Alternative Strategies for Future Control of Antifouling Biocides

A British study has reviewed historical and current developments, occurrence and regulation of antifouling paint biocides and analysed future trends. Some of the most popular biocides have been shown to damage non-targeted organisms while data for the risk assessment of others is still lacking. The legislative measures introduced to regulate the use of booster biocides vary across Europe. New strategies have to be found in order to reduce the possible negative effects of these compounds on marine ecosystems.

Antifouling agents have been used on ships since ancient times. In 1989, the European Commission introduced a directive to prevent the use of TBT-based antifouling agents on boats under 25 meters. This provoked the development of a wide range of agents for new antifouling paints for the “small boat” market. These new substances are known as organic “booster biocides”. However, many of them were suspected of being highly toxic to non-target species. The existing lack of data about the effects in coastal and marine environments was addressed by the EU-funded research project ACE. Nevertheless, the data needed for a risk assessment of certain booster biocides is still lacking and strategies must be found to ensure marine ecosystem protection.

The co-ordinator of ACE (a British scientist) has recently overviewed levels, behaviours, and the potential threats posed by these compounds using published data and work undertaken within the ACE project. The author also analysed the current legislative measures influencing usage control and discussed different options for monitoring antifouling agents in the future.

Some of the most popular booster biocides have been proven to damage non-targeted organisms, especially phytoplankton and corals.

Control measures and registration schemes for booster biocides vary across Europe. While, for example, in the United Kingdom some booster biocides have been banned and strict regulations for using antifouling agents on small boats have been introduced, in other countries such as Spain, Greece or France there are very limited registration schemes and in principle, any agent can be used. It has recently been reported that the legislative changes introduced in the United Kingdom for the control of this type of substance have been successful in reducing the environmental concentrations of some antifouling agents.

The author proposes the following strategies to address the potential effects of booster biocides in the aquatic environment:

- In the short term, the most feasible option is to utilize copper-based formulations combined with the most environmental-friendly booster biocides.
- In the medium term, companies should address polymer synthesis improvements to control biocide release into the environment. An alternative option would be an investigation into natural toxin products and their synthetic analogues, although this option is far from being ready for the market. Another area of technological development could focus on non-stick fouling-residue coatings that would prevent adhesion by the fouling organisms.
- Nano-particle technologies may also afford an alternative option to antifouling in the future.

Antifouling agents are critical for shipping, however in some cases they are harmful for the surrounding environment. The current study provides new insights regarding future control of booster biocides used on small boats. The methods used to monitor antifouling agents and accompanying data requirements are likely to be reviewed by the European Commission in 2006-2007.

1ACE project: Assessment of antifouling agents in coastal environments (http://web.pml.ac.uk/ace/), a component of the EC IMPACTS on the marine environment cluster, supported under the 5th RTD Framework Programme under the Energy, Environment and Sustainable.


Contact: JWRE@pml.ac.uk

Theme(s): Marine ecosystems, chemicals, sustainable consumption and production

Opinions expressed in this News Alert do not necessarily reflect those of the European Commission

To cite this article/service: [“Science for Environment policy”]: European Commission DG Environment News Alert Service