

448b Factors Influencing the Sustainability of Bio-Based Propanediol

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Abstract – 1,3 propanediol (PDO) is a key ingredient in the latest advanced polymer platform developed by DuPont, Sorona® Polymer. Sorona has applications in clothing, carpets and automotive interiors. DuPont and its partner, Tate and Lyle, will start operation of a full scale, commercial facility in 2006. Development of PDO as a sustainable product has followed a trajectory which includes the original visioning of a renewable resourced feedstock; bioengineering to improve yield and economic feasibility; development of PDO products with superior properties to incumbent products; and process development which emphasized yield and energy efficiency. Customer acceptance was accelerated by early introduction of chemical PDO. Cradle-to-Gate life cycle assessment studies were employed to help guide priorities in process development and to quantify benefits. The result of this emphasis on sustainability has been the development of processes and products which increase the value to customers and downstream processors, are economically attractive, and which feature reduced energy consumption and greenhouse gas emissions.