

# Marine Eco-Toxicology Testing

Poseidon Sciences expands its marine eco-toxicology testing.

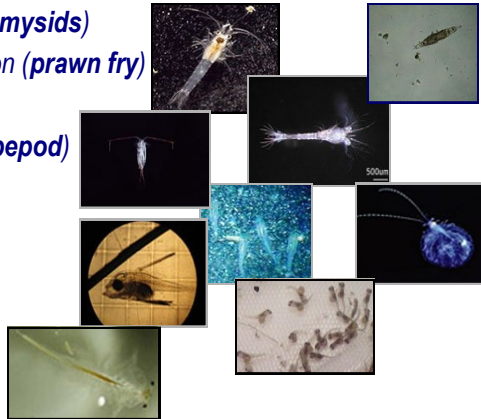
Cosmetics, drugs and industrial chemicals are under scrutiny for damage done to the aquatic ecosystems as these chemicals find their way to the sea.

The marine coatings industry is particularly sensitive to the challenges of the environmental movement since such coatings are directly placed in the aquatic environment. Concerns about the leaching of biocides and other ingredients are major legal and conservation issues. Claims of being non-toxic, based on limited toxicology tests on *Artemia* as an example, are insufficient. Other marine vertebrate and invertebrate species that inhabit the aquatic environment may turn out to be more sensitive to such chemicals.

## How Poseidon Sciences can help?

Poseidon is engaged in the biological testing of chemical substances against a panel of various marine and freshwater larvae. Examples of these organisms are as follows:

*Brachionus plicatilis* (**rotifer**) ; *Neomysis integer* (**mysids**)  
*Chanos chanos* (**milkfish fry**) ; *Penaeus monodon* (**prawn fry**)  
*Penaeus fabricatus* (**shrimp fry**) ;  
*Tilapia nilotica* (**tilapia fry**) ; *Acartia tsuensis* (**copepod**)  
*Artemia salinas* (**brine shrimp**)  
*Epinephelus coiodes* (**grouper fish fry**)



## What to do?

**Be pro-active!** Study a wider range of marine and freshwater species. Learn the potential effects of your coatings or chemicals on a greater number of aquatic species to further bolster the eco-friendly claim on your substances. Or, finding your compounds to have more toxic effects than expected prepares your company for eventual consequences or provide the basis for a strategic decision to go into further research and development on less toxic alternatives. Knowing more about your materials empowers your company to make the right decisions, rather than be surprised later on.

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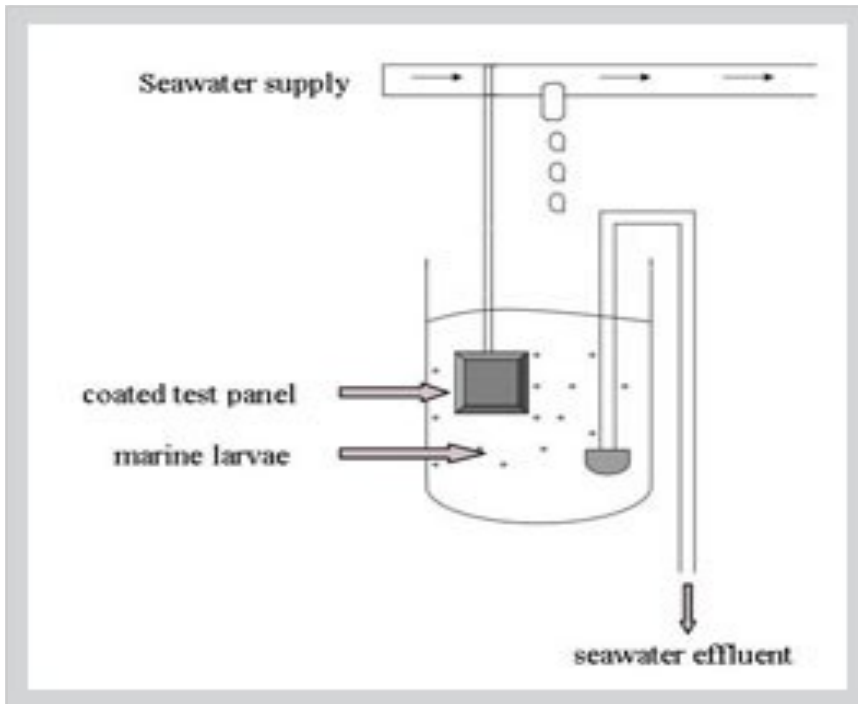
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Some of the above species are derived from hatcheries and some collected in the wild. Since there is seasonal availability in some species, please inquire what species are available during the testing period. The test method follows ASTM E 729-96 (re-approved 2002) entitled "Standard guide for conducting acute toxicity testing on test materials with fishes, macro invertebrates and amphibians." For a copy of the ASTM guide, please check [www.poseidonsciences.com/ASTM\\_E\\_729.pdf](http://www.poseidonsciences.com/ASTM_E_729.pdf)

## Tests on coated panels

For coupons or panels painted with industrial coatings, Poseidon Sciences uses a simulation method whereby the panels are immersed in seawater containing the target aquatic species. Seawater is added continuously into the chamber to provide a 100% exchange with new seawater per day. The mortality of the target species in the presence of the coated panel or coupon is determined after 24 and 48 hours.



The test coupon is made of PVC with dimension of 2 inch by 3 inch by 1/8 inch. The test coupons are sent to the project sponsor to coat at their own facilities and returned to Poseidon for the immersion test.

An array of 1 liter glass containers are supplied with seawater during the test. In acute testing, usually for biochemicals dissolved in seawater, the flow-through system is not employed and the test runs in static mode. Mortality is determined after 24 and 48 hours.

