

Life Cycle Analysis of Products made with Bio-Based 1,3-Propanediol

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DuPont Bio-Based Materials and its development partner Tate & Lyle have recently formed a joint venture to produce Bio-PDOTM (bio-based 1,3-propanediol) in a full-scale facility as soon as 2006. Carbohydrates from corn provide a renewable feedstock for a fermentation based process which utilizes a genetically engineered bacteria to convert glucose to PDO. PDO is a key ingredient of Sorona^(R) Polymer, which is the latest advanced polymer platform developed by DuPont, with applications in apparel, upholstery, carpets, automotive interiors, films, packaging and speciality resins.

Previous cradle-to-gate Life Cycle Analyses (LCA) have been presented comparing the biological route to PDO using a renewable feedstock versus a chemical route based on petrochemical feedstocks. The next step is to conduct cradle-to-grave LCAs, which assess the environmental profiles of products made with Sorona^(R) polymer and compare the results to similar products that do not contain a bio-based component. This presentation contains the results obtained to date.