

## **Kuhner Feeding Technology – Fed-Batch in micro- and milliliter scale**

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The Kuhner Shaker GmbH (Herzogenrath, Germany), substitution of the Adolf Kühner AG (Birsfelden, Switzerland), usually known for high quality shaking incubators, manufactures and offers since March 2017 an innovative and easy handling solution for screening under fed-batch conditions in microtiterplates, shake flasks and spin tubes.

### **Problems in process and strain development in biotechnology**

During the screening for more efficient and productive strains the applicant is frequently confronted with one problem: the big part of process and strain development is carried out under batch conditions. In this operation mode, all nutrient is at the beginning of the cultivation available in excess. Whereas the final production process is usually carried out under fed-batch conditions. Under fed-batch conditions the nutrient is controlled and limited supplied. This improves the overall efficiency of the bioprocess.

### **Easy solution for fed-batch in micro- and milliliter scale**

The polymer based feeding tool FeedPlate<sup>®</sup> enables cultivations in a reproducible fed-batch mode already in the primary screening. Due to approaching the operation conditions in the screening, especially the nutrient situation, upon the conditions in the production process the statement about the productivity of a clone is a lot more accurate. Negative effects of batch conditions for example catabolite repression, overflow metabolism, oxygen limitation and substrate inhibition could be avoided. Furthermore, the FeedPlate<sup>®</sup> synchronizes the metabolism of the cultivations in the plate, improving the reproducibility already in the preculture. With the Feeding Technology, a big spectrum of organism can be cultivated: from the typical model organism like *E. coli* and *S. cerevisiae* to *P. pastoris*, *Hansenula polymorpha* through to mammalian and plant cells. The feeding tools are easily integrated into existing screening processes and can be used with the standard laboratory equipment both manual and automated.

### **Flexible technology without extra effort**

For the substrate release, standardly glucose, of the Kuhner Feeding Technology is a special and inert polymer matrix responsible. These is located at the bottom of the microtiterplate. The FeedBeads<sup>®</sup> in tablet form can just putted into the culture media in shake flasks. The Kuhner Feeding Technology offers high flexibility regarding to possible substrates (almost every crystalline substrate), release rates and culture vessels. The technology is very robust, ready-to-use and sterile delivered and can be used with already existing medias.

The presentation also includes application examples from industrial and science partners.