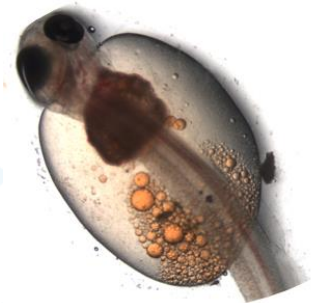


TOXICITY TEST FACT SHEET #11

– Freshwater & Marine

Acute Toxicity Test with Fish larvae

A number of species of fish have been used for toxicity assessments. The species commonly used in our laboratory are the Rainbowfish (*Melanotaenia splendida*) and the zebra fish (*Zebra danio*). The most commonly used marine species in Australia are the Barramundi (*Lates calcarifer*), the Bass (*Macquaria novemaculeata*), the australasian snapper (*Pagrus auratus*) and the Kingfish (*Seriola lalandis lalandis*).



Fish are both ecologically and economically important. The acute toxicity test uses externally sourced and laboratory reared fish larvae and is based on USEPA test method for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms (2002).

In summary, this test involves exposing fish larvae to the test material for 96 hours. 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 un-balanced fish larvae are recorded.

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 in the test population (EC50 estimate). The test data can then be used to estimate concentrations of the test material likely to cause acute toxicity in the environment.

The Acute Fish Test may be used to assess the toxicity of:

- ▶ Chemicals
- ▶ Effluents
- ▶ Leachates and groundwater
- ▶ Sediments

The Acute Fish test exposure period can be extended to 7 days. If toxicity is detected using the Acute Fish Test, a Toxicity Identification Evaluation (TIE) programme can be initiated to identify the cause of the observed toxicity.

Acute Toxicity Test Using Fish Larvae	
Test type	Acute static
Test end-point	Imbalance
Test duration	96 hours
Test Temperature	25 ± 2°C or 20 ± 2°C
Sample quantity required	4 L
Test availability	7 days notice requested
Test turnaround time	Advised within 72 hours of test initiation