TECHNICAL LEAFLET IVR

BIOLOGICAL CORROSION

In recent years, an increasing number of cases of leaking engine rooms, caused by very local perforations of the ship's plating have been noted. This happened despite the recent class renewal in which bottom inspection and thickness measurements showed that the plating was sound. In these cases, investigation reveals that the water ingress is by very local corrosion perforations. It is an aggressive corrosion that starts at the inner side of the plating and that proceeds to the outside till a perforation occurs. Typically, these perforations are mainly crater shape with sloping sides while the plating surrounding the craters still measured its optimal, sound thickness.

While corrosion is a chemical process, in these cases, it is caused by microbiological activity. This form of corrosion is mostly found in engine rooms because these bacteria flourish in carbonaceous bilge water. It is just because they flourish in bilges that they are also difficult to detect. Bilges are hidden below the engine room floor plates and are mostly dirty.

This phenomenon is mostly seen in somewhat older ships. This kind of corrosions, starting from the inside, cannot be detected during a bottom survey from the outside. Finding one of these craters during random thickness measurements would therefore be pure coincidence. In the case of class renewals, it is also not common practice to clean the bilges thoroughly for inspection.

It is because of this hidden character that makes them so dangerous. The development of these perforations is sudden and unexpected and can lead to high consequential damage (flooded engine room, towage,…). It is advisable that on board of older ships older, the floor plates in the engine room periodically are removed (advisably once every 20 years) in order to allow the cleaning of the bilges with the pressure washer and to preserve the inside of the plates.