

## Concerns increase about the effects of ballast water treatment systems on anti-corrosion coatings

**T**he anti-corrosion properties of a ballast tank's barrier coating could be adversely affected by some ballast water treatment technologies, especially those systems based on electrolysis or the generation of chlorine or ozone.

The issue was raised recently at a Lloyd's Maritime Academy Ship Machinery and Equipment Maintenance seminar, where delegates expressed their apprehension about the compatibility of IMO's PSPC ruling with the requirements of the BWTMS Convention.

According to one delegate, 'a few owners now are being faced with trying to make decisions on an approved ballast tank coating and then trying to work out if the ballast water treatment system they are going to install is compatible with the coating to give the target 15 year life'.

One industry expert went even further suggesting that the increased acidity of water being discharged from ballast tanks and other systems, such as exhaust gas scrubbers, into the water surrounding the vessel, could effectively seal in the anti-fouling coating on the hull.

A manufacturer of a ballast water treatment system that uses ultra-violet technology told *SW&S* that shipowners should be 'very careful to investigate systems that use chlorine in any form and/or ozone for the disinfection process. These chemicals are highly corrosive, and their effect on ballast system coatings and the corrosion of ballast water tanks has to be evaluated'. He advised shipowners to ask the manufacturer of these systems for results of not only laboratory tests but full scale in-situ testing of the corrosive properties of their systems. 'That would be very interesting reading.'

BMT Fleet Technologies has found, however, that the addition of hypochlorite — a chemical compound with chlorine in its oxidation state — at the dose levels necessary to be biologically effective had no effect on the standard ship type coating system (paint permeability).

Studies carried out in 2004 on ships operating in the Great Lakes showed an insignificant increase in the rate of ballast tank coating damage experienced by exposure to hypochlorite over a 90 day period. But corrosion rates of bare steel did increase, although the amount of increased corrosion was not considered significant over the life of a ship due to the relatively small amount of time that elevated hypochlorite concentrations would be present.

Therefore if tank corrosion problems persist prior to the installation of a treatment system, due to inefficient coating application or damage, then they are likely to continue to do so no matter what the treatment technology used, though some



# Can BWTMS kill the coat?

systems could exacerbate the corrosive process.

Shipowners, meanwhile, remain concerned and owners associations Intertanko and BIMCO have already held member-led committees on the subject, although their concerns are more political.

Peter Lundahl Rasmussen, BIMCO's senior marine technical officer, believes the potential problem stems from an oversight within the regulatory machine.

'It seems a number of issues relating to the practicable implementation and enforcement have been overlooked as focus so far has merely been on getting the treatment systems developed and approved before the Convention enters into force,' he said.

'Looking at this from the top it seems that a holistic approach in terms of the BWTMS and the PSPC is missing and that problems are looked at and solved on an individual basis instead of an all inclusive approach looking on the possible effects from other IMO instruments,' he furthered.

Whatever conclusions are reached, coatings suppliers, ballast water treatment manufacturers and legislative bodies do need to sit down at the round table

International Paint does not believe it's the responsibility of the coatings supplier

■ **Ballast water treatment systems could have a major impact on the performance of the coating**

to ensure ballast water treatment systems are compatible with existing water ballast tank coatings, but it is currently involved in analysis examining how the company's coatings perform with the various ballast water treatment methods available. These include or will include chemical treatment, mechanical treatment (filtration and separation) and physical treatment (ultra-violet light, electric currents and heat to sterilize ballast water).

Results to date have shown that, depending upon the coatings type and specification, there were no particular performance issues apparent with its water ballast tank coatings when used in conjunction with the chemical treatment systems currently on the market.

Similarly, an independent study for a leading mechanical ballast water management systems supplier showed that the normal performance of International Paint's coatings were unaffected by that form of system.

Gina Mercier, International Paint, Product Manager said: 'From what we have seen so far we are confident that, where tested, our coatings will perform as designed when used in conjunction with the current ballast water management systems on the market. However, we also recognise the need to continue working closely with the ballast water treatment system suppliers and this is an area International Paint will progress as a priority.' □