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“Sustainability in the pulp and paper industry: Identification of potential improvements in environment-related sectors to develop a graphic paper factory based on 100% recycled paper with a closed water cycle”

Thursday, March 19  
13:00 – 14:00

Seminar Room 115, Hallwachsstr. 3 (HAL)

The paper industry has been and is still seen by many parts of society as a sector consuming large quantities of wood and water. Although the specific consumption per ton of paper produced has steadily declined over the last decades by reasons of ecological and economic terms.

It counts due to their high consumption, especially for drying, to the "energy intensive enterprises" and is exempt under certain conditions of the EEG apportionment. Regardless of the discussions on this exception to the subsidy of renewable energy sources and the consumption reductions already achieved the pressure to reduce costs within the paper industry is very strong pronounced by the general economic situation and the industry-specific problems.

Particularly by digitization most affected graphic paper segments out of the book, newspaper and magazine papers, the competition is marked by a large overcapacity in the market and leads to shut-downs of capacities in Europe. Therefore, for small and medium-sized enterprises it is necessary to develop survival strategies.

What have to be worked out will be the developing of concepts how to achieve the closure of the water circuits of a graphic paper producing company with a holistic consideration of all relevant material and energy flows of a paper mill.

In particular processes the use of new and innovative materials is indispensable and will be included in the considerations.
During his studies of “Wood science and technologies” at the University of Hamburg he worked on a market study on graphic super-calendered papers (“Production and market of SC-papers especially made from 100% paper for recycling in Europe”), the enzymatic hydrolysis of cellulose (“Determination of enzyme activity according Filter paper analysis”) and the wood particle utilization outside the pulp and paper industry (“Wood particle utilization and technical requirements outside the pulp and paper industries”).

In the moment he is working on his doctorate on the “Holistic consideration of the sustainability in the paper production: Identification of potential improvements in environment-related sectors to develop a graphic paper factory based on 100% recycled paper with a closed water cycle” in the group of Prof. Gianaurelio Cuniberti. The main topics of this work are further purification procedures such as biological processes, membrane technology or ozonisation which are not yet well represented in the water cycle purification of the paper industry until now. For a further reduction of the specific water demand in the German paper industry, it is necessary to overcome existing barriers in the use of such extensive cleaning procedures (e.g. scaling and fouling problems), and to reduce high concentrations of dissolved substances in the circulating water of highly concentrated water circuits.