

BALI™ Commercialization

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Founded as a sulfite paper mill more than 120 years ago, the Borregaard biorefinery has evolved into one of the world's most advanced operating biorefineries. Borregaard has developed a new pretreatment and hydrolysis process for recalcitrant lignocellulosic biomass. This process, called BALI™, allows for easy conversion of cellulose to glucose with low cellulase enzyme consumption combined with attractive process economics. This process addresses three of the main challenges identified by other pretreatment technologies: 1) Lignin binds to enzymes, requiring higher dosing and preventing recycling, 2) Impure and strongly condensed lignins are unattractive for most lignin applications and 3) Low yields of value added products and high yields of products valued only by their energy content result in an unfavorable mass balance and process economy. The BALI process solves these challenges simultaneously, and has resulted in a sulfite based pretreatment process that yields a commercial grade lignin and a low cost pulp that can be hydrolyzed with enzymes under industrially relevant conditions. Borregaard sees greater potential in this pretreatment process and is therefore seeking cooperation with those who want to build on the glucose platform. Results from continuous operation of the 2 MT/day demonstration plant and future commercial opportunities will be presented.