Minimize & Mitigate Bio Growth in Closed Cooling Water Systems

Challenge:

- Biofilm formation in cooling water systems, particularly Tempered Cooling Water (TCW) loops, causing reduced heat transfer, clogged hydraulic systems, and increased energy consumption, leading to unscheduled maintenance and production disruptions.

Objective:

- To provide sustainable and integrated solutions combining bacterial removal techniques with surface treatment strategies to prevent biofilm adhesion, targeting biofouling and microbial-induced corrosion (MIC).

Insights:

- Identified limitations of conventional biocidal treatments due to microbial resistance.
- Proposed combined strategies including bacterial removal and preventive surface treatments.
- Addressed operational concerns by enhancing equipment lifespan and reducing chemical reliance.

Impact:

- Enhanced operational efficiency and reliability through sustainable biofilm management.
- Promoted sustainable industrial practices aligned with Oman Vision 2040 by reducing chemical use and improving efficiency in cooling systems.

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