

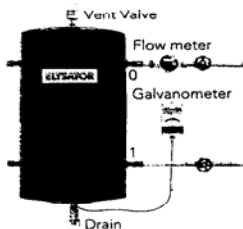
It is almost two years since Shell International Trading and Shipping Company (Stasco) was approached by Stromme UK with a proposal to install International Water Treatment Maritime's (IWTM) novel Elysator water treatment system on one of the oil company's tankers. And now the feeling is, at least to one of the company's Chief Engineers, that 'one would have to be out of one's mind to prefer chemical treatment'.

The proposal sounded promising, and after various discussions it was decided to fit an Elysator unit to the steam plant in the Shell tanker *Opalia*.

Opalia had been using a conventional chemical treatment system, comprising a closed automatic dosing system for Hydrazine, a condensate treatment which doses automatically after filling the chemical tank, and boiler water treatment which doses manually as required, depending on water sample readings. Such a set up involved manual intervention each day to fill each tank of chemicals and to take the boiler water sample readings — 'it all took time'.

Stromme UK, the UK agent for IWTM, told this magazine that the onboard ship operators also appeared to experience problems with the dosing of Hydrazine — used to scavenge oxygen — as they could not maintain the correct levels required to protect the boilers from corrosion and scaling.

So it was agreed that an Elysator unit would be fitted and monitored for one year in order to evaluate its effectiveness. The unit chosen was an Elysator 800 — an 800litre/h-capacity system.



The Elysator can be easily installed by the ship's engineering staff

After two years operational experience using the Elysator freshwater treatment system, there's no going back to chemical dosing for Stasco engineers

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SAYING NO TO A CHEMICAL ATTACK

The Elysator can be used in any kind of freshwater system where corrosion might occur. It is based on the anodic/cathodic principle that less 'noble' metals such as magnesium are sacrificed to corrosion, as opposed to the system itself. During the process, the oxygen in the water will be consumed creating H₂O and magnesium hydroxide. When installed in a freshwater system, the Elysator is claimed to protect the entire system from corrosion; even aluminium and aluminium alloys are protected. IWTM's system automatically regulates the pH value of the water to about 9.5, while the electrical conductivity of the water is kept as low as possible in order to avoid galvanic corrosion.

David McRoberts, Engineer Support Superintendent for Stasco, listed the following reasons behind the decision to install the system:

- ▶ No need for any chemicals, and therefore
- ▶ No storage or containment problems
- ▶ No contact with any hazardous chemicals thus no risk of injury to personnel
- ▶ No need for refilling of any tanks daily thus saving time
- ▶ Environmentally friendly as no chemicals blown down to sea
- ▶ As chemicals are no longer required the cost saving will repay the cost of the Elysator system within one to three years
- ▶ The ease of sample testing
- ▶ Operational simplicity and minimum maintenance.

Once the unit had been received onboard it was fitted and mounted with considerable ease near the boiler feed tank, and this ensured that any pipe work modifications were minimal.

McRoberts told *MER*: 'From the outset, the unit was very simple to use, with very little intervention from the Stromme engineers. A daily log was taken and water tests carried out using the supplied meters. Water test

readings have been very stable without the addition of any chemicals, and maintenance has only consisted of the monthly cleaning of the tank and the scraping of anodes. As yet, there has been no requirement to exchange the anodes due to very little wastage.'

Inspections in the past two years have not only shown a system free of corrosion but also a reduction in fly rust — another factor that McRoberts claims verifies the system's effectiveness.

'We have had three independent surveyors onboard to inspect the boilers and all have agreed that the waterside was in excellent condition.' The sistership to *Opalia*, *Oscilla*, has subsequently also been fitted with a similar unit.

McRoberts said: 'We did not imagine that the water quality would improve as much as it has, and we did not expect the readings to be as stable as they are, especially with very little input from the engineers onboard. And this, on top of the fact that there is now no chemical hazard, makes the whole system safe, environmentally friendly, effective in corrosion prevention and very cost effective.'

Opalia's Chief Engineer Roger Smith says the record of boiler inspections speaks for itself. In July 2002, after more than 2500 running hours, a survey, carried out by classification society DNV found that a coating of rust on the waterside had significantly reduced due to recent cleaning and also much increased blowing down. No corrosion was noted at all, fully confirming the effectiveness of Elysator. Indeed, earlier this year, internal inspection of the water space was carried out and found to be in excellent condition with only a very moderate coating of fly rust and no corrosion. No cleaning was required. Independent surveys of the boiler water spaces were carried out by Aalborg, Harris Pye and DNV, with no defects noted.

The Chief Engineer is of the opinion 'that one would have to be out of ones mind to prefer chemical treatment to the Elysator system'. He also said the system could pay for itself in just two years. **MER**

The inside of *Opalia's* boiler (sunrod tubes pictured) was inspected and found to be in 'superior' condition, although some fly rust was detected

