



## TOXICITY TEST FACT SHEET #14 – Marine

### 7-d Imbalance and Growth Toxicity Test with Marine Fish

A number of species of fish have been used for toxicity assessments. The 7-day fish imbalance and growth test uses either the spiny damselfish (*Acanthochromis polyacanthus*), which are bred in house, or the barramundi (*Lates calcarifer*), which are purchased from a commercial hatchery.

Fish are both ecologically and economically important. The 7-day imbalance and growth test is similar to USEPA test Method USEPA (2002) *Sheepshead minnow*, *Cyprinodon variegatus*, larval survival and growth test. Method 1004.0, but with some modifications.

In summary, this test involves exposing fish fry or fingerlings to the test material for 7 days. The test is usually undertaken on a range of concentrations of a test material, eg 100, 50, 25, 12.5 and 6.3% effluent. At the end of the exposure period, the number of balanced and the number of unbalanced fish larvae are recorded. The weight of the fish is also recorded in order to determine the biomass.

Statistical analyses are then applied to the test data to determine for example, the concentration of the test material causing 50% reduction in unbalanced fish or reduction in biomass (reduction in growth) in the test population (EC50 estimate). The test data can then be used to estimate concentrations of the test material likely to cause chronic toxicity in the environment and for SSD calculations without the need for an acute:chronic application factor

The fish imbalance and growth test may be used to assess the toxicity of:

- Chemicals
- Effluents
- Leachates and groundwater
- Sediments

7-day Toxicity Test Using Juvenile Fish	
<b>Test type</b>	Chronic non-renewal static or renewal static
<b>Test end-point</b>	Imbalance (loss of swimming ability, Biomass)
<b>Test duration</b>	7 days
<b>Test Temperature</b>	25 ± 2°C
<b>Sample quantity required</b>	4 L
<b>Test availability</b>	7 days notice requested. Subject to availability of fish larvae
<b>Test turnaround time</b>	Advice given within 72 hours of test initiation