# Painting by numbers?


## choosing the right marine paints and coatings makes sound financial sense

### International Paint offers global 'coverage' with its range of coatings

International Paint Ltd. is part of Akzo Nobel, one of the world's leading industrial companies and the largest global coatings manufacturer.

With 19 manufacturing plants, operations in 54 countries and over 500 pick-up points worldwide, International Paint works to deliver proven, value for money, environmentally responsible solutions to satisfy its customers' needs, allowing them to maximize their return on investment.

The company's marine coatings are designed to meet both the needs of the newbuilding shipyard through enhanced process efficiency and improved productivity, quality and working environment, and the needs of ship operators by combining high levels of long term protection with reduced future maintenance costs and increased vessel operating efficiency.

The effectiveness of coatings in achieving their design criteria depends upon many factors, e.g. the raw materials employed, the formulating skill of the coatings chemist, the coatings testing regime, manufacturing, selection and specification, application, end use and operating environment. Due to their relatively low cost however, ease of application and proven performance in service, marine coatings continue to represent excellent value for money and will remain the most economic solution for the protection of seagoing assets for a very long time to come. This is important.

According to a leading operator, "Coatings are an integral part of today's vessel operation, helping maximize ship performance and preserving assets." Whilst it could be argued that the single most important reason to paint a ship is to prevent corrosion, this would be ignoring the other operator key requirements of aesthetics and fouling control — both of which are important in terms of operating image and fuel and emissions efficiency. Given the price of oil, fuel cost and fuel usage is of critical importance. In addition to this, very high on the agenda for all operators today, of course, is the environment.

Fuel efficiency and environmental impact is an area where coatings have and will continue to have a significant role. With an estimated 300mt (million tonnes) of fuel consumed annually by the world's fleet[1], there is an ever-increasing focus on shipping's environmental footprint. At this level of consumption the industry currently emits some 960mt of $CO_2$ and 9mt of $SO_2$ annually. The International Maritime Organization estimates that without corrective action and the introduction of new technologies, air emissions, due to increased bunker fuel consumption by the world shipping fleet, could increase by between 38% and 72% by 20202.

The industry has tried to find viable means of energy saving for decades. One way to do this is through the use of antifouling coatings. Antifouling coatings are used to improve the speed and energy efficiency of ships by preventing organisms such as barnacles and weed sticking to the underwater hull, restricting the ships movement through the water.

If ships didn't use antifouling coatings, fuel consumption could be increased by as much as 40% — with current fuel use consequently rising by 120mt per year to a total of 420mt per year. It is estimated that antifouling coatings provide the shipping industry with annual fuel savings of US$60 billion and reduced emissions of 384mt and 3.6mt respectively for $CO_2$ and $SO_2$ annually.

International Paint has supported the shipping industry with pioneering antifouling technology since the introduction of the first self-polishing copolymer (SPC) antifouling in 1974. Since then, its contribution to the fuel and emissions efficiency of the

global fleet has been hugely significant. In 1996 it introduced Intersleek 425, the first commercially available biocide-free foul release technology for fast craft and in 1999 introduced the revolutionary Intersleek 700 for deep sea, scheduled ships.

This 'Seatrade' Awards Winning and Queen's Awards winning, biocide free, silicone based technology works on a foul release basis by providing a very smooth, slippery, low friction surface onto which fouling organisms have difficulty attaching. Any which do attach, normally do so only weakly and can usually be easily removed. With proven average fuel savings of 4% and a corresponding reduction in emissions, Intersleek 700 has become firmly established as the industry benchmark in foul release technology.


In 2007, the company introduced the next generation of foul release technology, Intersleek 900. This is a new, unique patented biocide-free fluoropolymer foul release coating. Fluoropolymer chemistry represents the very latest advances in foul release technology, significantly improving upon the performance of the best silicone-based system, Intersleek 700.

Exceptionally smooth with unprecedented low levels of average hull roughness combined with excellent foul release capabilities and good resistance to mechanical damage means that for the very first time, all vessels above ten knots can now benefit from foul release technology e.g. bulk carriers, tankers, general cargo vessels and feeder containers. Intersleek 900 also provides excellent performance on high speed/high activity scheduled ships. The low surface roughness, good coefficient of friction and advanced surface energy characteristics improves fuel efficiency and reduces slime build-up on container vessels, reefers, LNG/LPG (liquefied natural gas/liequefied petroleum gas) carriers, cruise liners, ro-ros (roll-on/roll-offs) and vehicle carriers.

In terms of reduced $CO_2$ emissions and improved fuel efficiency, Intersleek 900 offers predicted savings of 2% in comparison with Intersleek 700 and 6%[3] in comparison with biocide containing SPC antifoulings, although in-service experience on a range of vessel types has shown savings considerably higher than this. The potential exists for even greater savings in comparison to controlled depletion antifoulings.

With a total foul release track record of over 300 ships burning some 11mt of fuel per year, a conservative estimate indicates that Intersleek technology is already delivering, in comparison to SPC antifoulings, reduced $CO_2$ emissions of almost 2mt per year.

Other benefits of Intersleek 900 include reduced paint consumption at the next docking, reduced risk of fouling during loading delays and enhanced corporate social responsibility through an improved environmental profile.

---

*1 Estimate based on 'Corbett J.J. and Koehler W.H. 2003 – Updated Emissions from Ocean Shipping'.*

*2 IMO 'Study of Greenhouse Gas Emissions from Ships' (The GHG Study), MEPC 45/8, 29th June 2000.*

*3 Depending on application and in service conditions.*