and performance with oil-based equivalents. For example, according to Statistics MRC the global market for

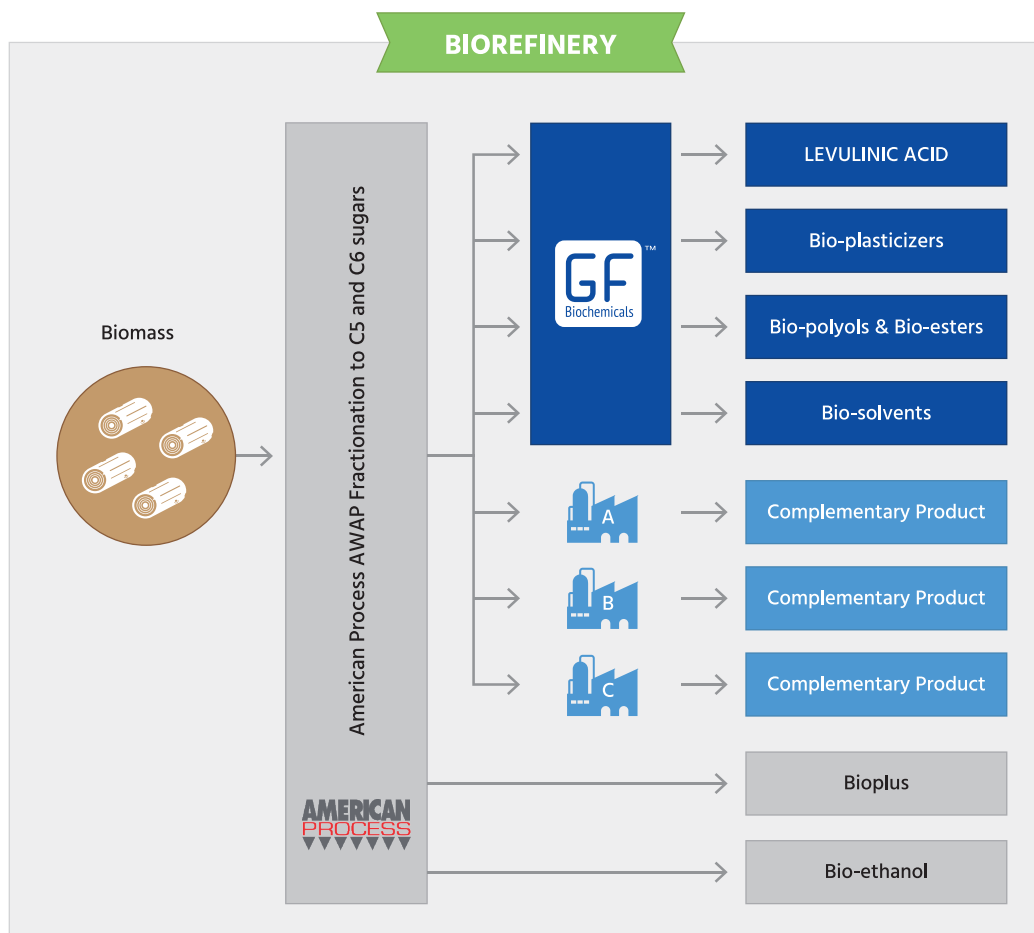
polyol, used in the creation of polyurethane foams used in refrigerators and construction, is set to grow from \$19.3bn in 2015 to \$35.8bn in 2022.¹ To achieve this the proposed biorefinery will have the advantages of large scale, an established biomass supply chain, good logistics and the use of patented, proven technologies.

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API’s existing bio-refinery in Georgia can process any biomass or mixed feedstock to produce clean, low-cost, cellulosic sugars. Sugars from that plant have already been converted to chemicals by many companies. Their performance equals that of dextrose. API has also developed Bioplus®, a nanocellulose technology with high functionality and more than 30 nanocellulose applications. GF Biochemicals has already scaled up its own technology to produce levulinic acid and its derivations at commercial scale directly from biomass. For instance, it can produce levulinic acid from sugars deriving from wood. The acid can act as a building block molecule for various industrial applications.

¹ http://www.abnewswire.com/pressreleases/polyols-market-size-analysis-trends-report-share-investment-opportunities-and-forecast-to-2022_98899.html

GFBiochemicals

GFBiochemicals is the largest producer at a global level of levulinic acid and its derivatives (bio-polyols, bio-plasticisers, bio-esters and bio-solvents) at commercial scale directly from biomass. The company has a unique set of proprietary technologies that allow levulinic acid and formic acid production with a one-step process directly from a wide range of cellulosic feedstock. GFBiochemicals has an international presence with headquarters in Milan, Italy, R&D and commercial office in Geleen, The Netherlands and production sites in: Caserta, Italy and Minnesota, USA.

American Process

American Process, founded in 1995, is an engineering and technology company. Together with its affiliates, AVAPCO and American Green, it has developed and demonstrated technologies for producing clean, low cost, cellulosic sugars and cellulosic ethanol as intermediate fungible feedstocks that can be effectively converted to cellulosic derived fuels, chemical and materials. With a vast portfolio of patent and patent pending technologies, it is currently developing commercial projects for the next size of scale-up. It has offices operations in Atlanta and Thomaston Ga, USA, as well as in Alpena, Mi and Athens Greece and Cluj Napoca, Romania.