

Bioprocessing

DuPont, Genencor Close In on Biological Propanediol Route

DUPONT AND RESEARCH PARTNER Genencor (Rochester, NY) say they have improved their glucose-to-1,3-propanediol (PDO) bioprocess and will be ready to run it as a pilot plant next year.

Genencor says that scientists achieved more than a 500-fold improvement in productivity by combining the enzymes from two microbes into a single strain. DuPont uses PDO as precursor for its 3GT poly(trimethylene terephthalate).

"The team is ahead of schedule and we are confident we can engineer the production system to get the biocatalytic performance needed to take the next step," says Karl Sanford, v.p./technology at Genencor. DuPont will own the final process, but Genencor will have rights to any results that are useful to its work in areas such as industrial enzymes. Genencor is a joint venture of Eastman Chemical and Danisco.

Decisions on the scale and location of a pilot plant have not been finalized. It would likely need 10,000-50,000 liters of fermentation capacity, says Robert R. Dorsch, director/biotechnology development at DuPont. DuPont and Genencor

may contract out the pilot plant to a fermenter, rather than use their own infrastructure, he says.

Chem Systems' (Tarrytown, NY) analysis of the PDO bioprocess last year indicated that back integration to corn-derived glucose would be key to its competitiveness (*CW Sept. 16, 1998, p. 41*). DuPont has begun talks with corn wet millers to secure that supply, Dorsch says.

Mark Morgan, a project manager at Chem Systems, says DuPont has probably developed a bacteria strain that is tolerant to high concentrations of PDO, can operate in an aerobic fermentation process, and delivers a yield of more than 1.4 moles PDO per mole of glucose. If the DuPont strain meets those criteria, its process could compete with ethylene oxide- and acrolein-based PDO plants, he says.

The PDO project is part of DuPont's goal of generating one-quarter of its revenues from renewable resources by 2010 (*CW Sept. 29, p. 13*). Dorsch could not say whether the PDO project would be a significant contribution to this goal.

—SAMUEL K. MOORE

Plasticizers

Phthalate Ban Could Boost Demand for Alternatives

MAKERS OF ALTERNATIVES TO phthalate plasticizers say the recent proposal for a European Union (EU)-wide ban on phthalates in soft polyvinyl chloride toys will lead to increased products sales (*CW Nov. 17, p. 6*).

"There is a lot of watching and waiting by interested parties," says David Gleeson, president of Reilly Industries' subsidiary Morflex (Greensboro, NC), the largest citrate plasticizers maker.

A ban would mean increased sales of citrate plasticizers to Europe, as well as Asia, where the majority of the toys are made, he says. Morflex has sufficient capacity to take over from phthalates in teething toys, says Gleeson. "That segment is very small, probably less than 5 million lbs/year."

Makers of adipates, another phthalate alternative, could also benefit. "Adipates

have not been the product of choice because of their higher cost, but we are ready if the market grows significantly," says Tyler Houzel, director/industrial applications at Inolex (Philadelphia). Inolex recently boosted its raw materials supply for adipates, buying AlliedSignal's adipic acid business (*CW July 28, p. 12*).

Epoxidized soy bean oil (ESO) is another phthalate alternative. CK Witco and toy makers are considering using ESO, but there are technical hurdles, including the higher ratio of plasticizer to resin needed, says Lawrence Brecker, v.p./business and technology development/polymer additives at CK Witco. In addition, ESO must be accompanied by a biocide.

However, ESO has FDA approval, and could be used in combination with citrates.

—SKM

CONGRESS

CHAFEE TO HEAD SUPERFUND PANEL

Senator Lincoln Chafee (R., RI) was named chairman of the Senate subcommittee on Superfund last week. Chafee takes over from Robert Smith (R., NH), who now heads the full Senate Environment and Public Works Committee (*CW, Nov. 10, p. 12*).

"I have every confidence in Senator Chafee's ability to craft fair and balanced policies," says Smith.

Chafee will fill the seat of his father, John Chafee (R., RI), who died last month, until the 2000 elections.

The subcommittee has jurisdiction over Superfund, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, and other issues of risk assessment.

Senator Frank Lautenberg (D., NJ) will remain as the panel's ranking member.

Environmental groups frequently praised John Chafee. He was also respected by CMA and other business organizations as a moderating and effective force on the committee.

Lincoln Chafee shares many of the same views, sources say.

—NEIL FRANZ in Washington

WRAP-UP

NL INDUSTRIES has approved a 1.5-million share repurchase program, which represents about 3% of its 51.6 million outstanding shares. Under the repurchase plan, NL has already repurchased 205,600 shares at an average price per share of \$11.27/share. NL will use its available cash flow to buy the shares.

CK WITCO subsidiary Uniroyal Chemical has priced its tender offers for its outstanding 9% senior notes due 2000 and 10.5% senior notes due 2002. Uniroyal will pay \$1,022.46 for each 9% note, and \$1,097.10 for each 10.5% note, including a \$25 incentive payment. The tender offers expire on December 6. Merrill Lynch (New York) is managing the tender offers.

PT TRI POLYTA (Jakarta) says it may have its American Depository Receipts delisted from the New York Stock Exchange if its financial position does not improve. The company failed to meet several listing.