

REVIEW ARTICLE

**Dissolving wood pulp production: a review**

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**Abstract**

Studies have elucidated that the trends in dissolving pulp markets worldwide are growing consistently and rapidly. In 2018, the global revenue generated from dissolving pulp amounted to \$9.3 billion, this being a 6.50% increase from the previous year. Dissolving pulp is a high-purity cellulose product predominantly produced from wood and is used in a wide variety of applications such as pharmaceutical, textile, food, paint, and coating industries. In recent times, the demand for dissolving pulps has shown a buoyant increase leaving a wide gap between supply and demand. A review of literature highlighted that two dominant manufacturing processes for dissolving pulp employed by industries across the world are the prehydrolysis kraft (PHK) and AS processes. Factors identified to significantly affect both processes include raw material characteristics, processing conditions such as temperature, time, and the type and concentration of chemicals used in the various processes (pretreatment, pulping, and posttreatment). Several pre-pulping treatments and post-pulping treatments have been identified as key processes that assist in achieving the desired cellulose purity. These processes are water, energy, and cost-intensive and make use of several chemicals to achieve a finished product of desirable quality. At the same time, these processes generate significant quantities of waste, thereby posing environmental concerns. The current focus of dissolving pulp production is centered on the development of environmentally friendly processes or advancements in existing processes to reduce environmental impact and improve production efficiency at modest capital investments. In this paper, a comprehensive review of the literature was undertaken to evaluate existing technologies and identify emerging ones in the field of dissolving pulp production. The review is purposeful in providing a concise understanding of dissolving pulp production and outlines the relative strengths and weaknesses of existing and novel processes and helps individuals keep abreast of the latest trends in the field. Furthermore, a brief overview of biorefinery opportunities emerging from dissolving pulp processes and their respective applications are provided.