



Water Treatment Newsletter



Published Quarterly For The Benefit Of
The Water Treatment Chemical User

Volume 4

Spring 2001

Proper Cooling System Start-up Minimizes Problems, Costs

Experienced Facilities Managers, building engineers and cooling system operators are well aware of the benefits a well-designed and maintained cooling system water treatment program provides. They know that a good treatment program more than pays for itself in water, energy and equipment repair and replacement savings.

What many cooling system professionals fail to realize, however, is that even the best-designed and maintained treatment program can be undermined if correct procedures are not followed when the system is brought on-line following winter lay-up or other long-term (more than a week or two) storage.

At start-up, when a cooling system is first filled with water, the corrosion process will immediately begin on the unprotected metal throughout the system. Dirt and debris that may have accumulated in the system during the lay-up period can aggravate this situation by providing sites where under-deposit corrosion can occur.

Conditions in the system when it is initially filled with water can be ideal for the growth and proliferation of bacteria and other micro-organisms. Accumulations of dirt and debris, along with spills of oils and greases used to lubricate tower fans and other components provide nutrients and serve as locations for the initial formation of biofilms. This will frequently lead to fouling of condenser tubes and other water-side surfaces, and can result in microbiologically induced corrosion.

If microbiological growth and/or corrosion are allowed to gain a foothold during system start-up, a great deal of time, effort and money will be spent during normal system operation in correcting

these conditions. Cooling system engineers can save themselves this time and expense, and at the same time prevent what could be severe damage to their system by following these steps when starting up their cooling system:

1. Physically remove accumulated dirt and debris. Flush with fresh water to drain.
2. Refill system with fresh water and add twice the normal level of corrosion inhibitor; circulate for 48 hours. If possible, use a special product designed specifically for pre-filming the system.
3. If the system is operated intermittently or sporadically, make certain that biocides are added and circulated for at least two hours on a weekly basis.
4. Initially operate the system at lower-than-normal cycles of concentration to prevent deposition of foulants during times when system is off-line. Depending on conditions, it may be advisable to add a dispersant to keep particulate matter in suspension.
5. If at all possible, try not to drain system piping once filled. If the system is drained, surface corrosion will begin; flushing and pre-filming will need to be completed again. By following these procedures, the cooling system operator will save himself time and trouble, and save his company money in the operation of their cooling system.

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