NCIMB
Oilfield Microbiology Services

Microbial monitoring is an essential step towards safeguarding your assets against the effects of corrosion.

At NCIMB, we use a range of complementary techniques for the microbial analysis of samples from oil and gas facilities, supply media kits to customers who undertake their own testing and undertake biocide testing.

Microbially influenced corrosion

Some commonly occurring microorganisms cause serious problems in oil and gas production facilities, and are often associated with corrosion mechanisms such as pitting. For example, sulphate reducing bacteria (SRB) can influence corrosion rates in pipelines, vessels and machinery, and production facilities often provide the ideal environment for their growth.

Different kinds of microorganisms influence corrosion in different ways - the growth of some microorganisms may create ideal conditions for the proliferation of others, which in turn produce corrosive substances such as hydrogen sulphide or acid.

Monitoring the different groups of microorganisms known to influence corrosion in oilfield environments allows remedial action to be taken if numbers start to rise. Continued, regular monitoring can determine the efficacy of that remedial action, helping you to make informed and timely decisions.

At NCIMB we can identify and quantify microorganisms known to influence corrosion using culture-based methods, and the latest DNA sequencing techniques. Analysis can be undertaken on most types of liquid and solid samples, including production fluids, scales, pig wax and corrosion coupons.

Experienced microbiologists

NCIMB has specialised in environmental microbiology for more than 50 years.

Our experienced oilfield microbiologists can advise on the most appropriate approach to microbial monitoring and have participated in R&D projects as well as undertaking routine analysis of samples from the UKCS and around the world.

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Culture-based enumeration of:

- general heterotrophic bacteria
- acid producing general heterotrophic bacteria
- sulphate reducing bacteria (mesophilic, thermophilic and hyperthermophilic)
- nitrate reducing bacteria.

Sessile & planktonic microorganisms

Analysis of corrosion coupons and probes allows microbial growth on pipework and in vessels to be monitored. This gives more accurate evaluation of microbially influenced corrosion risk than monitoring planktonic populations in fluid samples alone.

Metagenomics

Next-generation sequencing (NGS) has revolutionised environmental microbiology leading to high-throughput, low-cost assays that define the entire microbial population in a sample. Metagenomics is able to identify culturable and unculturable microorganisms, giving a fuller picture of the impact of the oilfield microbial ecosystem, and allows detailed longitudinal studies of production processes.

Media kits

We supply media kits for quantification of:

- sulphate reducing bacteria
- general / acid producing general heterotrophic bacteria
- nitrite reducing bacteria
- nitrogen-utilising bacteria
- hydrocarbon-degrading bacteria
- thiosulphate-reducing bacteria.

qPCR

This technique quantifies a targeted DNA molecule, and is used to quantify groups of microbes without any requirement for growth. It therefore gives rapid results.

Biocide testing

NCIMB can undertake biocide testing to evaluate the efficacy of chemicals used at different time points, temperatures and concentrations. We can test biocides using customer samples from production facilities or our own in-house microbial cultures.

Integrated approach

Different enumeration methods give different types of information about microbial populations. Combining the techniques rather than choosing between them gives the most in depth analysis.

North Sea Consortium

Our North Sea microbial consortium has been used for testing the efficacy of biocides and is available for studies.

Contact us for a quote or more information

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