Securecell **TU**Delft

kLa Determination Workshop



LOCATION

Delft University of Technology Faculty of Applied Sciences (building 58) Van der Maasweg 9, 2629 HZ Delft, The Netherlands

DURATION

1day

PRICE

€ 1250 / person

THE COURSE INCLUDES

Online access to all theoretical material used during the course

Certificate of attendance

SECURECELL[®] ACADEMY

Lunch

COURSE OVERVIEW

The volumetric mass transfer coefficient, kLa, is an important parameter in many bioprocesses. It describes the rate at which a gaseous compound, such as oxygen, transfers between the gas phase and the liquid phase. The kLa Determination Workshop is designed for anyone interested in gaining deeper insights into the gas transfer characteristics of bioreactor systems and learning how to optimize parameters that influence kLa. Participants will benefit from expert-led sessions covering both theoretical foundations and practical applications. The workshop also offers hands-on experience in experimentally determining kLa values in lab-scale bioreactors using state-of-the-art equipment and facilities at the Department of Biotechnology of TU Delft. The course concludes with a live demonstration of an innovative, fully automated method for determining kLa in bioreactors.

TRAINING TEAM



Prof. Cees Haringa Assistant Professor TU Delft



Ramon van Valderen PHD Candidate TU Delft

Sin Fer TU

Simon Bakker Fermentation Technician TU Delft



KEY TAKEAWAYS

Gaining a deeper understanding of the key parameters that influence gas transfer in bioreactor systems Acquiring hands-on experience in experimentally determining and calculating kLa values of lab-scale bioreactors Participating in a live demonstration of a novel, fully automated

method for determining and calculating kLa values

KEY TOPICS

Gas Transfer in Bioreactor Systems: A comprehensive overview of the principles underlying gas transfer in bioreactors, including parameters that influence kLa and various methods for determining kLa. The theoretical sessions are presented by members of the Cees Haringa group from the Bioprocess Engineering section at TU Delft.

kLa Determination Practical: A hands-on session focused on experimentally determining kLa values using the Static Gassing-Out method, followed by manual calculation. The practical is held in the education fermentation lab at the TU Delft Department of Biotechnology, with each participant operating their own dedicated bioreactor.

Fully Automated kLa Determination: A demonstration of the Lucullus® application developed by Securecell, which autonomously performs kLa determination experiments and calculates the resulting kLa values.

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PROGRAM

:00	Welcome & introduction
:30	Theory on gas transfer & kLa determination – Part 1
:30	Coffee break
:45	Theory on gas transfer & kLa determination – Part 2
45	Practical preparation
:00	Lunch break
:00	Experimentally determining kLa values using lab-scale bioreactors
:30	Calculating kLa values based on the experimental results & discussion
:30	Coffee break
:45	Discussion of results
:15	Fully automated kLa determination application – Presentation
:45	Fully automated kLa determination application – Demo
00	Wrap-up & end of workshop

Rik Volger PHD Candidate *TU Delft*



Rowin Timmermans Senior Application Specialist Lucullus® Securecell