

**Bio-based Surfactants – A sustainable solution**

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Sustainability is one of the five important pillars in Clariant's corporate strategy [1]. As a globally leading company in the field of specialty chemicals, Clariant puts strong emphasis on environmental protection and safety in all its activities.

One approach, which is effectively applied by Clariant, is the use of sustainably sourced renewable feedstocks in the production of value-added chemicals by 1) production of specialty chemicals such as renewable surfactants from bio-based building blocks, 2) use of clean technologies following the principles of green chemistry and 3) transformation of agricultural waste into value-added building blocks suitable for further transformation into bio-based products.

Surfactants are among the highest volume synthetic chemicals produced globally[2,3] and are encountered in many applications such as detergents, cleaning formulations, home and personal care products, pharmaceuticals, paints, textiles, chemicals, and food industries [4]. The Global surfactants market is projected to reach 24,037.3 KT (Kilotons), in terms of volumetric demand, and \$42,120.4 Million in terms of value, by 2020.

The increasing demand for surfactants calls for sustainable surfactants made from renewable raw materials in order to reduce environmental impact and save fossil fuel resources. The molecular structures of starting materials from renewable feedstocks such as amino acids, sugars, fatty acids and organic acids create new opportunities to obtain innovative value-added specialty chemicals. However, the success of newly developed bio-based products is obviously dependent on two major aspects: cost and performance. In order to achieve this, classical oleochemicals such as plant oils, fatty acids and fatty alcohols are used; they continue to be the building blocks of choice to develop novel renewable and cost-performing surfactants. A challenging task for industrial R&D work is to develop innovative surfactants based on natural building blocks with application properties that are comparable or superior to petrochemical surfactants, while maintaining a low production cost, in order to be able to introduce a new bio-based product successfully into the market.

In this poster presentation two specific examples of successful bio-based surfactant launches based on renewable raw materials are described: Synergen OS [5], a highly efficient adjuvant for Crop Protection, and Velsan SC [6], a synergistic preservative booster for Personal Care.

[1] Sustainability report **2015**, Clariant.

[2] P. Foley, A. Kermanshahi pour, E. S. Beach, J. B. Zimmermann *Chem. Soc. Rev.* **2012**, *41*, 1499-1518.

[3] D. Blunk, P. Bierganns, N. Bongartz, R. Tessendorf, C. Stubenrauch *New J. Chem.* **2006**, *30*, 1705-1717.

[4] C. Gozlan, E. Deruer, M.-C. Duclos, V. Molinier, J.-M. Aubry, A. Redl, N. Duguet, M. Lemaire *Green Chem.* **2016**, *18*, 1994-2004.

[5] <https://www.clariant.com/de/Innovation/Innovation-Spotlight-Videos/Synergen-OS>

[6] <http://www.clariant.com/en/Innovation/Innovation-Spotlight-Videos/Velsan-SC>