TISSUE PAPER TECHNOLOGY ROADMAP: A SUPPORT FOR PRODUCT QUALITY IMPROVEMENT

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ABSTRACT

Even though the history of the use of paper for hygiene purposes dates back to the century VI A.D., the emergence of toilet paper, as a replacement for wool blankets and similar materials, begins commercially in 1857, with the launch of individual flat sheet packages, that was available until the 1920s. Throughout history, tissue paper manufacturing technology has been notably driven by end consumer criteria who, once in contact with an improved product, is unlikely to go back to the one of the previous era. In this work, the layers of the market, product properties, technology and research and development, which led to the current state of the art in tissue paper manufacturing, are analyzed. These layers are connected in form of technological resources, desired qualities, motivations for using tissue paper and times when they were placed on the market. To this end, combined with the analysis of publications in the literature, knowledge of the technologies offered by equipment suppliers and paper manufacturers, an analysis of the evolution of patents is added to describe the convergence of technology. Initially, the formalism of the method adopted for a technology roadmapping is explained, which represents a form of rational view of perspective and analysis of competitiveness. The motivating forces and barriers to product development are also listed. It concludes with considerations on uncertainties and technological forecasts of future developments, within a risky environment.

Keywords: paper properties, review. roadmap, technology forecasting, tissue paper.