

**Kuhner** shaker

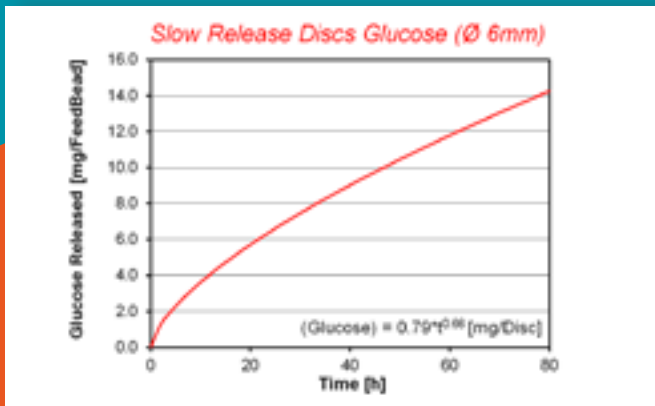
# FeedBeads<sup>®</sup>

Polymer based  
slow release system  
for glucose



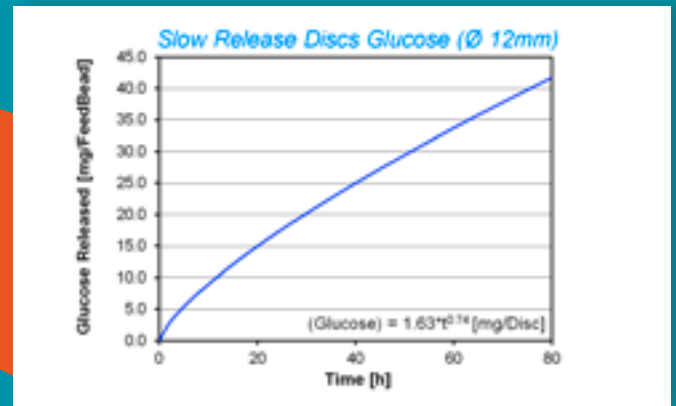
### Release Kinetic of the $\varnothing$ 6mm FeedBeads

Conditions: 0.1M phosphate buffer, pH = 7, T = 37°C



### Release Kinetic of the $\varnothing$ 12mm FeedBeads

Conditions: 0.1M phosphate buffer, pH = 7, T = 37°C



## FeedBeads<sup>®</sup>

Controlled glucose delivery by slow release technology

FeedBeads provide substrate limited fed-batch conditions in the shaken bioreactor without the need for enzymes or additional equipment such as tubing or pumps.

### Fed-batch operation

FeedBeads are polymer particles enabling the user to run fed-batch processes in shake flasks or microtiter plates. The user can now apply an additional screening routine (batch and fed-batch) under substrate limited conditions. As a result, FeedBeads can increase the probability of identifying an optimal production strain during the screening phase.

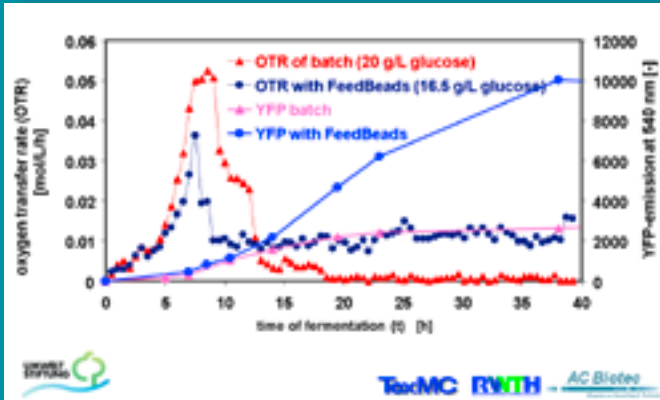
- + Improves screening security
- + Suitable for high throughput screening (HTS)
- + Easy handling
- + Fed-batch without tubing and pumps
- + Reduces overflow mechanism of the culture
- + Reproducible pre-culture
- + Synchronisation of pre-cultures
- + No additional enzymes

### Scale-up

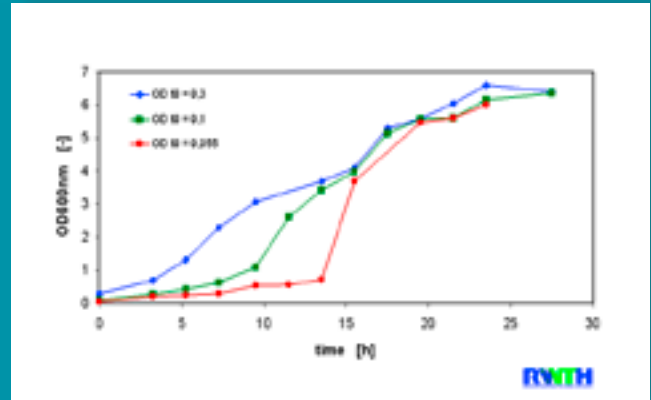
Through the use of FeedBeads the main disadvantages of the batch approaches (e.g. Crabtree-Effect, Overflow Metabolism, ...) can be avoided, optimal production strains can be identified quickly, and scale-up runs very smoothly.

**YFP-Production with recombinant *E. coli***

Mineral medium; temperature 37°C; shaking diameter 50mm;  
shaker speed 350 rpm; VL = 12.5 mL

**Fed-Batch preculture of *E. coli* BL21 YFP in MTP**

Wilms-MOPS medium without carbon source;  
temperature 37°C; shaking diameter 50mm;  
shaker speed 400 rpm; VL = 700  $\mu$ L



## Product information

- Sizes**

25 pieces,  $\varnothing$ 12mm (shake flasks),  
100 pieces,  $\varnothing$  6mm (microtiter plate)

- Substrate**

glucose

- Options**

on request other crystalline nutrients  
are available as the limited substrate

**Order information:**

SMFB63319:  
FeedBeads Glucose  
( $\varnothing$  12mm), pack of 25

SMFB63318:  
FeedBeads Glucose  
( $\varnothing$  6 mm), pack of 100

**Publication:**

Fed-batch mode in shake flasks by slow-release technique (p433-445) M.Jeude, B. Dittrich, H.Niederschulte, T. Anderlei, C. Knocke, D. Klee, J. Büchs *Biotechnology & Bioengineering*, Volume 95, Issue 3.

The Slow Release technology was developed by the University of Technology, Aachen (Department of Biochemical Engineering and Textile and Macromolecular Chemistry), Rheinisch-Westfälische Technische Hochschule Aachen, supported by Deutsche Stiftung Umwelt.



# Fed-Batch without tubing & pumps

[www.kuhner.com](http://www.kuhner.com)

# Kuhner

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