



# NEDERLANDSE RADIA TEUREN FABRIEK B.V.

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## Coated boxcoolers, why?

Some history,

The box coolers are invented in the early 1950's for inland vessels only. These coolers were made out of bare Aluminium Brass tubes. Due to the popularity, regarding low maintenance costs and cheap installation costs, these coolers became also popular for the fishing industry and small coastal vessels. There we faced the problem that seawater (which is a good electrical rectifier) caused sincere galvanic corrosion of the ships hull. (**Picture 3**). The only way to avoid that was to cover-up the Aluminium Brass cooler with an electric insulated coating.

This coating had in some areas a disadvantage; it is not toxic for animal growth s.a. barnacles and mussels. To avoid animal growth, NRF installs an anti fouling system (ICAF) that dissolves copper in the sea chest and that guarantees that the cooler maintain free from animal growth between the docking periods.

With this knowledge, and corrective measurements by means of coating the tube stack, NRF has build up in the last 50 years a name of quality and reliability.

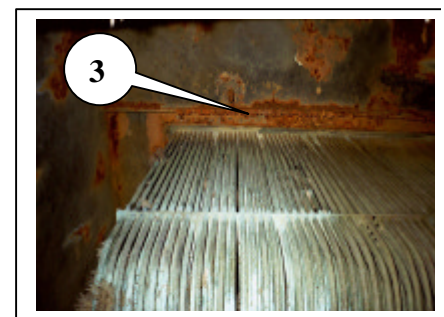
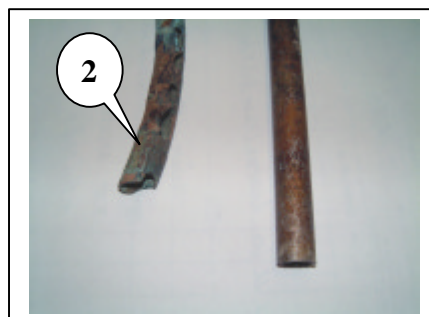
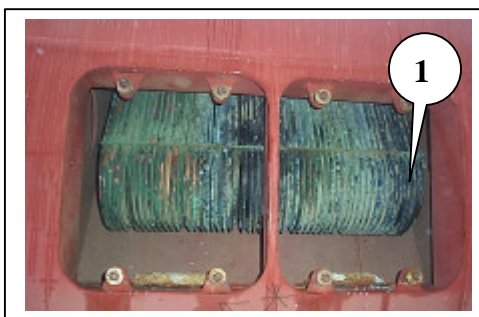
Some manufacturers claim that Copper/Nickel box coolers are the answer against fouling. Here we have the obligation as a world leader in manufacturing and designing of box coolers to warn you against damage that can occur as described above.

In case that Copper Nickel coolers are installed (electrically) insulated from the ships hull one should keep in mind that the cooler can be damaged due to stray currents and starts to work as an anode (dissolving of the Copper/Nickel tubes) (**Picture 1 & 2**)

**For no-one knows in what kind of environment the vessel will operate, damage on bare noble materials is a risk you cannot ignore !!!!!**

Not even protection devices s.a. 'CuNi protectors' or 'Controlled Drain Units'

For that reason NRF has decided, due to the many years of experience, not to sell uncoated box coolers for seawater applications unless the owner is prepared to bare all the risks as mentioned.



Marten Kelder  
Sales Manager Marine Division



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Coated boxcoolers, why?

## Are CuNi 90/10 boxcooler really fouling free ?



That's for you to decide.

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