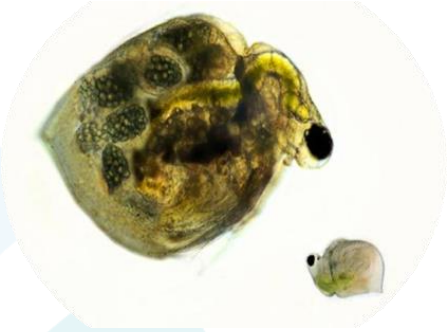
TOXICITY TEST FACT SHEET #1 - Freshwater

Acute Toxicity Test With Ceriodaphnia dubia



The acute toxicity test using the freshwater crustacean Ceriodaphnia cf. dubia is one of the most commonly used tests for the assessment of potential harm posed by contaminants to freshwater aquatic ecosystems. Acute tests using Daphnia carinata or Daphnia magna are also available upon request

This test is commonly used throughout North America using USEPA protocols and is an important test in US effluent discharge licensing programme. Consequently, an enormous amount of toxicity data is available for this species, making the acute Ceriodaphnia test ideal for validating ecological risk assessments. In Australia, Ceriodaphnia cf. dubia has also become widely used in toxicity assessment programs using the 'Sydney Clone' isolated from waters in the Sydney region.

In summary, this test involves exposing laboratory reared juvenile Ceriodaphnia to the test material for 48 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 surviving Ceriodaphnia is counted.

Statistical analyses are then applied to the test data to determine for example, the concentration of the test material causing 50% mortalities in the test population (LC50 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 Ceriodaphnia test may be used to assess the toxicity of:

- Chemicals
- Effluents
- Leachates and groundwater
- Sediments

If toxicity is detected using the acute Ceriodaphnia test, a Toxicity Identification Evaluation (TIE) programme can be initiated to identify the cause of the observed toxicity.

Acute Toxicity Test With *Ceriodaphnia dubia*	
Test type	Acute static
Test end-point	Mortality at 48 hrs
Test duration	48 hours
Test Temperature	25 ± 1ºC
Sample volume required	1 litre for full EC50 determination
Test availability	24hrs notice requested
Test turnaround time	Advised within 72 hours of test initiation

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