



Original thinking... applied

Ready Biodegradability - CO₂ in Sealed Vessels (Headspace Test)

Sewage treatment microorganisms, which then leads to further aquatic ecotoxicology assessment.

This test is designed to evaluate the ready biodegradability of a chemical.

To carry out this test, a buffer medium containing mineral salts is inoculated with a mixed population of microorganisms. The test substance is incubated in this medium at a concentration representing 20 mg C/L as the sole source of organic carbon.

Sealed bottles with a headspace for air are used for this test – the headspace provides a reservoir of oxygen for aerobic biodegradation.

We determine the CO₂ evolution which results from the ultimate aerobic biodegradation of the test chemical by measuring the IC produced in the bottles, which is in excess of that produced in bottles containing only the inoculated medium.

To measure the extent of the biodegradation, we calculate the percentage of the theoretical maximum IC production (ThIC), based on the quantity of the test substance (as organic carbon) added at the beginning of the test.

We can also measure the extent of primary biodegradation of the test substance and the DOC removal.

Test Guidelines and References

OECD Guideline for testing chemicals Test No. 301: Ready Biodegradability

US EPA (1996), Fate, Transport and Transformation Test Guideline. 835.

FERA'S WORK IN ENVIRONMENTAL FATE

Environmental fate studies play a crucial role in providing the data which supports chemical companies in completing thorough environmental risk assessments.

Fera's support and expertise helps chemical companies to achieve successful product registrations and operate ongoing due diligence. Our environmental fate studies include a range of regulatory compliant tests to assess the biodegradation of chemicals in soil and water, and we provide a range of services from single studies to complex, whole programmes, including dossier preparation and submission.

Fera's multidisciplinary teams combine decades of agrochemical and veterinary drug industry experience with world-class technical expertise and analytical capabilities.

We operate in GLP-compliant facilities in the UK and provide regulatory compliant studies for submission in all geographic regions.

MORE ABOUT FERA

Fera is based at the National Agri-Food Innovation Campus near York, UK.

We work closely with plant protection and veterinary medicine product manufacturers to help develop effective, sustainable and safe chemical products that minimise ecosystem impacts and pollution, while maximising the beneficial effects for crops, plants and animals.

Combining the extensive expertise of our scientists with advanced resources and GLP-compliant laboratories, we provide valuable support to companies in their chemical evaluation and registration efforts.

GET IN TOUCH

For more information and to book a test, call Fera on +44 (0)300 100 0321, email sales@fera.co.uk or visit www.fera.co.uk/chemical-regulation

