

Corrosion problem

The metal components in the water cooling system are usually made of copper and aluminum. Therefore, the quality of the coolant as the contact medium will significantly affect the service life of the system; especially have great influence on metal protection. According to previous cases, coolant of bad quality leads to metal corrosion, even may cause clogged pipes, rust and coolant leakage which directly affect product life and the safety of customer property. As a result, Jingway focuses on this part and performs a series of enhanced experiments so as to achieve better results.



Examples of metal corrosion: Metal corrosion deposits tend to accumulate on the cold plate, a structure with naked metal and dense fins, as well as lead to clogged pipes, flow decrease and even malfunctions such as abnormal temperature rise of the machine.

Restrain potential difference and metal oxide reaction

Put copper and aluminum metal piece into other brand and Jingway CP series coolant. Perform oxidation experiment under the condition of normal temperature 50°C and carry out **more than 6 months** in order to observe the metal protection by different coolant.



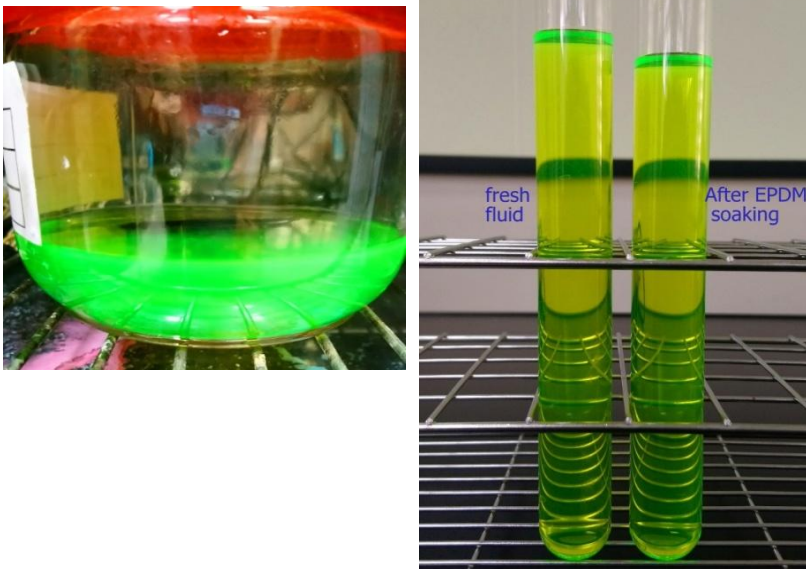
The metal piece after immersion test of other brand coolant obviously corroded and generate potential difference that cause a large amount of oxides adhering to the metal piece; in contrast with Jingway coolant, the result presented no obvious oxidation.



During the experiment, it can be found that other experimental groups had some problems such as crystals, blue discolorations of liquid (Metal ions led to oxidation color.), and so on; only Jingway coolant still remained clear and colorless.

EPDM immersion test

EPDM and FEP are the most commonly used hose for heat dissipation modules. In the test, EPDM was immersed at 65°C for 30 days. The results showed that the coolant and pipes did not change.



CP series material compatibility test

Material	test method	result
Cu	Immersion 88°C 336hr	good
Al	Immersion 88°C 336hr	good
SPCC	Immersion 88°C 336hr	good
Ni	Immersion 88°C 336hr	good
EPDM	Immersion 65°C 720hr	good

Thermal Conductivity

	Dowcal 30%	CP-10	Dowcal 40%	CP-20	Dowcal 50%	CP-40
W/mK at 25°C	0.446	0.7776	0.399	0.6562	0.356	0.5711

