

## ■ Inerting of Ballast Tanks

International regulations require that cargo tanks of tankers be “inerted”. This means that the empty tank space (that space in the tank where the liquid cargo is not present) is filled with sufficient inert gas so as to be non-explosive. An inert gas suitable for almost all crude and petroleum products is one whose oxygen content is less than 11%. After the safety margin called for by regulations, the oxygen content of inert gas is in fact less than 5%.

This regulation does not apply to ballast tanks. However, there is a real risk of oil or gas leaking into the ballast spaces of a tanker through cracks or failure in the vessel's structure. It is widely accepted that sensors aimed at detecting traces of hydrocarbon in ballast tanks are not foolproof. One must ask, therefore, whether ballast spaces shouldn't also be inerted.

Another worrisome fact is the possibility of steel wastage through the corrosive action of the alternating presence of seawater and of a saline atmosphere in the ballast tanks of ships. These tanks are protected by a generous supply of sacrificial anodes and by high-spec epoxy-based coatings. However, the (cathodic) protection provided by anodes only works during ballast passages; most tankers spend most of their time carrying cargo with the result that their ballast tanks are exposed to an oxygen-rich saline atmosphere that is highly corrosive. Any breakdown in protective coatings gives rise to concentrated corrosive action in the affected area, with attendant eventual wastage and compromise to the vessel's structural integrity.

Hellespont's engineers have set out to solve these problems. In order to counter-act the risks mentioned above, they began experimenting with the use of a low-sulphur-content (double-scrubbed) inert gas in the ballast tanks of its mid-70's built tankers as they began experiencing breakdown in ballast tank coatings. The resulting empirical findings gathered on a number of vessels over several years, are that permanently inerting ballast tanks will cut corrosion to one-eighth the level of un-inerted ballast tanks.

The combination of operational safety and long-term corrosion reduction makes a compelling argument for the permanent inerting of ballast tanks. But there is a capital investment in making low-sulphur exhaust gas, in piping and in safety equipment for the ballast tanks, not to speak of the fuel required to produce the additional inert gas.