Renewable Chemicals: How Big, How Soon?

By JIM LANE, Biofuels Digest

This week, a report from GIA projected that the renewable chemicals market would reach US$56.9 billion in sales by the year 2015 [1]. “Growth in the market is especially driven by factors such as a strong pipeline of novel products, government policies, energy prices, consumer awareness and concerns for global warming,” the authors said.

With a global speciality chemicals market of $500 billion to sell into, that’s a big bite of market share from the old line petrochemicals companies.

Response from the Old-Line Majors

Plastics News warns: “Renewable-chemicals companies will face the ultimate test [2]: competing against petrochemicals from oil companies able to wage price warfare against fledgling rivals.”

But the same report from Plastics News, which profiles the rising fortunes at Elevance, which has reached $10 million in sales and is aimed to reach $1 billion in 2016.

“[They] are capitalizing on financial dynamics well-known to oil industry bean counters: 90 percent of crude oil goes into gasoline, but 40 percent of the profits come from petrochemicals,” the report says in defining the essence of the opportunity.

“Why make a $2 fuel when you can make a $5 chemical?” Cobalt Technologies CEO Rick Wilson commented in a recent interview with the Digest. Elevance confirms that it is able to sell some of its soy-based chemicals for as much as $4.50 per gallon.

Fast Growth in Asia

For that reason, there is a heady amount of construction, much of it currently in Southeast Asia, for larger-scale facilities for these companies and their technologies. Elevance is aiming to open the largest renewable chemicals biorefinery, in Indonesia, in a JV with Wilmar International. Over in Malaysia, GlycosBio is setting up shop in a massive new biotech complex on the north side of the Singapore Strait.

Further evidence of fast growth comes from a sister report from GIA, which projects that the succinic acid market will reach 144.7 thousand tons by 2012, "driven by the anticipated rise in the use of bio-based succinic acid as an eco-friendly and low-cost replacement for conventional petroleum-based processes. Growth is also led by rising demand for using succinic acid as a building block in various high-value and high-volume chemicals such as 1, 4 Butanediol (BDO)." That a compound annual growth rate of 23.5 percent.

Among the Developers

Among the companies chasing the succinic acid market: Agro-Industrie Recherches et Développements, Anhui Sanxin Chemical Co., Ltd., Anqing Hexing Chemical Co., Ltd. BASF SE, Bio-amber S.A.S, DNP Green Technology Inc., Kawasaki Kasei Chemicals Ltd., MBI International, Myriant Technologies LLC, Roquette Frères S.A., and Royal DSM N.V.

Potential opportunities exist for the use of bio-based succinic acid [1] as replacements for butane-based maleic anhydride, which is widely used in the manufacture of polymers, which are conventionally produced from butane. Bio-succinic acid's use in polyols and polyurethanes production process, presently involving the use of adipic acid as a precursor, is also likely to boost prospects in the succinic acid market. Another potential area of growth is green solvents and eco-friendly chemicals for water treatment.

$56 Billion — Possible? Pipe Dream? New Reality?

So is $56 billion possible? Given the time it takes to put steel in the ground – and we are looking here at as much as 8 million tons of product in an industry where individual facilities range from 1,000–20,000 tons, it could take more than 100 plants to reach that level, and time to plan, permit, build and open may not be there by 2016.

But the growth rate will be staggering, by all accounts. Because majors with balance sheets are circling around the niche, looking at the opportunities.

"We finally appear on [major company] radar and they are taking notice [3]," Damien Perriman of Verdezyne told ICIS. Verdezyne is moving from lab to pilot stage with its process for producing a bio-based adipic acid. "They're sending people to participate in the discussion and is actually becoming more aware of what

we are developing in the pipeline."

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