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Keynote

Advanced Formulation from an industry perspective

– trends and new strategies, methods, and tools to scope with new challenges

Formulation is an important area for BASF's business success - more than 60 % of its sales are based on formulations and materials that our customers are using in their formulations. Similar statements can be made for the whole industry active in the downstream area.

The 'traditional' product driven formulation developments are based on experience and empirical knowledge with strong focus on applications. To successfully manage current and future challenges, 'advanced' formulation development is needed. That includes fundamental scientific formulation understanding, high throughput technology, lab automation and data management as well as modern *in-silico* methods, e.g., with the use of supercomputers. These approaches are heading towards the prediction of formulation and application performance in complex, multi-component systems.

On top, supporting the industry transformation towards a more sustainable future is the overarching challenge in formulation with the highest innovation demand we are facing nowadays. Sustainability aspects include e.g., biodegradable and/or biobased formulations, substitution of regulatory or environmentally unfavored formulation ingredients as well as improved formulants and formulation processes for low energy consumption. Formulation concepts can also contribute to understand and resolve Circular Economy challenges e.g., in mechanical recycling of materials.

In addition to sustainability the other main challenges in formulation are stability and performance of chemical and biological ingredients in formulation, innovation needs for new technology concepts, speed-up time-to-market and cost competitiveness.

In this keynote an overview and examples from industry perspective are given that demonstrate the path forward in Advanced Formulation.