



## ECOTOXICOLOGICAL TESTING

Evaluating toxicity of materials on ecosystems

Ecotoxicological testing investigates the potential effects of chemicals, products and effluents on ecosystems. The tests are essential in providing relevant information for environmental risk assessments to satisfy environmental regulations.

### DHI SERVICES

DHI Environmental Laboratory serves manufacturers of chemical substances, ballast water treatment systems, pharmaceutical industries and aquaculture industries in the following areas:

- Fulfilling documentation requirements for regulatory purposes
- Safety data sheets
- Chemical Safety Assessment
- Environmental Risk Assessment
- Effluent monitoring
- Ballast water discharge

### OUR EXPERTISE AND FACILITIES

DHI carries out standardised ecotoxicological tests in accordance to ISO and OECD Guidelines and provide customised studies concerning biodegradability, toxicity and bioaccumulation of chemical substances and products.

DHI ecotoxicological testing services includes:

- Algae Growth Inhibition Toxicity Study
- Crustacean: Acute Immobilisation Toxicity Test
- Crustacean: Early life stage toxicity test
- Fish Toxicity Study, 96 hours
- Fish Short-term Toxicity Test on Embryo and Sac-fry Stages
- Fish Embryo toxicity test (FET)
- Support tests on physio-chemical properties
- Whole Effluent Toxicity (WET) testing

### SUMMARY

#### CLIENT

- Chemical manufacturers
- Ballast water treatment systems developers
- Pharmaceutical industries
- Aquaculture industries
- Consultants and contractors

#### CHALLENGE

- Evaluating environmental impacts
- Documenting industrial and consumer products
- Assessing the effect of wastewater chemical treatment discharges
- Meeting dynamic and rigorous requirements

### SOLUTION

- Ecotoxicological testing in compliance with OECD guidelines
- In-depth knowledge of ecotoxicology
- Whole Effluent Testing for type approval of ballast water treatment systems
- Risk and exposure assessments
- Global Product stewardship

### VALUE

- Comprehensive risk assessment reports
- High-quality reliable data
- Optimised testing protocols
- Safe and marketable products

## TERRESTRIAL

- Acute toxicity test (Collembola and Earthworm)
- Reproduction test (Collembola and Earthworm)

## ENVIRONMENTAL FATE

- Biodegradation tests
- Ready biodegradability tests
- Adsorption-desorption test
- Aerobic and anaerobic transformation in aquatic sediments systems

Our laboratories are accredited according to ISO 17025 by DANAK (in Denmark) and by SINGLAS (in Singapore).



Man with protective mask and protective clothes explores danger area © Shutterstock / KANIN.studio

## WHOLE EFFLUENT TOXICITY (WET) TESTING

Our laboratory regularly performs Whole Effluent Toxicity (WET) studies, in partnership with DHI Ballast Water Testing Facility, to satisfy United States Coast Guard (USCG) and International Maritime Organisation (IMO) testing requirements. We are recognized by the USCG as a sub-laboratory under the Independent Laboratory headed by DNV-GL.

## AQUATIC TOXICITY TESTS

Aquatic ecotoxicological tests are carried out on organisms belonging to different trophic levels to simulate the complexity of the ecosystem. These tests investigate the effects of test substances and effluent discharges on three tiers: photosynthetic microalgae (primary producers); aquatic crustaceans (primary consumers); and fish (secondary consumers).

We offer testing in diverse aquatic conditions to simulate freshwater, estuarine, or marine ecosystems.

Contact: [lab-SG@dhigroup.com](mailto:lab-SG@dhigroup.com)

For more information, visit: [www.dhigroup.com](http://www.dhigroup.com)



*Acartia tonsa*, a marine crustacean used in early-life stage testing © DHI

## TERRESTRIAL TOXICITY TESTS

Terrestrial toxicity tests investigate the effect of test substances on organisms living in the soil environment. Soil environments have the inherent capacity to adsorb, transform and accumulate materials. Test results can be used to determine the toxicity and bioavailability of the test substances.

### OUR TEAM OF SPECIALISTS AT DHI PROVIDES YOU WITH

- Detailed report of test results and parameters
- Statistical analysis of test results
- Evaluation of data
- Efficient use of existing data and literature search

### WE ALSO PROVIDE

- Use of non-test alternatives
- Risk assessment reporting
- New experimental studies in our ecotoxicology
- R&D studies

## ENVIRONMENTAL FATE STUDIES

Environmental fate tests are important in understanding the transportation and transformation processes of substances. Evaluation of data allows the determination of behaviour of the test substance in different environmental components – in water, soil or air. Test results are also used to identify potential uptake and bioaccumulation in organisms.