

OILFIELD MICROBIOLOGY

OVERVIEW

Oilfield microbiology is an often-overlooked aspect of production chemistry. Ignoring this critical area can potentially lead to major problems caused by reservoir souring, microbiologically influenced corrosion (MIC) and process upsets, costing hundreds of millions of dollars. These can be avoided by taking a proactive approach to microbial monitoring and mitigation; saving time, money and improving production.



This introductory two-day course covers the basic problems that microorganisms cause; including reservoir souring, MIC, process control upset, and how best to monitor and mitigate microorganisms from both a theoretical and practical point of view through case study classroom work and laboratory microbial monitoring and testing techniques.

OBJECTIVES

The course uses field case studies with interactive exercises together with a practical session using a sampling kit to help you:

- ❖ Understand the different types of microorganisms.
- ❖ Determine how they cause souring and corrosion.
- ❖ Identify solutions for monitoring and mitigation programmes.
- ❖ Set up appropriate sampling locations.
- ❖ Take accurate samples and learn preservation techniques for further laboratory analysis.

TRAINERS

Oil Plus's trainers have over 30 years' experience working on waterflooding operations worldwide. We have a similar number of years presenting training courses in North America, Europe, the Middle East, Africa, India, South East Asia and Australia.

WHO SHOULD ATTEND

Reservoir engineers, corrosion engineers, production and operations chemists, microbiologists, and laboratory personnel with little or no microbiology background.

Anyone wishing to improve their understanding of microbes in the oil industry.

CONTENT DELIVERY

English

REQUIRED TOOLS

Laptop computer and calculator.
Lab coat, safety shoes and glasses for practical session.

CONTENT

- ❖ **Introduction of microbiology** – What microorganisms are, what the difference is between an archaea and a bacteria, and why you need to know.
- ❖ **Reservoir Souring** – Overview of the causes and consequences of microbial reservoir souring, the likelihood of souring and how it can be prevented through field planning or what tools are available for mitigating against it, if it has already started.
- ❖ **Microbiologically Influenced Corrosion (MIC)** – What is MIC, why it's not like any other type of corrosion, the tell-tale signs and best practices for preventing it.
- ❖ **Process control issues caused by microorganisms** – Where microorganisms are commonly found in injection, production and water treatment systems and some of the problems you might not expect.
- ❖ **Mitigation measures for different scenarios** – What to use where and more importantly, what not to use where.
- ❖ **Good microbial monitoring** – Implementing a microbial monitoring plan and making sure that it's cost effective.
- ❖ **Practical tools for monitoring microorganisms:**
 - Carrying out ATP analysis using LuminUltra® test kits.
 - Molecular microbial monitoring, sampling and fixation.
 - Fully understanding the most probable number (MPN) test.
- ❖ **How to interpret microbiological data** – What the data means and when to take action if needed.

COURSE DURATION

2-Days

COURSE COST & DATES

Available upon request – contact mail@oilplusltd.com



OILFIELD MICROBIOLOGY TRAINING COURSE

DAY 1		DAY 2	
Time	Subject	Time	Subject
08.30	Delegate registration and coffee	08.30	Morning coffee
09:00	SESSION 1 Introduction to Microbiology <ul style="list-style-type: none"> • Overview of microorganisms • Bacteria growth and survival • Biofilms and microbial activity • Microbes encountered in oilfield systems • Overview of problems caused by microorganisms • Positive impacts of microbes in the oil industry 	09:00	SESSION 1 Reservoir Souring <ul style="list-style-type: none"> • Introduction • Souring mechanisms • Assessment of biogenic reservoir souring • Reservoir souring and predictions • Predictive modelling • Field planning to mitigate reservoir souring • Reservoir souring case studies • References
10:00	Coffee break	10:00	Coffee break
10:30	SESSION 2 Microbiologically Influenced Corrosion (MIC) <ul style="list-style-type: none"> • Introduction to MIC • The difference between MIC and other corrosion • Classification (types of corrosion) • Other causes of corrosion • Microorganisms related to MIC • Assessment and mitigation of MIC • References 	10:30	SESSION 2 Microbial-enhanced Oil Recovery (MEOR) <ul style="list-style-type: none"> • Introduction • MEOR applications • Microbes used in MEOR • Screening criteria • Putative MEOR mechanisms • Conclusions • References
12:30 13:30	Lunch break	12:30 13:30	Lunch break
13:30	SESSION 3 Microbial Sampling, Identification & Monitoring <ul style="list-style-type: none"> • Introduction • Good sampling practices • How to sample water, oil and solids • Sample preservation • Microbial analysis techniques 	13:30	SESSION 3 Course Questionnaire and Assignment
15:00	Coffee break	15:00	Coffee break
15:30	SESSION 4 Microbial Sampling, Identification & Monitoring <ul style="list-style-type: none"> • Common error in monitoring • Mitigation options • Chemical disinfection • Resistance to chemical action • Biocide testing and evaluation • Control in sea water injection systems • Control in non-sea water injection systems • H₂S scavenging • References • Methods and protocols 	15:30	SESSION 4 Course Wrap-up <ul style="list-style-type: none"> • Review and discussion • Feedback forms • Certificates
16:30	Finish	16:30	Finish

The course will start promptly at 08:30 am, finishing around 16:30 pm. Beverages, lunches and snacks will be provided during the week.
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