



Titanium AOP - Case Study Cooling Towers University Hospital, Valencia, Spain.

The Titanium AOP System has achieved an enviable reputation across Europe for its success in the treatment of Cooling Tower water. On systems where biocide chemical dosing was once used customers now achieve higher levels of bacterial control using the Titanium AOP system. The system has also been scientifically tested at the Vitens Laboratories in the Netherlands where treating water with Titanium AOP showed a log 6 reduction in *Legionella Pneumophila*.

The University Hospital, Valencia in Spain was identified as the ideal site to test the AOP system. The challenging environmental conditions included high ambient temperatures, hard water, air pollution and high levels of dust. These factors produced cooling towers whose water recorded very high levels of bacterial counts. Over several years the hospital had used a number of different biocide chemicals to try and control the system, all of which failed and showed high Legionella counts - the perfect site to test performance of the Titanium AOP system.

The study was independently conducted by Ambientalys SL Consulting & Analysis; legionella consultants with a specialist legionella test laboratory in the region. They had also monitored the bacterial counts from the hospital's cooling towers over several years. The cooling tower system consisted of 3 forced draft cooling towers connected in series with a system water volume of 24m³. The cooling towers were fitted with an automatic chemical dosing that treated the water with biocide chemicals and an anticorrosion agent.

To conduct the test a single Titanium AOP20 (20m³/hr) was installed inline on the cooling water circulation loop to all 3 cooling towers.

Initially bacterial water testing was conducted over a 4 week period with the normal chemical dosing regime in place and the AOP switched off. A total of 60 water samples were taken for analysis with the results showing an average aerobic count of 99,000 cfu/ml.

The Titanium AOP system was then switched on and allowed to operate in parallel with the chemical dosing system for a further 2 week period. A further 60 water samples were taken during this period and these showed an average aerobic count of 4,500 cfu/ml.

At this point the chemical biocide dosing was stopped and the AOP system switched on. At this point the AOP system was the sole method of water disinfection for the 3 cooling towers. The cooling towers were then monitored over a 5 month period with 220 water samples taken. Over this period the water samples showed an average bacterial count of 1,400 cfu/ml.

The results clearly showed much improved performance with the Titanium AOP system. With the AOP20 installed the hospital reduced bacterial counts within their cooling towers by a massive 99%.

The Titanium AOP system offered the hospital a far better water treatment solution while at the same time giving a safer, chemical free and a more environmentally friendly system. In using the system the hospital also expect to make considerable savings in the overall running costs of the cooling towers with no chemicals being required.

The AOP field trial was so successful in proving the dramatic reductions in microbe concentrations in these tough conditions that the results were presented at the Fourth National Congress of Legionella and Air Quality, Spain in November 2010.



For further information on the Titanium AOP system and for a full copy of this test report or any other case studies please contact:



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