



Original thinking... applied

Aerobic Mineralisation in Surface Water – Simulation Biodegradation Test

This test is designed to determine the rate of mineralisation of an organic test substance at low concentrations in aerobic natural water (fresh, brackish or marine), and to quantify observation in the form of kinetic rate expressions. Degradation kinetics will also be followed for any major transformation product, if possible.

The test is performed using the shake flask batch test, incubated in the dark at 20 °C under aerobic conditions and agitation. Where radiolabelled test substances are employed, samples are connected to a flow through system designed to collect CO₂ and other volatile products in individual traps consisting of different trapping solutions.

The test substance is incubated with either surface water only ('pelagic test') or with turbid surface water with suspended solids/sediment ('suspended sediment test'). Measurements of the system are made at several timepoints throughout the study usually up to 60 days.

Mineralisation of the test substance is determined at two concentrations; a low concentration is used to reflect expected environmental concentrations and a higher concentration can be used for identification and quantification of major transformation products.

Microbial activity of the surface water will be monitored using ¹⁴C-labelled benzoic acid control unit connected to a flow through system designed to collect CO₂. Sterile units will be prepared to monitor biotic/ abiotic degradation of the test substance.

Test guidelines and references

OECD 309: Aerobic Mineralisation in Surface Water – Simulation Biodegradation Test.

US-EPA; OPPTS 835.3190.

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

