



At NCIMB, we undertake biocide testing at our laboratories in Aberdeen using our own North Sea microbial consortium or microbes from client samples.

Biocides are an important element in the control of reservoir souring and microbially influenced corrosion, but many factors contribute to their efficacy. Ineffective use of biocides can have serious consequences, so it is important to ensure that the correct chemicals are selected and that the dose used is optimised.

Environmental microbiology experts

NCIMB manages the UK's National Collection of Industrial, Food and Marine Bacteria. This unique microbiology resource includes many species that are associated with oilfield environments and involved in microbially influenced corrosion. Based in Aberdeen, we have been working closely with the oil and gas industry for decades, developing our services in line with the needs of the sector as it evolves.

Testing options

We can undertake lab-based biocide testing against our own in-house North Sea microbial consortium, or enrich from clients' own samples for laboratory testing. We can also undertake direct enumeration from customer samples following treatment at the production facility to determine efficacy in situ.

We can use both traditional culture-based enumeration for determining the efficacy of biocides or take a molecular approach with qPCR. Culture based enumeration is likely to be the most appropriate approach for testing against lab-grown cultures, whereas qPCR can give faster results for testing the impact of biocides following on site treatment, as part of a longer term study.

For customers seeking more in depth understanding of the whole microbial community, we can undertake next-generation sequencing providing detailed metagenomic information on the microbes present, and their relative abundance. This information can then be used as part of an ongoing monitoring regime.

Planktonic and sessile

In the oilfield environment microbes may be present within reservoir and production fluids, i.e. in planktonic form, but they also form biofilms on the surfaces of pipes and vessels. Biofilm formation plays an important role with respect to microbially influenced corrosion. Biocide doses that are effective in controlling planktonic bacteria may be significantly less effective with respect to biofilm populations. At NCIMB we can undertake biocide testing on planktonic bacteria and also use a continuous culture bioreactor to generate biofilms on removable coupons for biocide testing.



Microbial consortium

We can use our own in-house microbial consortium, which was enriched directly from North Sea samples, for biocide testing or create site-specific consortia from client samples.

Lab grown biofilms

Biofilm formation is an extremely important element of oilfield microbiology. At NCIMB we use bioreactors to grow biofilm communities on coupons for biocide testing.

qPCR

This technique quantifies a targeted DNA sequence, and is used to quantify groups of microbes without any requirement for growth. It gives very rapid results and can be used to monitor the response of microbial populations to treatments.

Culture-based enumeration

This technique relies on growth of the microbes present to enumerate populations. It may be the most appropriate approach for monitoring lab-grown biofilms to biocide treatments.

Monitoring of field samples

At NCIMB we can analyse production fluid samples and coupons retrieved before and after biocide treatment to assess the efficacy of the treatment regime.

Varied temperatures and salinity

We can undertake lab-based biocide testing at a range of salinities and temperatures required in-line with client operating conditions.

Microbial community analysis

Our next-generation sequencing and metagenomics analysis services give you a more in-depth understanding of the makeup of the whole microbial population and the impact it could have on reservoir souring and microbially influenced corrosion.

For more information

For more information about NCIMB's biocide testing capabilities contact:

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