CHAPTER 5

CONCLUSION

The test No.3 which used SHMP as scale inhibitor and AA/AMPS co-polymer as dispersant gave the best results in static test and model cooling tower simulation. The corrosion rate was controllable in limitation (mild steel < 5 mpy; copper/nickel < 0.2 mpy). It also decresed the scale problem.

Using SHMP and AA/AMPS co-polymer was the polyphosphate treatment program and the chemical for calcium phosphate scale prevention was AA/AMPS. The calcium phosphate precipitation was formed by calcium in cooling water with orthophosphate which decomposed as polyphosphate. So the limitation of polyphosphate treatment in open recirculating system was decreased. the system could be treated in high pH range and high alkalinity. The acid like sulfuric acid, was not necessary for pH adjustment for avoiding the calcium phosphate deposition. Furthermore, copper corrosion inhibitor was decreased or regardless because corrosion rate in pH controllable water was about 8.5-9.0, which was the lowest.

The consideration on the cost of SHMP and AA/AMPS co-polymer program was low when compared with the old treatment program (treated with oxidising biocide and non-oxidising biocide co-operated). The results of test No.3 was shown in Table 5.1.

Table 5.1 The chemical cost comparison in open recirculating treatment program

Program	Bath/m^3 make-up water			
	MM 1/2	MM 3	MM 4/5	MM 6/7
Existing Treatment Program	1.22	1.18	2.07	2.01
SHMP + AA/AMPS Treatment Program	0.79	0.76	1.07	1.26