Copper-Nickel Boxcoolers have NO NEED for Coating and Anti-Fouling Anodes

We have recently learnt from customers in the marine sector, that some boxcoolers' manufacturers claiming they can supply Copper-Nickel Boxcoolers but these coolers are coated, and are delivered with anti-fouling anodes. This is misleading, and it should be correct to avoid confusion and to protect all of our interests.

One of the main reasons we use un-coated Copper-Nickel 90/10 tubes can be explained as below.

By looking at the materials' hand book for seawater applications, you can find that Copper-Nickel 90/10 is a natural anti-fouling material, and for this reason it is most often used for heat exchangers, tubes, and piping found in a sea water environment. One of the main reasons we use Copper Nickel 90-10 tubes on our Boxcooler units is that it keeps the tubes free from marine growth.

We do not need to apply a coating, or any additional anti-fouling equipment when using a Copper-Nickel 90/10 Boxcooler. In another words, we would be defeating the purpose of using Copper-Nickel 90/10 Boxcooler tubes, and creating a lot of extra cost for the coating and the anti-fouling Copper anode system, for no additional protection or gain to the Boxcooler.

If you are talking about a coating and anti-fouling anode being used on a Boxcooler, then the tubes' material can not be Copper-Nickel 90/10. As far as we know, the tubes, used on Boxcoolers with a coating, is Aluminium-Brass. Seawater is very corrosive, and damaging to Al-Brass material. Can you imagine what will happen to this type of coated coolers when the coating on the Al-Brass tubes is scratched, or damaged? The coolers will "disappear" completely in no time.

As for the anti-fouling copper anode, it must be used with each and every coated Al-Brass boxcooler. The reason they use the anti-fouling copper anode is that the coated Al-Brass boxcoolers are very prone to marine growth. You can image what will happen to the cooling efficiency of the engine when the coated Al-Brass boxcoolers are full of marine growth?

The suppliers of this type of coated coolers have given a big name to this anti-fouling Copper anode ie. Impressed Current Anti-Fouling System (in short, ICAF System). To shipyards and owners, it sounds like Impressed Current Cathodic Protection (in short, ICCP System), and may mislead people to believe that it is protecting the ships hull. In reality, its only purpose is to minimize (but not completely preventing) the marine growth on the coated coolers tubes inside the seachest.

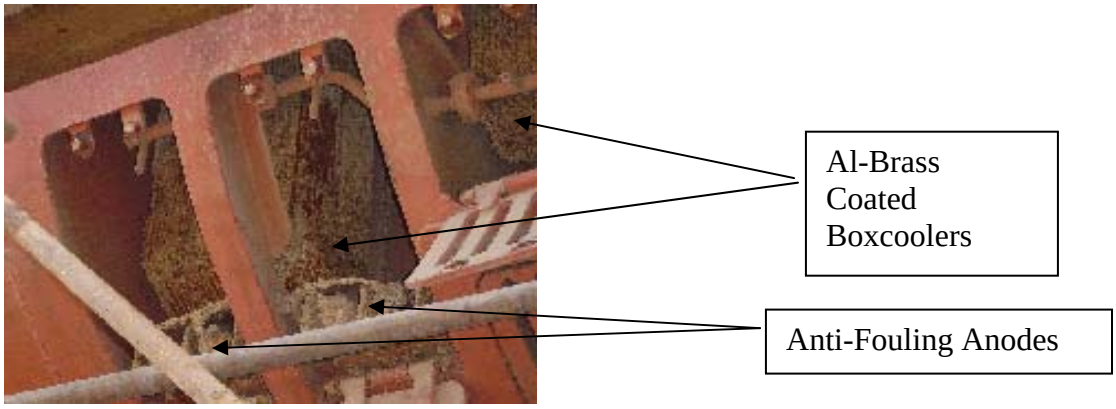
This anti fouling copper anode system; which is installed directly below the coolers, needs to have a power supply from the vessel to induce current into the Copper-anode to dissolve the Copper into the seawater inside the Boxcooler seachest. By doing this, it is making use of the properties of Copper to drive away the marine growth. But how effective can it be when the thermosyphon effect of the boxcooling is functioning (where the heated seawater with this copper-ions will circulate out of the boxchest)? Below,

please see photo showing Al-Brass coated coolers with ICAF System.
Also, please bear in mind that it is a high maintenance item, and costly for the owner to replace the Copper-anode. This is because docking of the vessel is needed for the replacement of this Copper-anode. The time for replacement depends very much on the dissolve rate of the Copper anode, and the size of Copper-anode as they are designed for only a certain number of years. Also, if the current flow to the Copper anode is set too high, the anode can disappear in a very short time frame.
Last but not least, it is not very environmentally friendly as it has been proven for years now that copper ions released into the sea water harm the marine growth and sea life. For this reason alone, we can no longer use copper based anti fouling paints on the ships hulls.

In conclusion, Copper-Nickel 90/10 is the best material for boxcoolers, and when used in conjunction with the patented Weka Guard, and Weka Protector Type "T" it is virtually Maintenance Free. - Compiled on: 19102006

<u>Below, are photographs taken during docking to show the result of using Copper-Nickel Boxcoolers, and Al-Brass Coated Boxcoolers with Anti-Fouling Anodes.</u>

Marine Growth on Al-Brass Coated Boxcoolers even with Anti-Fouling Anodes



Copper-Nickel 90/10 Boxcoolers