

**Title of the Abstract:**

Reinventing Femtech with functionalized plant-based viscose fibre solutions

**Abstract**

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The increasing pollution of the world's oceans and inland waters by plastics is a central problem that requires fast rethinking and innovating in the field of feedstock materials. According to estimates, the annual plastic input into the oceans is between 4.8 and 12.7 million tons<sup>1)</sup> and leads to irreversible damage to ecosystems due to the inadequate degradability. Hygiene products play an essential role in this and are listed by the EU in the top 10 of the most significant marine waste streams in terms of volume<sup>2)</sup>. Conventional feminine hygiene products such as sanitary towels are made of up to 90% crude oil-based plastic<sup>3)</sup>, which is mainly used for high performance (e.g. superabsorbents). In her life, a woman uses an average of approximately 13.000 of these products, which also exacerbate the waste problem on land<sup>4)</sup>. Incontinence products or diapers also pose a problem here. As a consequence, an innovation shift towards biodegradable products is essential. At the same time, the technological requirement must also be that performance does not have to be given up for increased sustainability. An equivalent or even higher performance of in e.g. absorbent layers has to be achieved through the use of biodegradable fibres based on renewable resources. The possibility of modification, e.g. cross-sections or functionalization, make viscose fibers a unique and versatile fibre technology, which can be specifically tailored to requirement profiles. The viscose fibre consequently combines the use of a sustainable raw material with the focus on customer-benefit-oriented innovation. Sustainability is already an important benefit dimension in many areas, but not all consumers are prepared to forego product performance in return. The lecture shows how Kelheim Fibres innovative cellulose-based fibres can contribute to the improvement of Femtech products that focus on increasing the well-being of women at any age and by also considering sustainability requirements. Using the example of hygiene products, it is explained what influence the switch to plant-based fibers can have on the waste balance and how a maintenance or an increase in performance is made possible. It will be also shown how functionalized cellulose fibres can be used for textile solutions that for example support women's' wellbeing in menopause (thermoregulation). The lecture illustrates how innovation approaches that combine sustainability with technical innovation can promote the use of biodegradable fibers in the field of femtech solutions, putting the women at the center of product development.

1) <https://www.nabu.de/natur-und-landschaft/meere/muellkippe-meer/muellkippemeer.html>

2) Commission Staff Working Document – Impact Assessment – Reducing Marine Litter: action on single use plastics and fishing gear, 2018.

3) Plastikatlas 2019 – BUND – Heinrich Böll Stiftung : [https://www.bund.net/fileadmin/user\\_upload\\_bund/publikationen/chemie/chemie\\_plastikatlas\\_2019.pdf](https://www.bund.net/fileadmin/user_upload_bund/publikationen/chemie/chemie_plastikatlas_2019.pdf)

4) Plastikatlas 2019 – BUND – Heinrich Böll Stiftung : [https://www.bund.net/fileadmin/user\\_upload\\_bund/publikationen/chemie/chemie\\_plastikatlas\\_2019.pdf](https://www.bund.net/fileadmin/user_upload_bund/publikationen/chemie/chemie_plastikatlas_2019.pdf)